

### A STUDY OF PATIENT PATHWAYS IN ALCOHOL AND OTHER DRUG TREATMENT

#### **Patient Pathways National Project**

Lubman, D., Manning, V., Best, D., Berends, L., Mugavin, J., Lloyd, B., Lam, T., Garfield, J., Buykx, P., Matthews, S., Larner, A., Gao, C., Allsop, S., Room, R.

**Final report** 

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## List of acronyms

Acronyms	Descriptions
ADIS	Alcohol and Drug Information System
AOD	Alcohol and Other Drug
AODTS-NMDS	Alcohol and Other Drug Treatment Services National Minimum Data Set
AUDIT	Alcohol Use Disorders Identification Test
ВТІ	Barriers to Treatment Inventory
CAI	Community Assessment Inventory
DH	Department of Health (Victoria)
DISC-12	Discrimination and Stigma Scale
DOC	Drug of concern
ED	Emergency Department
GP	General Practitioner
GO	Government Organisation
IQR	Inter quartile range
PDOC	Primary drug of concern
PIT	Primary index treatment
MSPSS	Multidimensional Scale of Perceived Social Support
NDRI	National Drug Research Institute
NGO	Non-Government Organisation
SDS	Severity of Dependence Scale
TCU- CEST-Intake	Texas Christian University-Client Evaluation of Self and Treatment Intake-Version
VAED	Victorian Admitted Episodes Dataset
VDL	Victorian Data Linkages Unit
VEMD	Victorian Emergency Minimum Dataset
WHOQOL-BREF	World Health Organization Quality of Life (Brief version)
SLK	Statistical linkage key
SUD	Substance use disorder

## **Executive summary**

#### Background

There is now a substantial evidence base indicating that once in addiction treatment, many individuals with alcohol and drug dependence improve. However, questions remain around what combination of service use is associated with these improvements and how systems can be configured to optimise and maintain positive treatment outcomes. The literature on treatment effectiveness to date is limited in that outcome studies typically describe the response to an isolated episode of care within a particular treatment modality (e.g., inpatient detoxification), which represents only a fraction of the overall treatment episode. In addition, while Australian outcome studies typically involve participants using major illicit drugs (heroin, amphetamines), there has been no cohort study of alcohol and cannabis users in Australia, despite these being the most commonly abused substances and the two most frequent primary drugs of concern among the 659 publicly funded alcohol and other drug (AOD) treatment services across Australia (AIHW, 2013), accounting for 70% of treatment episodes in 2009-10 (48% alcohol and 23% cannabis) (AIHW, 2011). Whilst there is increasing recognition that specialist AOD services are merely one component of a larger interconnected system which includes health and welfare services, the extent of inter- and intra-sectorial linkage and the resulting pathways of care for clients accessing AOD specialist services remain poorly understood. Nevertheless, Babor et al. (2008; 2010) suggest that the cumulative impact of engaging with AOD services and non-specialist AOD services in the community should translate into population health benefits, such as reduced mortality, morbidity, disability, suicide, crime, unemployment and healthcare costs.

#### **Study Rationale**

There have been a number of international outcome studies in the addictions field although only two in Australia – each focused on a particular class of substances. While all of the major outcome studies have shown positive benefits for treatment, Patient Pathways is a unique study in that;

- It includes both alcohol and illicit drug use
- Its focus is on treatment systems and pathways through specialist and linked services, rather than focusing exclusively on the client AOD treatment journey
- It includes not only a large cohort follow-up study (with quantitative and qualitative components), but also a linked analysis of acute harms based on data from AOD treatment engagement, emergency departments and hospital admissions

The rationale for the Patient Pathways study was based on the recognition that clients present with complex life problems as well as their alcohol and/or drug dependence, and are often engaged in a diverse range of professional supports and services. The Pathways study attempted to map and measure the systems within which individuals attempted to navigate their way through such inter-linking services, their experiences of services and the changes in behaviours and social capital that resulted, as well as the impact of treatment on utilisation of acute health resources.

The design was unique in combining a diverse range of research methodologies and approaches to produce a coherent model of treatment experience and navigation. The findings from each of the components of this work are described individually prior to a

description of the integrated emerging themes and the resulting recommendations from this work.

#### **Priority 1: Findings from the System Description**

The investigation of AOD treatment systems in each state and territory involved a documentary analysis supported by key stakeholder interviews with a diverse range of policy makers. These individuals subsequently participated in reviewing the initial analysis of their own jurisdictional findings, providing invaluable context to the work conducted. The analysis showed important commonalities as well as areas of difference across jurisdictions, with broad principles articulated in most relevant strategic policy documents. In essence, most systems strive to provide accessible, client-centred services that deliver evidence-based treatment within a harm-reduction framework. There is also a general aspiration that specialist services are one part of a larger interconnected system integrating with other health and welfare services.

Assessment, counselling and withdrawal are the central components of the treatment system in many jurisdictions, although there is considerable variability in treatment utilised across the country. While some client characteristics are relatively homogenous across jurisdictions (e.g. gender, age, country of birth), there is considerable heterogeneity in terms of Indigenous status, primary drug of concern and referral source, although it is not clear that system variations are a direct response to differences in presenting populations or profiles. The review revealed diversity of models of service provision across Australia, and limitations in capacity for demand modelling or mapping the effectiveness of aspects of the treatment system.

There is apparent commitment in all states and territories to monitoring and accountability, although the mechanisms in place vary by jurisdiction and it is an area for ongoing development. There is clear support for ensuring AOD service systems that are accessible and responsive to the needs of clients. Further, ensuring adequate care pathways is an objective in many states and territories, although the challenges in achieving this are widely recognised, as are the attempts to integrate effectively with linked services, such as primary care, mental health, criminal justice, housing and social services.

Given the policy emphasis on accessible and interconnected service systems in most jurisdictions, it is not clear from the evidence gathered through the document review and consultation processes how well integrated existing AOD systems currently are, or what mechanisms exist for evaluating this. This links to the perceived omission around formal mechanisms for demand modelling and for mapping addiction and treatment careers. Key findings from this work have already been used by the Drug Policy Modelling Program (DPMP), at the University of New South Wales, to inform a Commonwealth funded review of the AOD treatment service sector.

#### Priority 2 – Part 1: Treatment cohort outcomes study

In total, 796 clients were recruited between January 2012 and January 2013 from 20 AOD specialist services in Victoria (VIC) and Western Australia (WA), of which 29% were in long-term residential treatment, 44% in acute withdrawal services, and 27% in outpatient delivered treatment. The cohort was predominantly male (62%), Australian-born (80%), with English as their first language (95%) and had a median age of 35.9 years. At baseline, the primary drug of concern (PDOC) was alcohol (47%); cannabis (15%); meth/amphetamine (20%); opioids (15%); and other drugs (3%). Almost all participants (99%) had addiction severity scores in the 'probable dependence' range. In addition to severe AOD problems,

the cohort had multiple life complexities. Fewer than 20% were currently married or in a de facto relationship, fewer than one-third had participated in paid employment in the previous 90 days, most (84%) were in receipt of government benefits, more than one-quarter had been homeless in the past 90 days, and more than half reported having chronic medical problems. Most had been heavily engaged in multiple AOD services and community services in the year prior to their primary index treatment (PIT) when recruited to the study. In summary, this was a complex sample of participants experiencing a broad range of chronic health and wellbeing problems, who were engaged with multiple services, the majority of whom were previous users of specialist AOD treatment.

**Follow-up Results:** Follow-up interviews were completed by 555 (70%) of the baseline participants approximately one year later (mean = 380.3 days). The one-year outcome data suggested that treatment was effective. More than half (53%) were 'treatment successes' defined as being either abstinent from their PDOC or having reduced the frequency of non-prescribed use of the PDOC by more than 50%, with 38% abstinent from their primary drug of choice in the month prior to the follow-up interview. Quality of life in the physical, psychological, social and environmental domains also improved significantly between baseline and follow-up, though mean scores remained below Australian norms and there were high rates of ongoing involvement with specialist AOD and with other services at the one-year follow-up.

Rates of abstinence from the PDOC during the 30 days prior to follow-up were significantly higher among participants whose PIT was long-term residential treatment (56%), as compared to outpatients (33%) and acute withdrawal (30%). Participants who had been in residential rehabilitation at any point in either the year preceding their PIT or the year following had significantly greater rates of abstinence at follow-up. Abstinence rates in the past month were highest when the PDOC was meth/amphetamine (61%), followed by opioids (45%); cannabis (34%) and lowest for alcohol (28%). Fourteen percent of the sample reported complete abstinence from their PDOC throughout the entire follow-up year, and this was highest when the primary drug was meth/amphetamine (26%, a rate markedly higher than reported in the MATES cohort study in 2012). Taking a conservative estimate and assuming all participants who withdrew or were lost to follow-up were still using their PDOC, the rate of treatment success in the entire baseline sample (excluding those known to be deceased or incarcerated at follow-up) was 38% with 27% abstinent from their PDOC in the 30 days prior to follow-up.

Predictors of treatment success (achieving abstinence or at least 50% reduced consumption of PDOC) were examined. Significant predictors were completion of the PIT, mutual aid attendance<sup>1</sup> post-PIT and being born outside of Australia. Significant predictors of treatment failures were having alcohol as the PDOC and having a longer interval between baseline and follow-up. With respect to abstinence, a similar pattern was found whereby, significant predictors of abstinence were opioids and meth/amphetamine as PDOC relative to alcohol, residential rehabilitation as the PIT and use of community services as well as PIT completion and mutual aid. There was also a dose-effect of mutual aid attendance whereby more frequent attendance generated greater benefit.

<sup>&</sup>lt;sup>1</sup> Mutual aid refers to peer-support groups where people with similar experiences help each other to manage or overcome issues and build a network of support. The most commonly attended mutual aid groups were Alcoholics Anonymous, Narcotics Anonymous, other 12-step meetings, SMART recovery or other recovery groups.

Almost three-quarters engaged in further specialist AOD treatment after their index treatment. Rates of mutual aid engagement in the year following the baseline interview increased significantly relative to pre-baseline rates (with 49% attending meetings). Acute medical service use (having had an ambulance call out, ED admission or inpatient hospital admission) decreased significantly, though remained high (with 51% having used at least one of these services at least once during the follow-up period). Community service use remained high with 94% reporting GP visits, 35% attending mental health services, 40% attending employment services, and 21% attending housing services in the follow-up year.

Neither continuity in AOD specialist treatment nor community service engagement with services meeting baseline presenting needs (in homelessness, unemployment, or poor psychological health) were significant predictors of outcome. The strongest and most consistent predictors of abstinence or treatment success were completion of the PIT and mutual aid attendance in the year following their PIT. The extent to which participants received an optimal care pathway (defined by PIT completion, continuity of AOD treatment, engagement in community services, having no unmet needs, and mutual aid attendance) did predict abstinence from their PDOC at follow-up, with a significantly higher likelihood of being abstinent with more optimal care pathways for alcohol but not drug participants.

For participants who stated at baseline that abstinence was their primary treatment objective, and this was the majority of participants in all three treatment modalities studied, the factors most strongly associated with success were completion of the index treatment, having a treatment journey that included residential rehabilitation and engagement in mutual aid groups (with greater mutual aid attendance associated with better outcomes). The most notable finding was that the outcomes were most positive when the PDOC was meth/amphetamine, which is important as it is considered a national concern due to its relative accessibility, affordability and damaging side-effects (Australian Crime Commission, 2014). However outcomes were markedly worse when the PDOC was alcohol.

After weighting the data so that the Patient Pathways cohort were representative of the broader treatment seeking population accessing AOD specialist services in Victoria and WA during 2011/12 (using data from AIHW 2013), there were few changes to the findings. Abstinence and treatment success rates were only marginally reduced and weighted data confirmed PIT completion, mutual aid attendance, meth/amphetamines and opioids (relative to alcohol) as significant predictors of these outcomes. With weighted data, community service use was a significant predictor of treatment success and the finding of significantly higher rates of abstinence among those who received any residential rehabilitation during the two year study period was also confirmed.

#### Priority 2 – Part 2: Qualitative data

A total of 41 in-depth follow-up interviews were conducted with participants from the cohort study. The qualitative interviews explored the individual's route into treatment, their pathways through specialist and other linked services, their experiences of the treatment pathway and their current wellbeing. As demonstrated in the quantitative data, there was considerable ongoing involvement with a range of services, but there was increased emphasis on the role of care coordination. For participants who had not received this support, service systems were seen as complex and hard to navigate, in spite of most participants having significant previous treatment experience. There was a clear need for multiple service involvement as most participants described a diverse range of complex needs that required significant support and input.

For this reason, a dominant theme in the qualitative analysis was around navigation and the need for suitable care coordination and aftercare, particularly in the periods after completion of acute care. Where participants did receive appropriate follow-up (even in the form of telephone calls), this was regarded as welcome and beneficial. This was particularly important for individuals who did not have strong family support or other forms of social capital, and only some of the sample reported willingness to engage in mutual aid on an ongoing basis. Access to continuing and integrated care was also limited by practical factors including geographical access, long waiting lists (particularly for residential rehabilitation) and lack of availability of services, but also on occasion by negative attitudes held by staff. In identifying areas for development, participants in the qualitative interviews identified core areas around integrated care including better training in holistic approaches and a stronger commitment to inter-agency partnership. The clear and dominant theme from the qualitative interviews was the need for support around system navigation and the perceived limitations of the workforce in meeting that need.

#### Priority 3: Findings from the linkage data

Overall, decreases in acute service utilisation across emergency department (ED) and hospital inpatient settings were evident in the year following treatment engagement. These reductions were found across most participant demographic characteristics, treatment types and drug use characteristics. ED presentations and hospital admissions with an acute alcohol-related or other drug-related diagnosis decreased in the year following treatment engagement, as did presentations and admissions for a non-AOD-related condition, indicating improvements in both general health and also the experience of acute drugrelated harm, such as severe intoxication or overdose. Injury presentations and admissions also decreased following treatment engagement, with larger reductions evident for participants who had been engaged in residential rehabilitation in their index year of treatment. There was stability in ED presentations and hospital admissions in the year prior to and the year following treatment engagement for alcohol-related chronic conditions, which reflects the long-term impacts (both morbidity and mortality) of heavy alcohol consumption even following treatment and reduction or cessation of alcohol use. The data for the overall Victorian AOD treatment cohort demonstrating significant reductions in emergency department presentations in the year following engagement in AOD treatment suggest economic savings resulting from treatment engagement.

Among the four subpopulations of AOD clients identified in terms of who presented with the key risk factors of (i) polydrug use on entry to AOD treatment, (ii) recent injecting drug use history, (iii) homeless status on entry into treatment, and (iv) forensic status on entry into treatment, overall reductions in ED and hospital utilisation were found following treatment engagement. This suggests that the effects of treatment on improving health and wellbeing, and reducing health system costs are sustained for patients presenting at higher risk of potential harm than the general AOD treatment population. It is important to acknowledge that there were varying levels of reduction of ED and hospital utilisation across these groups when specific treatment, drug use and sociodemographic characteristics were examined, which offers opportunities for consideration of targeted approaches to identify and respond to risk for specific groups within these higher risk populations (see Supplementary Linkage Component Report).

#### Conclusion

Patient Pathways is the largest and most ambitious research program on treatment systems and pathways undertaken in Australia and the construction of which means its findings are

of international significance. Embedded in an analysis of system variations across Australia, the Pathways results demonstrate that AOD treatment clients present with complex and ongoing needs across multiple agencies and domains, whose chronicity requires a coordination within and across professional sectors that is not always perceived to be achieved.

In spite of this, there were clear and significant improvements in the sample in use of acute health services, in self-reported wellbeing and quality of life, alongside marked reductions in substance use. Most participants named abstinence as their primary treatment objective and this was achieved in the month prior to follow-up by 37% of the retained sample. The strongest treatment predictors of abstinence were completion of the index treatment, a treatment journey including residential rehabilitation and involvement with mutual aid groups. The study showed particularly positive results for primary meth/amphetamine users. The study confirms the international perception that the journey for anyone with AOD problems is protracted and characterised by multiple episodes of care. There are significant policy and practice implications from this work as outlined below which align with the following quote from the book Drug Policy and the Public Good (Babor et al, 2010, p. 248)

'Policymakers who focus only on decisions about individual service programmes will usually find that they have limited impact on the outcomes they wish to produce. In contrast, policymakers who think and act at a systems level, and do so in light of the emerging evidence based on the nature and impact of systems, have a much greater likelihood of making a significant contribution to ameliorating drug problems at both the individual and population level'.

#### Recommendations

#### Recommendations for promoting treatment and supporting best practice

- 1) Promote the importance and benefit of accessing AOD treatment and strengthen pathways into treatment. Findings from the client survey, qualitative and linkage data illustrate that engagement with AOD treatment significantly reduces problematic substance use, improves quality of life, and reduces utilisation of acute health services. These findings are critically important for promoting clinician and client confidence. Such evidence is also important for inspiring greater optimism about the value of treatment and recovery<sup>2</sup> prognoses for affected families and communities, as well as key linked professions and services, such as housing, justice and mental health.
- (a) Promote workforce models that enhance rates of treatment completion. Given that treatment completion was a robust predictor of client outcomes, emphasis should be placed on promoting ways of building and maintaining the therapeutic alliance. This should include encouraging active client participation in care planning

<sup>&</sup>lt;sup>2</sup> The term recovery as used in this report is based on work conducted by the UK Drug Policy Commission, which defined recovery as 'voluntarily sustained control over substance use which maximises health and wellbeing, and participation in rights, roles and participation in society'. Controlled use in this context 'means 'comfortable and sustained freedom from compulsion to use'. For some this may mean abstinence, for others it may mean abstinence supported by prescribed medication and for others consistently moderate use of some substances (UKDPC, 2008, pp. 5-6).

and review, and embedding supervision and quality assurance processes that support effective client engagement and retention in treatment.

(b) Consider structural changes to service delivery that enhance treatment completion and address barriers to help-seeking (e.g., services offered outside business hours, telephone support, etc.). Such approaches would address common barriers to treatment identified in the qualitative interviews.

#### Recommendations for continuity of care

- 3) Promote continuity of care. Clients frequently present with complex and severe problems, and with previous experience of the treatment system. However, most funding systems currently focus on discrete, activity-based episodes of care, with little investment in structures to support continuity of care across treatment modalities and over time. In the light of the recently completed review of the AOD treatment service sector (DPMP, 2014)', it is timely to consider funding models that promote continuity and service integration. Funding models should accommodate and promote treatment journeys that involve multiple treatment modalities and greater linkage to follow-up care.
- 4) Encourage services to engage in assertive follow-up of clients. Supported by the qualitative data, assertive follow-up of clients following treatment promotes continuity and re-engagement with the treatment system when needed. Examples could include introducing a routine telephone follow-up call 4-8 weeks after completing a treatment episode.

#### Recommendation for accessibility of long-term residential care

5) Increase availability of rehabilitation places and reduce the waiting list for long-term residential care. Given the evidence from both the client survey and linkage data that better outcomes are achieved among those receiving long-term residential care, it is crucial that funders and specialist service providers recognise the critical role that rehabilitative services play in a comprehensive specialist treatment system, particularly for individuals who have greater levels of complexity. The qualitative findings indicate that long waiting times for access to residential treatment are a key barrier to treatment engagement. It is imperative that such unmet needs are addressed, and that the benefits of residential rehabilitation are promoted among clinicians and clients.

#### Recommendation for care coordination

6) Support care coordination. Linked to the issue of continuity of care, and identified as a key theme in the qualitative interviews, was limited availability of care coordination. Our findings highlight the importance of supporting complex clients effectively transition through the AOD treatment system and engage with relevant health and welfare services when needed, so as to enhance treatment retention and completion. While this role could be performed within agencies, there are opportunities to explore low-cost options such as telephone and online support, provided in every jurisdiction, to assist in both coordinating care and providing a vehicle for long-term engagement and follow-up.

#### Recommendation for promotion of aftercare and mutual aid/peer support

7) Specialist AOD services should develop and promote interventions and pathways to aftercare such as supportive community groups, including but not restricted to

mutual aid groups. This could include assertive linkage to peer support groups, such as 12-step and SMART Recovery, using readily available and evidenced-based models that improve engagement with mutual aid (such as the MAAEZ model developed by Kaskutas and colleagues in the US). Being free and widely available (including online meetings), such support groups can be cost-effective models of aftercare, at least for some clients. Previous research has shown that such approaches require workforce training to support staff to make these initial connections and to develop relationships with mutual aid groups.

#### Recommendations for treatment intensity and pathways tailored to client characteristics

- 8) Improve continuity of care and optimal care pathways for alcohol-dependent clients. Clients with a primary alcohol problem were less likely to have good outcomes across all arms of the study, yet benefited the most from having optimal care pathways. This suggests more intense treatment is likely to be required for these clients, but also that achieving change is more challenging in a context of high alcohol availability and acceptability. As much as possible, clients should be encouraged to continue engaging in on-going AOD treatment after completion of a treatment episode, make use of appropriate community services and receive ongoing support and aftercare (e.g., mutual aid attendance). Efforts to enhance retention and early re-engagement for those who drop out of treatment are likely to improve outcomes with this population, and should be piloted. Investment in public health/community based approaches to reduce consumption and availability also warrant continued investigation so as to support individuals adversely affected by alcohol to reduce their drinking, as well as reducing and preventing alcohol-related problems across the community.
- 9) Develop mechanisms for the assertive engagement of individuals with problematic meth/amphetamine use into treatment. The positive treatment outcomes achieved in this population, combined with the significant community harms accrued by those not in treatment suggests that this group should be actively engaged in treatment. This should include enhancing pathways to treatment through promoting referrals from agencies where these clients typically present (e.g. mental health, primary care and criminal justice services).

#### Recommendations for future research

- 10) Extend the use of linkage data, as piloted in Chapter 4. As the 'Tracking Residential Addiction Clients for Effectiveness Research (TRACER)' study in the UK has shown, gaining client consent for ongoing linkage work allows the mapping of long-term outcomes while requiring only limited resources, and is an important adjunct to treatment outcome research. Such data are essential for sophisticated outcome monitoring, system planning and mapping of health care and welfare service utilisation to clinical outcomes
- 11) Add a health economics dimension to such linkage studies. The linkage data offer an ideal platform for a health economics analysis of the savings associated with treatment engagement and completion by treatment type. The linkage data presented here demonstrate significant benefits in reduced acute health care utilisation, and it would be a key next step to assess its economic impact using both linkage and self-reported outcome data.
- 12) Explore longer-term outcomes and pathways following AOD treatment. Given international research highlighting the broader benefits of treatment over time (up

to 9 years), it is important that a further wave of follow-up is conducted to effectively measure the full impact of treatment pathways and map trajectories of recovery. Such work is particularly relevant here given that the majority of clients were still engaged with treatment services at the one year follow-up, and the full benefits of treatment engagement are unlikely to have been fully realised.

13) Ongoing investment in treatment systems research. The present study highlights the importance of treatment systems research that considers the effectiveness of the AOD service sector itself, as well as being an integral component of a broader health and welfare system. Such studies are needed to complement the already well-established tradition of controlled studies of particular treatment modalities, which by design tell us little about the influence of context (e.g., setting, funding, workforce) and implementation challenges. Further investment in treatment system research is essential for informing the design of the Australian AOD sector, and identifying the strengths and weaknesses of particular models of care. One opportunity that exists, but is as yet unexplored, is comparing the existing jurisdictional differences in the configuration of the AOD treatment system to inform the most effective system design at a national level. Further research is also needed on how best to support the broader health and welfare system in enhancing client outcomes and reducing societal costs.

## **1** Introduction and overview

This report summarises a major program of work undertaken by Turning Point in partnership with the National Drug Research Institute (NDRI), and Monash University and is part of a larger program of alcohol and other drug (AOD) research funded by the Commonwealth. It is part of a wider program of research funded by the Commonwealth Government that includes:

- The development of a quality framework for funded specialist AOD services (also a consortium project led by Turning Point)
- A review of AOD treatment services and underpinning funding arrangements (undertaken by DPMP)
- A review of workforce development processes and practices (undertaken by NCETA).

#### Extent of the problem and help seeking

Alcohol and drug misuse is a significant issue for Australia. According to the 2010 National Drug Strategy Household Survey (AIHW, 2011), one in five (20.1%) Australians consumed alcohol at levels that put them at risk of harm over their lifetime (more than two standard drinks a day on average), with 28.4% drinking at least once a month at levels that put them at risk of accident or injury (more than 4 standard drinks in a session). Recent illicit drug use (past year) was reported by 14.7% of those aged 14 and above, including cannabis (10.3%), pharmaceuticals for non-medical purposes (4.2%), ecstasy (3%), amphetamines (2.1%), cocaine (2.1%), hallucinogens (1.4%), and with heroin used by 0.2% in the last 12 months.

In 2007, the National Survey of Mental Health and Wellbeing showed that one in 20 Australians (5.1%) met the criteria for a substance use disorder, including more than one tenth (12.7%) of those aged 16-24 years (Reavley et al., 2010). The most recent analysis of burden of disease for Australia, in 2003, showed that alcohol accounted for 3.3% of the burden of disease, while 2% was attributed to illicit drug use (Begg et al., 2007). This burden is significantly reduced when individuals with alcohol or drug problems engage in specialist AOD treatment (Teesson et al. 2008; McKetin et al 2012; Gossop et al 2000; Donmall et al, 2009).

A report by the Australian Institute of Health and Welfare (2013) indicates that a total of 659 AOD agencies provided 153,668 episodes of treatment that were closed in 2011–12, of which two-thirds (68%) were for male clients. More than three-quarters (78%) of closed episodes ended within three months, more than half (53%) ended within one month, one-fifth (21%) ended within one day and only one in 11 (9%) lasted six months or longer. Alcohol was the most common principal drug of concern (46%), followed by cannabis (22%), amphetamines (11%) and heroin (9%), though in 4 out of 5 (81%) closed episodes, the client reported additional drugs of concern. Of these, 34% reported one additional drug and 24% reported two. Nicotine (21%) was the second most common additional drug after cannabis (22%), but it was the principal drug for only 1% of episodes.

Alcohol was the most common principal drug of concern in all states and territories and cannabis the second in all states and territories except South Australia, where amphetamines were more common. Counselling was the most common type of treatment in 43% of episodes. Withdrawal management and assessment only were also common: withdrawal management was a treatment type in 18% of episodes and the main treatment type in 17%, while assessment only was the main treatment type in 14% of episodes.

Alcohol was the most common principal drug for most treatment types, although cannabis (50%) was the most common principal drug in episodes among services providing information and education only. Nationally, the most common source of referral for clients receiving treatment for their own drug use in 2011–12 was self or family (41%), in all states and territories except South Australia. The report provides a breakdown of service use by states and territories. Whilst the median length of episodes of care nationally was 26 days, Victoria had the highest median length of episodes of care at 38 days and South Australia the shortest at just 8 days; the proportion of episodes of care that closed within three months ranged from 72% in Queensland to 81% in Victoria.

Victoria: Among the two states that are the focus of the current project, Victorian AOD agencies provided 50,004 episodes of treatment that were closed in 2011-12, of whom almost two-thirds (66%) were male. Similarly, 66% of the 17,403 episodes of care provided by AOD agencies in Western Australia were for males. In Victoria, alcohol was the most common principal drug of concern (45%), followed by cannabis (23%), heroin (12%) and amphetamines (10%). When taking into account both principal and additional drugs of concern, alcohol was still the most common substance, accounting for 66% of episodes, whilst cannabis (49%) and amphetamines (26%) were also high.

Western Australia: Alcohol was the most common principal drug of concern in WA, accounting for 43% of episodes, followed by cannabis (21%), amphetamines (18%) and heroin (8%). Again, when taking into account both principal and additional drugs of concern, alcohol was still the most common (65%), followed by cannabis (43%), amphetamines (34%) and nicotine (30%). Similar to the national average, counselling was the most common type of primary treatment in Victoria, accounting for 54% of closed episodes, followed by withdrawal management (21%) and support and case management only (12%). Similarly, in WA counselling was again the most common type of main treatment, but accounted for a higher proportion (60%) of the main treatment types than in Victoria, and nationally. Withdrawal management was also the second highest main treatment type in WA (14%).

#### Multiple and complex needs of AOD clients

Individuals presenting to public AOD services are highly marginalised and typically present with multiple, severe and complex problems. In addition to substance use disorders, AOD service users frequently experience unemployment, homelessness, physical and mental health comorbidity, criminal justice involvement, social exclusion and related adversity (Laudet and White, 2010; Hesse et al., 2007; Department of Health, 2012; VAGO, 2011). As a consequence, they place heavy demands on the healthcare system, in particular acute medical services such as presentations to emergency departments, ambulance call-outs, and inpatient admissions (Parthasarathy et al., 2001; 2003; Parthasarathy and Weisner 2005, Lloyd et al., 2013).

The chronic, relapsing nature of alcohol and drug addiction is characterised by cycles of treatment, recovery, relapse, and repeated treatments (Scott et al., 2005; Dennis and Scott, 2007). However AOD treatment is often episodic, fragmented, delivered in isolation and structured to provide episodes of care rather than a continuing and integrated program of care (O'Brien and McLellan, 1996) that matched client need to intervention. This fragmented approach is particularly salient in the context of residential treatment, which targets the most complex and severely affected individuals, and where continuity of care is regarded as essential (Popovici et al., 2008).

A study conducted more than 20 years ago showed that clients receiving the most intensive packages of care (including regular plus onsite medical, psychiatric, family and employment

counselling) during methadone maintenance treatment achieved the best outcomes (McLellan et al., 1993). However, whilst exposure to treatment is an important factor, increasing the dose of any one treatment modality alone does not improve clinical outcome. There is increasing recognition that substance use disorders, like other chronic health problems such as diabetes, asthma, schizophrenia etc., are best managed by ongoing monitoring and extended services than by an acute treatment approach (McLellan et al., 2000; Lorig et al., 1999; Bodenheimer et al., 2002, Dennis et al., 2007).

The multiple and disparate needs of AOD clients must be met through a comprehensive package of care that integrates specialist AOD treatment with non-specialist services supporting recovery and community reintegration through housing, employment and family support (Hesse et al., 2007). However, we know little about the extent and usefulness of service utilisation in other parts of health and welfare since this is seldom captured in treatment outcome studies of AOD clients. The mismatch between client severity and treatment intensity, as well as the mismatch between client complexity and extensity and service integration, results in serial episodes of acute care as they encounter crisis situations whilst cycling in and out of AOD treatment, resulting in a significantly higher cost to society (AIHW, 2013).

These issues have been identified in government documents both at federal and state levels. A 2011 Victorian Auditor-General's report criticises the AOD sector for its failure to meaningfully integrate with non-specialist services and for inadequate pathways through specialist treatment (Victorian Auditor-General, 2011). Within the National Drug Strategy for Australia 2010-2015 (Commonwealth Government, 2011), under the demand reduction pillar, objective 3 is to support people to recover from dependence and reconnect with the community, recognising that support for longer-term recovery after treatment is most effective when the individual's needs are placed at the centre of their care and treatment. It highlights the role of treatment services in providing interventions tailored to the varying needs of individuals (including the potential for access to substance-specific treatment and services) and in referring and linking clients to a range of external services and support (such as stable accommodation, education, vocational and employment support and social connections). Some of the related 'actions' include improving communication and flow of information between primary health care and specialist AOD providers and between clinical and community support services, to promote continuity of care and the development of cooperative service models. Another action is to improve links and coordination between health, education, employment, housing and other sectors to expand the capacity to effectively link individuals from treatment to the support required for them to reconnect with the community.

This care co-ordination can be achieved through case management which has a long and relatively successful history for the treatment and support of several mental health conditions in the United States, Canada, European countries and Australia (Burns, Fioritti, Holloway, Malm, & Rössler, 2001). Case management is a client-centred strategy that includes assessment, planning, linking, monitoring and advocacy as part of the enhancement of coordination and continuity of services, and is particularly suited to AOD clients with multiple and complex needs. In particular the brokerage case management component (Vanderplasschen et al., 2004) facilitates ongoing supportive care, linking clients with appropriate helping resources in the community. As well as increasing engagement in substance use disorder treatments, and active linkage to other services, it facilitates cross agency collaboration and a transition to employment to assist clients in moving towards self-sufficiency as they recover from AOD problems. However, a Cochrane review on the

effectiveness of case management for persons with AOD problems concluded that there is evidence supporting its role in enhancing linkage with other services, but that evidence that it reduces drug use or produces other beneficial outcome is not conclusive (Hesse et al., 2007).

In the US, Morgenstern et al. (2009) ran a practical clinical trial within welfare agencies comparing a continuity of care intervention for SUDs in the form of Co-ordinated Care Management (CCM), to usual welfare management among participants not enrolled in methadone maintenance programs. Those receiving CCM received significantly more suitable treatment programs and ancillary services matched to client need (e.g drug treatment, work activity, medical and mental health care, domestic violence programs, housing, or childcare) than usual care clients and the likelihood of abstinence at the oneyear follow-up was 75% higher. The authors concluded that CCM is a promising SUD treatment for welfare recipients, though its impact was not observed among patients receiving methadone maintenance. An earlier Victorian report 'Pathways- a review of the Victorian drug treatment service system' noted that variable connections to the other health, welfare and employment services are required to support clients with a range of needs (Ritter et al., 2003). The solution proposed in this service system review, however, was establishing cross-sectoral linkage workers based in community health services, with waiting list management, assertive follow-up and assessment carried out through a central intake unit rather than case management.

The Victorian 'New directions for alcohol and drug treatment services – a roadmap' document (Department of Health, 2012) describes the new Care and Recovery Coordination role which enables clients to be supported through treatment and connected with the other service or support needed. The term recovery is highlighted as a key focus of the National Drug Strategy 2010-2015 (under Objective 3 of a demand reduction approach [Pillar 1]), and states 'recovering from drug dependence can be a long-term process in which individuals need support and empowerment to achieve independence, a healthy self-esteem and a meaningful life in the community. Successful support for longer-term recovery after treatment requires strategies that are focused on the whole individual and look across the life span. While different people will have different routes to recovery, support for recovery is most effective when the individual's needs are placed at the centre of their care and treatment. Treatment service providers can help individuals recover from drug dependence, help the individual access the internal resources they need (such as resilience, coping skills and physical health) and ensure referral and links to a range of external services and support (such as stable accommodation, education, vocational and employment support and social connections)' (Ministerial Council on Drug Strategy, 2011, p.11). A recovery-oriented approach addresses a person's holistic needs and circumstances with attention to what happens after formal treatment ends. Care and recovery coordinators help reconnect AOD users with their families and communities (e.g., by engaging with GPs, pharmacists, primary health services and other health and human services, peer support workers, or with communities that are under-represented in treatment), recognising that more intensive case management will be required for some.

Increasing community concern about health problems and service expenditure has prompted a national program of healthcare reform in Australia, to support the efficient use of public funds. Changes in governance, funding, and accountability arrangements are being implemented by the Federal Government; and at state level in Victoria, through the introduction of a new AOD strategy (Victorian Department of Health, 2012) and linked structural changes in service provision. However, there is limited evidence to guide health system design in relation to alcohol and drug treatment – services that currently sit outside Australia's program of reform. AOD clients often use a range of other services and systems; however, little is known about the magnitude and significance of this service use. Furthermore, there is no Australian data currently available on whether, and to what extent, AOD treatment outcomes result in better use of routine health care and reduce demand for more intensive and costly healthcare interventions.

#### Treatment effectiveness / outcome studies

National data on the demand for services, characteristics of the population in need of treatment and response to different treatment trajectories are needed to inform policy around the planning/design of the broader treatment system and to facilitate the effective allocation of resources that will reduce the overall cost and burden to Australian society. Large-scale, prospective, multi-site treatment outcome studies are imperative to understanding the dynamics of treatment and its impact on client outcomes and addiction careers over extended periods of time. However there remains a paucity of longitudinal studies largely because of the high costs in money, effort and organisational commitment necessary to implement, coordinate and sustain such data collection systems over many years. The treatment outcome literature is almost entirely dominated by research findings from the US and UK (for a summary of these studies, see Table 1.1).

A review of the international literature on drug treatment effectiveness undertaken for the Scottish government (Best et al., 2010) concluded that:

- significant improvements in the wake of treatment are seen across a range of indicators, including health, offending, risk-taking, substance use and social functioning;
- a range of treatment modalities demonstrate value for money, with the most recent estimate from the Drug Treatment Outcome Research Study of a cost effectiveness ratio of 2.5:1 for savings in health and social care relative to treatment costs;
- therapeutic relationships and overall service quality are important predictors of treatment engagement and outcomes for clients;
- retention in treatment for at least 90 days has been shown to be the threshold for 'treatment gain' in community settings;
- a strong evidence base exists supporting methadone substitution treatment in maintenance settings, but that it requires adequate psychosocial support and links to multiple addressing complex needs in addition to prescribing;
- continuity of care is a critical component of effective treatment systems; a strong evidence base exists around linkage to peer and community 'aftercare' support; and
- structured psychosocial interventions with proven efficacy in clinical trials are not routinely translated into everyday clinical practice, due to problems around service delivery.

To date, only two treatment outcome studies have been conducted in Australia. The first is the Australian Treatment Outcomes Study (ATOS), which recruited 825 heroin users upon entry to maintenance therapies (methadone or buprenorphine), residential rehabilitation, and detoxification in Sydney, Melbourne and Adelaide. The sample was followed up at one and three years (Teesson et al., 2008) and a further sample was recruited of 80 heroin users who were not currently in treatment. At one-year follow-up ATOS participants had received a median of two treatment episodes since their baseline interview. There were reductions in

heroin use in the past month from baseline to 12-month follow-up (99% to 41%) which were sustained at two-year (35%) and three-year follow-up (Teesson et al., 2008). Reductions in heroin use were accompanied by reductions in needle sharing and injection-related health problems. There were also substantial reductions in criminal involvement and improvements in general physical and mental health. Positive outcomes were associated with more time in maintenance therapies and residential rehabilitation and fewer treatment episodes. As in other studies, ATOS drew attention to the importance of stable retention in treatment as a consistent predictor of superior treatment outcome (Darke et al., 2007). The second Australian study, the Methamphetamines Treatment Evaluation Study (MATES) of 360 methamphetamine or amphetamine users from Sydney and Brisbane (McKetin et al., 2012) with both 1 and 3 year follow-ups, had similar findings to ATOS. Almost half of the MATES participants received additional treatment in the three months following their index episode. Recovery in the MATES study was defined as continued abstinence, with reported rates of 33% at the three-month follow-up, 14% at the one-year follow-up and only 6% at the three-year follow-up (McKetin et al., 2012).

In addition to substance dependence, both studies gathered information on current problems, alcohol and drug treatment experience, and past involvement with the criminal justice system. ATOS showed that mental health and social issues were common, including anti-social (72%) and borderline personality disorders (47%), along with high rates of attempted suicide (37%). Similarly, many of the participants in MATES had psychiatric problems, for example major depression (38%) and panic disorder (29%). Participants had a number of broader concerns. At baseline, half the ATOS participants were receiving social security allowances (50%) and 41% had a prison history (Ross et al., 2005). Just over half the MATES participants were unemployed (54%) and a substantial proportion (31%) had been in prison (McKetin et al., 2012). Whilst both studies demonstrated benefits from AOD treatment despite the high severity and complexity of these cases, with substantial need for community service engagement, those with a larger treatment 'dose' had better outcomes in the ATOS study, a single episode of drug treatment had only short-term benefits in the MATES study, with a large but time-limited decrease in use of methamphetamine among clients in residential rehabilitation.

#### The move to a systems model

Systems research can help to improve access, efficiency, economy, continuity of care, and effectiveness, thereby improving the population impact of treatment services (Babor et al., 2008). As highlighted by Babor et al (2008), most of the treatment research to date has focussed on the efficacy of various psychotherapies (and pharmacotherapies) and client factors or treatment process characteristics that mediate response to treatment. Most outcome studies have been concerned with abstinence/reduced substance use and acute health in the short-term, focussed on a specific modality (e.g. inpatient detoxification) or a specific drug, with very limited data gathered on the impact of providing optimal treatment pathways for longer-term outcomes. While exposure to treatment is an important variable in determining alcohol/drug treatment outcomes (Teesson et al., 2008; McKetin et al., 2012), few studies have examined service utilisation within the broader social and welfare system, hence we have limited knowledge of the optimal dose and combination of services that best serve this complex and challenging population.

An optimal treatment pathway might include intake and assessment, inpatient withdrawal, counselling and residential rehabilitation and care and recovery co-ordination, and links with mental health and employment services for severely dependent clients with multiple complex needs, or brief psychosocial interventions for lower severity clients without

additional life complexities. Spearheading this body of research is a group of US researchers (Weisner, Parthasarathy and colleagues) demonstrating how contact with medical, mental health, welfare and legal systems predicts clinical outcomes for this population. Engagement with such services predicted reduced consumption in a sample of problem drinkers (Weisner et al., 2003), and in a longitudinal observational study clients receiving continuing care (defined as having yearly primary care and speciality substance abuse treatment and psychiatric services when needed) had twice the odds of achieving remission at follow-ups (p<.001) as those without (Chi et al., 2011). Another US study involving Weisner, which compared service use among private and public health clients over a seven-year period, had similar findings. However, service use predicted remission only for private clients, and the pattern of service use varied according to clients' private / public status. Specifically, private clients used more primary health and psychiatric services, while public clients tended to cycle back into alcohol and drug treatment (Delucchi et al., 2012), a finding probably influenced by the US healthcare financing system.

Research by Weisner and colleagues also shows the pivotal role of general practitioners in reducing AOD clients' use of acute services. A longitudinal observational study involving AOD clients in an integrated managed health care plan matched client need to services and examined service utilisation at 18 months, and then periodically over nine years. In the year before treatment, the clients' use of acute services was high, because of co-morbid health conditions and extreme events such as injuries and overdose. In the year following treatment entry, clients used primary health services a lot (Parthasarathy et al., 2012), possibly a consequence of unattended-to health problems that had been overtaken and impacted by substance use problems. Interestingly, the frequency of presentations to emergency departments and hospitals decreased substantially in association with ongoing GP visits. At five-years, clients with 2-10 GP visits per annum had better alcohol and drug treatment outcomes than clients with fewer than two visits (Mertens et al., 2008). At nineyears, clients with a service pattern, including at least one GP session per annum and specialist treatment as needed had lower overall health care costs (Chi et al., 2011). A 'continuing care' pattern of service use - defined as regular primary care with referral to specialty care as needed, (Parthasarathy et al., 2012), reduced overall cost, because demand for expensive services was substantially reduced.

Research involving clients in US managed-care health plans has shown that when AOD treatment is successful, medical costs for family members are also reduced (Weisner et al., 2010). This work reinforces the importance of service models that provide ongoing or continuing care, maintaining a general level of support for clients and enabling their access to more intensive services on detection of elevated need. There are substantial benefits for AOD clients, their families and society (in terms both of costs and net benefits).

But while findings from the US suggest important directions for health system development, the findings are not easily transferable to the Australian context given funding, client, and health system variations. What is evident is the need for longitudinal research within an Australian health services context to examine the net result of AOD on service usage and identify service models that reduce inappropriate use of acute services while providing appropriate care. Such research will inform the design and placement of AOD treatment in terms of integration with other parts of health service as well as in terms of intersection with welfare services. It provides an opportunity to move beyond an episodic, crisis-oriented approach to substance use problems to engaging in ongoing support models that are inclusive of different parts of health, and include consideration of the role of welfare

services in responding to client concerns associated with marginalisation rather than dependence.

It is evident that, once in treatment, many clients improve. However, questions remain about what combination of service use is associated with these improvements and how systems can be configured to optimise and maintain these treatment outcomes. The literature on treatment effectiveness to date is limited in that outcome studies typically describe the response to an isolated episode of care within a particular treatment modality, e.g. inpatient detoxification, which represents only a fraction of the overall treatment episode. In addition, while Australian outcome studies typically involve participants using major illicit drugs (heroin, amphetamines), there has been no cohort study of alcohol and cannabis users in Australia, despite these being the most commonly abused substances and the two most frequent primary drugs of concern among 659 AOD services across Australia (AIHW, 2013), accounting for 70% of treatment episodes in 2009-10 (48% alcohol and 23% cannabis) (AIHW, 2011). Whilst there is increasing recognition that specialist AOD services are merely one component of a larger interconnected system which includes health and welfare services, the extent of inter and intra-sectorial linkage and the resulting pathways of care for clients accessing AOD specialist services remain poorly understood.

Nevertheless, Babor et al. (2008; 2010) suggest that the cumulative impact of engaging with AOD services and non-specialist AOD services in the community should translate into population health benefits, such as reduced mortality, morbidity, disability, suicide, crime, unemployment and healthcare costs.

#### 1.1 Study rationale

The overarching aim of the current 'Patient Pathways' project is to examine treatment outcomes as they relate to trajectories of clients as they move through the AOD system, their intersection between AOD services and other health and welfare services and the resulting demand on acute services (see Figure 1.1). The research aims to examine how and when service integration occurs, identify pertinent gaps between services, and outline optimal patient pathways in relation to multiple treatment goals and desired outcomes (e.g. abstinence, reduced problem severity, quality of life and treatment satisfaction) and the extent to which these vary according to patient population (i.e. primary drug of concern, severity and client complexity).

This is achieved through the amalgamation of findings arising from multiple research methodologies. The first is a review of the AOD treatment system at a national level (system description) which provides a snapshot of the AOD treatment system in each state and territory, using two data sources: document review and key informant interviews. The second uses quantitative research methods in the form of a longitudinal cohort study of clients entering the AOD treatment system in two states of Victoria and Western Australia, starting with baseline interviews which delineate the characteristics of those entering treatment, and the extent to which they engage with primary care, mental health acute and welfare services in the year prior to study recruitment. A one-year follow-up enables typical treatment trajectories to be mapped out, and reports on level of satisfaction, and the extent of subsequent engagement in health and welfare services, as well as measuring treatment outcomes and the impact on acute service use with different treatment pathways. These findings are complemented with data derived from the third component, involving qualitative interviews capturing the clients' personal experiences of their journey through the AOD treatment system, what worked for them, and how the system can be improved to provide greater continuity and integrated care.

Whilst longitudinal client interviews are important for determining long-term outcomes, such approaches are reliant on the accuracy of participant recall, as well as successful retention at each subsequent wave of assessment. Use of population level administrative data collected by health and community service systems provides an invaluable source of information regarding AOD harms and impacts on services, due to its capacity to capture hidden populations and to record more detailed data than can be obtained through primary data collection methods (Matthews et al., 2013; Lloyd and McElwee, 2011). Therefore the fourth component to the research uses record linkage data across systems to generate a more complete picture of service utilisation without the time and recall bias inherent in client-derived data (see 'A study of patient pathways in alcohol and other drug treatment - supplementary linkage component report' (Lubman et al., 2014)) for detailed analyses for high risk populations'). The findings from all four study components are synthesised in a final chapter which highlights the key findings, implications for policy and practice, and provides a series of recommendations for Commonwealth and state governments, many of whom are currently reviewing the model of AOD service provision in Australia.

The Patient Pathways study is Australia's largest prospective alcohol and drug treatment outcome study, and is unique in its focus on treatment pathways and coordinated care in the year prior to treatment entry, as well as continuity of care in the year following treatment initiation. The Pathways study examines frequency of healthcare service use (including subsequent AOD specialist service use, engagement with GPs, mental health etc.), as well as social/welfare service use (housing, employment), criminal justice and acute service use (presentations to ambulances, emergency departments, inpatient hospitalisation, etc.), providing a one-year snapshot of pathways of specialist AOD treatment and non-specialist wraparound packages of care, with the year of experience linked to patient outcomes.



Figure 1.1 Conceptual model of AOD treatment system and its connections with other sectors examined as part of the patient pathway in the current study (adapted from Babor et al., 2008)

Name	Country	Dates	Sample	Study population drawn from these
Drug Abuse Reporting Programme (DARP) <sup>1</sup>	USA	1968-1980 (12 year follow-ups)	44,000 at intake; over 6,000 followed up; 697 at 12 years	Methadone maintenance, therapeutic community, out- patient drug free, out-patient detoxification
Treatment Outcome Prospective Study (TOPS) <sup>2</sup>	USA	1979 – 1986 (2 waves with 3-5 year follow-up)	11,750 patients at enrolment	Methadone maintenance, residential treatment and outpatient drug- free treatment
Drug Abuse Treatment Outcome Study (DATOS) <sup>3</sup>	USA	1989 – 1991 (measures at 1 and 3 months in treatment and 12 months after)	10,010 at intake –4,500 followed up at 12 months	Long-term residential; short-term inpatient; methadone maintenance and outpatient drug free
Project MATCH <sup>4</sup>	USA	1989-1997	952 outpatients & 774 aftercare patients (recently completed inpatient or intensive day hospital treatment) followed up at 1 1 and 3 years	Alcohol dependent Undergoing Motivational Enhancement Therapy, Cognitive- Behavioral Therapy (CBT) or Twelve-Step Facilitation (TSF)
National Treatment Outcome Research Study (NTORS <sup>)5</sup>	ENGLAND	Initiated in 1995 with one year, two year and five year outcomes	1,075 at intake from 54 programmes; 769 at one-year follow-up	Methadone maintenance; inpatient withdrawal and residential rehabilitation
Drug Treatment Outcome Research Study (DTORS) <sup>6</sup>	ENGLAND	2006-2007, using a 12-month window;	1,796 baseline interviews; 886interviewed at 3-5 months and 504 at 12 months	342 structured community or residential drug treatment services
Australian Treatment Outcome Study (ATOS) <sup>7</sup>	AUSTRALIA	Baseline, 3 and 12 month follow- ups; 2 and 3 year outcomes in one site (2001-2002)	745 treatment sample and 80 non-treatment heroin controls	Methadone or buprenorphine maintenance; inpatient withdrawal and residential rehabilitation; small

#### Table 1.1 Summary of the major international AOD treatment system outcome studies to date

Name	Country	Dates	Sample	Study population
				modalities:
				non-treatment
			4 0 0 7	control group
Drug Outcome	SCOTLAND	Initiated in 2001 with 8, 16 and 33	1,007	Substitute
Scotland		month follow-	from 28	prescribing; non-
(DORIS) <sup>8</sup>		ups	specialist	nrescribing
			treatment	counselling:
			agencies	residential
			(community	rehabilitation and
			and residential)	prison
			and five prisons	
			delivering drug	
		<u></u>	treatment	
Research	IRELAND	Started in 2003	404 active	Methadone
in Ireland		1-year and 3-	group with a	Maintenance /detoxification:
(ROSIE) <sup>9</sup>		, year follow-up	subsample of	structured
		window	26 needle	detoxification:
			exchange users	abstinence
			U U	treatment
Methamphetami	AUSTRALIA	Initiated in 2006	300 entrants to	Residential
ne Treatment		(Sydney &	methampheta	rehabilitation, &
(MATES) <sup>10</sup>		month 12-	mine drug	detoxification
(10.0.1.20)		month and 3	treatment and	
		year follow-ups	treatment	
			comparison	
			group	
UKATT <sup>11</sup>	ENGLAND	Initiated in 1999,	742 clients	Specialist
		social behaviour	with alcohol	community alcohol
		therapy versus	problems	treatment services
		motivational		
		enhancement		
		therapy with		
		three-month and 1-year follow-ups		
COMBINE <sup>12</sup>	USA	2001-2004 A	1383 recently-	Community and
		double-blind,	abstinent	, referrals from
		randomized	alcohol	clinical services
		placebo-	dependent	(detoxification)
		naltrexone and	patients	
		acamprosate,		
		both alone and		
		in combination		
		with medical management		

Name	Country	Dates	Sample	Study population drawn from these modalities:
		with and without		
		a Combined		
		Behavioral		
		Intervention		
		(CBT, MI & TSF).		
		Followed up to 1		
		year after		
		treatment		

Sources: <sup>1</sup> Simpson & Sells, 1983

<sup>2</sup> Hubbard et al., 1989

Hubbard et al., 1989 <sup>3</sup> Simpson & Brown, 1999 <sup>4</sup> Project Match Research Group, 1998 <sup>5</sup> Gossop, Marsden, Stewart, & Kidd, 2003 <sup>6</sup> Donmall, Jones, Davies, & Barnard, 2009 <sup>7</sup> Teeson et al., 2008

<sup>8</sup> McKeganey, Bloor, Robertson, Neale, & MacDougall, 1996
<sup>9</sup> Cox, 2007
<sup>10</sup> McKetin et al., 2012
<sup>11</sup> Orford, 2006
<sup>12</sup> Pettinati, Anton & Willenbring, 2006

## 2 System description

This section addresses priority 1 of the overall study which was to document the current AOD treatment system in Australia. This was achieved by using a mixed methods approach which included a review of existing documents on AOD states and territories, key informant interviews focusing on features, strengths and challenges for these systems, along with key features of an effective systems approach and synthesis of results to identify a set of key findings for Australia.

#### 2.1 Method

# Documenting current AOD prevention and treatment systems in each Australian jurisdiction

In order to provide a 'snapshot' of the AOD prevention and treatment system in each state and territory, a system synopsis was developed for each jurisdiction. Two data sources were used to develop the synopses: document review and key informant interviews.

#### Document review (November 2011 – November 2013)

Publicly available material regarding the functions, resources and operation of each system was sought from government departments, AOD peak bodies and other sources as relevant. Material consulted included the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS-NMDS) 2009-103 (AIHW, 2011) and policy documents from State/Territory and Commonwealth Governments over the time period 2008-2013. This information was used to prepare a brief synopsis of the AOD system in each jurisdiction, with any gaps or inconsistencies in the available information noted. Synopses were structured to cover the following areas:

- 1. System values and principles
- 2. Level and source of financial investment
- 3. Estimates of met and unmet need
- 4. Client characteristics
- 5. Service setting
- 6. Monitoring and accountability
- 7. Strengths and challenges

These areas were identified from a review of the literature on health services research - on how systems are organised, financed, and delivered (Mays, 2003). This area has emerged as an important means of informing how services and systems operate, by examining "the organisation, financing and delivery of public health service in communities, and the impact of these services on public health" (Mays, 2003, p. 179).

Draft synopses were then distributed to key informants (described below) for input and comment. In some cases, key informants provided comments and additional information prior to the face-to-face consultations.

<sup>&</sup>lt;sup>3</sup> At the time of the consultation the 2009/10 was most recent data available.

#### Key informant interviews (January 2012 – October 2012)

Key informants from each state and territory were approached to verify the system synopsis specific to their jurisdiction. Within each state and territory, the most senior government employee with direct responsibility for AOD policy and programmes and the head of the AOD sector peak body were sent an email to explain the project and inviting them to take part in an informal consultation interview (non-respondents were followed up with a second email request and then a telephone call). These key informants nominated other participants and group interviews were held. A total of 39 key informants were involved (ACT = 5, NSW = 3, NT = 6, QLD = 4, SA = 4, TAS = 9, VIC = 3, WA = 5).

Each key informant was provided with the relevant draft synopsis prior to meeting with the researchers. During the consultation, participants were asked to indicate which aspects of the synopsis they regarded as accurately representing the AOD system in their jurisdiction, to challenge aspects which they considered incorrect and, where possible, to provide information to fill any gaps. Key informants were also asked to comment on the strengths and challenges of the AOD system in which they work and to identify what they consider to be the key features of an effective system. Notes were taken during the interview and the conversations were digitally recorded to assist with ensuring the accuracy of the notes.

#### Refinement of synopses (June 2012 – July 2013)

At the conclusion of the interviews, each jurisdictional synopsis was refined to incorporate information obtained during the consultation process. The research team received additional documentary material from key informants before, during and after the key informant interviews. The refined synopses were sent back to the state and territory government key informants for further comment and subsequently finalised.

It is important to recognise that the document review and interviews were conducted in 2012 and some jurisdictions have experienced major change since that time. Further, the Commonwealth commissioned a major review of AOD treatment in Australia in July 2013 and the review has some similarities with the development of synopses as part of the Pathways Project. As a consequence, the final synopses were provided to the Commonwealth review team, to inform their work.

#### Summary of synopses across jurisdictions

As the synopses for each jurisdiction were lengthy, a summary version for each was developed and is included in Appendix 1. Given the sensitivity of the material regarding the funding arrangements for the provision of AOD services in each state and territory, and the time elapsed since consultations, only very broad information concerning this aspect is provided. Summary synopses across all eight jurisdictions were examined, and the commonalities and differences in AOD treatment systems across Australia noted.

#### 2.2 System values and principles

Information regarding system values and principles was primarily drawn from policy documents. For most jurisdictions (ACT, NT, SA, TAS, VIC, WA), a specific overarching policy or strategy was identified which articulated the principles underpinning the AOD service system in that state or territory. Although the specific wording differed between jurisdictions, most of the policies advocated five broad themes:

• Harm minimisation/harm reduction

- Accessibility of services
- Client-oriented/focussed services
- Evidence-based/informed approach, best practice
- Interconnectedness both within and beyond the AOD service system; e.g., partnerships, collaboration

Other values and principles identified in some but not most of the state and territory AOD policy documents related to the quality of service provision/workforce, emphasis on prevention and early intervention, comprehensiveness (across demand reduction, supply reduction and harm reduction), recognition of broader social factors, consistency of approach across the service system, sustainability, responsiveness and governance.

At the time of data collection, two jurisdictions did not have a specific government statement of system values or principles for the AOD sector (NSW, QLD). However, in each of these states there were documents outlining more generic, health system-wide values.

#### Level and source of financial investment

Both the Commonwealth and State/Territory governments invest in AOD services in every jurisdiction, although the funding ratios and totals differ by location.

#### Estimates of met and unmet need

The document review did not yield a great deal of information regarding the extent to which current service provision in each state and territory met underlying need. This issue, including how to estimate demand, is now being extensively canvassed under the separate Commonwealth review of Australian AOD treatment system(s) led by the Drug Policy Modelling Program (DPMP) team at the University of NSW (who have been provided with the Patient Pathways synopses). However, data were available from the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS) for 2009-104 regarding treatment episodes and type (although some key informants questioned the accuracy of this in some jurisdictions). This data set summarises data for publicly funded alcohol and other drug services in each state and territory, though may not include AOD services such as specialist prescribing of medically assisted treatment (e.g. methadone maintenance provided by GPs). The number of treatment episodes delivered in each state and territory is shown in Table 2.1. As would be expected, jurisdictions with larger populations recorded more treatment episodes than those with smaller populations.

The proportion of treatment episodes by treatment type for each state and territory is shown in Table 2.1 below. Within each state, the top three treatment types are shaded blue (shading graded with most common darkest and third most common lightest). Although there is considerable variation between jurisdictions in the proportion in each treatment type, counselling is one of the more common treatment types across the country, followed by withdrawal and assessment. QLD and TAS are notable for their emphasis on education interventions.

#### Table 2.1 Proportion of treatment episodes by treatment type and jurisdiction

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Withdrawal	20.7	19.8	7.3	5.5	18.8	1.0	19.3	8.4

<sup>4</sup> At the time of the consultation the 2009/10 was most recent data available. 2011/12 data is used to weight the data in the Patient Pathways cohort in section 3.

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Counselling	29.9	34.1	21.4	27.8	27.1	50.3	50.7	62.9
Rehabilitation	6.7	6.3	16.1	1.9	11.4	7.4	3.4	6.3
Case management only	12.9	9.9	1.6	3.8	2.8	0.8	12.9	4.8
Information/education	10.9	1.2	5.2	41.7	7.3	30.8	0.7	5.6
Assessment only	13.1	15.5	38.6	17.3	25.6	5.1	10.0	4.9
Other/pharmacotherapy	5.9	13.2	9.9	2.1	7.0	4.6	3.0	7.1
Total number of	3 <i>,</i> 585	35,202	3,798	23,090	9,092	1,544	52,133	17,187
treatment episodes								

Source: AIHW AODTS NMDS, AOD treatment services in Australia 2009-10, Supplementary Table 12 and 15, 2011

The system profile varies significantly across states – thus counselling accounts for over half of all treatment episodes in Victoria and Tasmania and around two-thirds in WA, but less than one quarter in the Northern Territory. Similarly a treatment episode is more than eight times more likely to be rehabilitation in the NT than in Queensland. These profile differences and resulting system variations suggest considerable variations in system function and target populations.

#### Client characteristics

Information regarding client characteristics was also sourced from the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS) for 2009-10. Approximately two thirds of treatment episodes were for male clients (ranging from 65% in VIC to 71% in TAS). In all jurisdictions except TAS the age categories with the largest proportion were 20-29 years and 30-39 years, with each of these accounting for approximately 25-30% of all treatment episodes. The next largest age category was generally 40-49 years. In TAS there was an unusually high proportion of people in the 10-19 year age group (24%). Ninety six percent of treatment episodes across the country were for 'own drug use' (compared to 'others' drug use'). This ranged from 89% in NT to 99% in QLD.

Australia was the most common country of birth among clients in every jurisdiction (ranging from 83% in WA to 97% in TAS). There was considerable variability in the proportion of Indigenous clients between states and territories; 64% of treatment episodes in the NT were for Indigenous clients, 22% in WA, 10-15% in NSW, QLD and SA, while in VIC, ACT and TAS <10% of treatment episodes were for Indigenous clients. English was the preferred language in >95% of cases across the country, except in NT, where 54% preferred English and 29% preferred Australian Indigenous languages (preference not stated in 17% of NT cases).

The most common source of referral to treatment was 'self' (35% Australia, ranging from 26% in QLD to 45% in TAS). Referral from other alcohol and drug treatment services accounts for 10% of referrals nationally, but this varies greatly between jurisdictions (2% in TAS to 17% in WA). Court diversion accounts for 12% of referrals nationally, but this ranges from as low as 2% in SA to 16% in QLD. Police diversion accounts for a higher proportion of referrals in each of these two states (30% and 23% respectively) compared to the national average (6%).

Alcohol was the most common primary drug of concern among those in treatment across all jurisdictions except TAS (ranging from 38% in QLD to 69% in NT). Cannabis was generally the second most common primary drug of concern (ranging from 9% in NT to 44% in TAS), followed by opioids (8% in QLD to 20% in ACT), although the relative contribution of heroin, methadone and morphine to the opioids total differed by jurisdiction. Amphetamines as

primary drug of concern ranged from 3% (NT) to 14% (WA). Benzodiazepines, cocaine, ecstasy and other drug types each accounted for <5% of cases in every jurisdiction (except 'all other drugs' in the NT, which was 8%).

#### Service setting

A range of services are offered in all jurisdictions including information/education, case management, counselling, withdrawal management, rehabilitation, pharmacotherapy, needle and syringe programs and sobering up facilities. All jurisdictions report a mix of Government Organisation (GO) and Non-Government Organisation (NGO) service providers (Table 2.2). Community Service Organisations are included here as NGO. In most jurisdictions GOs are the predominant providers of acute services such as withdrawal and specialist pharmacotherapy, with NGOs providing other services. In all jurisdictions beside NSW and SA there are more NGO than GO services, although the ratios vary. Models of service delivery reported by key informants differ according to state and territory, as do intra- and inter-sectoral linkages. All jurisdictions have some service provision to non-metropolitan areas, although the extent to which this is provided in situ versus by outreach differs.

#### Monitoring and accountability

There are monitoring and accountability systems in place in every jurisdiction, although the specifics of these differ (Table 2.3). In the ACT, NSW, QLD and VIC there are committees/groups appointed to oversight strategic issues which may include policy development, system planning, implementation, service delivery and evaluation. In WA and the NT, these functions are undertaken by the Drug and Alcohol Office and the Office of the Chief Executive respectively. At the time of consultation (2012), services were being retendered in SA while in TAS preparations were underway to evaluate the 5 year plan. Reporting at the service level occurs in every jurisdiction, although in some jurisdictions key informants indicated that performance reporting systems may not be comprehensive, although there was widespread support for continuous improvement in this area. Since the consultations occurred, Turning Point has been commissioned to map existing quality standards in greater detail and develop a Quality Framework for Australian Government funded AOD services.

Jurisdiction	n Organisation type <sup>1</sup> GO NGO		Service delivery and system linkages	Geographical accessibility	
ACT	1	9	KIs reported intra-system cohesiveness and active peak body	Rural in-reach from NSW	
NSW	195	63	Integrated public health model. Decentralised: funding allocated to Local Health Districts and then distributed	Services mainly in metro and regional areas	
NT	3	17	Both stand alone and co-located services	Services mainly in outer regional or remote areas, some very remote	
QLD	51	67	AOD separated across four branches of health department and delivered via Hospital and Health Service regions. Some services funded via	Services mainly metro and regional areas, some remote and very remote	

#### Table 2.2 AOD treatment service setting by jurisdiction
Jurisdiction	Organ type <sup>1</sup> GO	Organisation Service delivery and system type <sup>1</sup> linkages GO NGO		Geographical accessibility	
			Aboriginal controlled health organisations. Strong links to justice system		
SA	42	17	Both stand-alone and co-located services, with reportedly strong focus on inter-agency collaboration between community health, hospitals, mental health and GP clinics	Sole-worker in-reach to less populated areas	
TAS	4	11	GO services focus on withdrawal and pharmacotherapy, while NGO primarily deliver psychosocial interventions and prevention	Services mainly in metro areas, some remote	
VIC	NA <sup>2</sup>	138	System reform and recommissioning intended to reduce fragmentation and improve continuity	Services mainly in metro and regional areas	
WA	10	39	Linkage between GO and NGO services reported to be well supported by a variety of means e.g. co-location, integrated policies and procedures, single client record and shared client management database	Services mainly metro and regional areas, some remote and very remote	

<sup>1</sup> Based on AODTS-NMDS data for 2009-10 <sup>2</sup> In Victoria, all AOD services reported to be NGO, though some receive substantial government funding and may be auspiced and housed by GO

Table 2.3 Summary of performance and accountability approaches by jurisdiction, as reported i	n
2012	

Jurisdiction	Strategic monitoring	Service reporting, monitoring, and funding accountability mechanisms
ACT	Implementation and monitoring of drug strategy oversighted by group with both government and community representation	Biannual reporting of drug use and harms Surveys of satisfaction and workforce Service accreditation
NSW	Drug and Alcohol Program Council sub- committees responsible for oversighting service delivery and clinical practice guidelines and information management	Client Outcome Monitoring System incorporating standardised measures being piloted
NT	Office of the Chief Executive facilitate strategic policy development	Developing standardised procedures for service activity and performance measures Service funding agreements and grants administered by Department of Health
QLD	Drug policy oversighted by committee with representation from several government departments (including health, justice, and education) and police	Agreements between government and individual Hospital and Health Services cover performance and outcome A performance framework covers NGO sector
SA	Tendering of all NGO AOD services in 2012 allowed for standardised procurement	Annual service activity reporting, including services provided, informal

Jurisdiction	Strategic monitoring	Service reporting, monitoring, and funding accountability mechanisms
		contacts, performance and funding
TAS	At the time of consultation, a five year plan was in place and an evaluation was being designed	Service capacity being built funded via Commonwealth Improved Services Initiative
VIC	Annual reporting by Department of Health and Performance Advisory Group established. Senior AOD program managers oversight whole-of-program performance	Services report against target on a quarterly basis Performance management framework initiated April 2010
WA	Monitoring, evaluation and research activities conducted by relevant branch of Drug and Alcohol Office. Planning undertaken within framework of strategic plan	Drug and Alcohol Office policy and procedures templates available to assist in monitoring standards Six monthly activity and outcomes reporting Reviewing outcome measures

# Strengths and challenges

The consultation process in most jurisdictions yielded lists of both strengths and challenges for the AOD system, many of which were common across states and territories. Indeed, in some places the same factor was listed as both a strength and a challenge. Rather than attempt to exhaustively analyse these by jurisdiction and whether a strength or a challenge, the following has been compiled from the synopses as a broad list of issues identified for AOD service systems:

## 1. Issues of treatment access and appropriateness

- Addressing the needs of particular population groups, especially Aboriginal and Torres Strait Islander people, young people, women, prisoners, migrant and remote communities;
- Addressing complex needs including mental health, acquired brain injury, intergenerational substance use, tobacco use;
- Responsiveness to emerging issues, e.g. drug trends.

## 2. Issues of service delivery

- Maintaining and improving quality of service provision, standardising performance measures, evaluation, evidence based-practice;
- Sustainability of service provision, e.g. workforce capacity building, skill mix and succession planning;
- Funding, e.g. full cost of service delivery, funding inequities within sector, ensuring funding models encourage continuity of care.
- 3. Issues of service context
- Balance of demand reduction, harm reduction and supply reduction;
- Intra-and inter-sectoral linkage, community connection

# 2.3 Summary

The documentation of AOD treatment systems in each state and territory reveals some important commonalities as well as areas of difference. There are broad principles which

are articulated in most relevant strategic policy documents. In essence, most systems strive to provide accessible, client-centred services which deliver evidence-based treatment within a harm-reduction framework. There is also a general aspiration that individual services are just one part of a larger interconnected system, including AOD services and other health and welfare services.

Assessment, counselling and withdrawal appear to be the cornerstone of treatment in many jurisdictions, although there is considerable variability in treatment utilised across the country. While some client characteristics are relatively homogenous across jurisdictions (e.g. gender, age, country of birth), there is considerable heterogeneity in terms of Indigenous status, primary drug of concern and referral source, although it is not clear that system variations are a direct response to differences in presenting populations or profiles.

There is a diversity of models of service provision across Australia. For example, there is variability in the ratio of GO to NGO services - in the emphasis placed on different treatment types, in the degree of centralisation versus decentralisation, and in structural support for linkages with other services. There is apparent commitment in all states and territories to monitoring and accountability, although the mechanisms in place to support this vary by jurisdiction and it is an area for ongoing development. There is clear support for ensuring AOD service systems are accessible to, and responsive, to the needs of clients. Further, ensuring the interconnectedness of services with each other and with other sectors is an objective in many states and territories, although the challenges in achieving this are widely recognised. As mentioned earlier, a comprehensive review of the Australian AOD treatment system is under way. The review commenced after the consultations for this project were undertaken, but before reporting. To avoid duplication of effort, the synopses prepared for this project have been provided to the DPMP team to inform their project design and data collection.

Given the policy emphasis on accessible and interconnected service systems in most jurisdictions, it is not clear from the evidence gathered through the document review and consultation processes how well integrated existing AOD systems actually are. For example, it is not immediately clear from the synopses how clients initially access treatment, how they progress from one phase or type of treatment to another, and to what extent clients accessing AOD treatment also access other health and welfare agencies. This links to the perceived omission around formal mechanisms for demand modelling and for mapping addiction and treatment careers. It is hoped the linkage work illustrated below will assist in addressing this issue.

# 3 Client survey data: baseline and follow-up

The purpose of client interviews was four-fold: firstly our aim was to examine populations who engage in treatment in Victoria and WA, their substance use profile and other presenting/complex needs; secondly, to examine the services engaged with at the primary index treatment (PIT) and the clients' recent history of help seeking; thirdly, to examine client pathways through AOD treatment and other forms of peer and professional help; and fourthly, to examine client outcomes achieved over this time and how they differ according to the extent of AOD service use and integration with other community services - i.e., the treatment pathway engaged in.

# 3.1 Methods

# Ethics approval

Ethics approval for this project was obtained from Eastern Health Research and Ethics Committee (LR28/1112 for the systems description; E17/1112 for the client survey and qualitative component and E60/1112 for the linkage component), Monash University Human Research Ethics Committee (201200020) and Curtin University (HR11/2012).

# Eligibility

To be eligible for the study, AOD treatment service clients had to be aged over 18 and must not have participated in the same treatment type at the same service in the three weeks prior to entering their primary index treatment (PIT).

# Recruitment

Management and staff of AOD treatment services were approached to assist with the recruitment of clients to the project. Staff were provided with a brief information sheet to show clients and were asked to collect the contact details of those who were interested in participating. The research team then made contact with the client to arrange a mutually convenient interview time, or, particularly for those in residential treatment, an interview appointment was made via the service.

# Response rate

A total of 1054 people provided contact details directly to the project team or via an AOD agency, and 796 participated in the baseline interview (i.e. 76% of those who initially provided contact details). Of the 258 people not interviewed at baseline, 26 were no longer interested in participating, 81 were ineligible (i.e. had received treatment in the past 3 weeks), 150 people were unreachable via contacts provided, and one person was deceased. It is impossible to determine the exact number of people who were notified about the project by AOD treatment service staff.

# Settings

Participants were recruited from a range of treatment agencies in Victoria (n=13) and Western Australia (n=8) representing the spectrum of AOD treatment services available (including various forms of outpatient and inpatient treatment and residential rehabilitation) in each jurisdiction. Interviews were conducted by a team of trained and experienced researchers from Turning Point (n=5), the National Drug Research Institute (NDRI) (n=7) and Monash University (n=1).

# Sampling frame

The Victorian agencies in the sample were selected from the statewide telephone information and referral service at Turning Point, and represent those services in Victoria providing specialist Alcohol and Drug treatment services as represented by the National Minimum Dataset (AODTS-NMDS) with additional recruitment of clients receiving specialist pharmacotherapy services (SPS). For the Western Australia sample, agencies were identified via the Drug and Alcohol listing of services, produced by the Government of Western Australia, Drug and Alcohol Office. The rationale for the inclusion of clients of the SPS was that they represent a significant portion of people involved in AOD treatment at both the state and national level, but are not recorded in the same systems that contribute to the national AODTS-NMDS.

A number of exclusion criteria served to reduce the number of services from the initial database. Exclusion criteria included:

- Services where the target group is not described as having any alcohol and/or other drugs-related concerns
- Services that do not provide for primary users (e.g. significant others or family members of users as the target group, research groups)
- Justice services (although services providing mainstream services to people referred via the Justice system are not excluded)
- Services catering exclusively to clients in recovery
- Harm reduction services (i.e. AOD treatment is not the core service provided)
- Services catering exclusively to clients under the age of 18 years
- Services catering exclusively to Aboriginal and/or Torres Strait Islander people

Following exclusion of services not fitting the target criteria, those services from the remaining catalogue of services were prioritised, with services providing multiple relevant AOD treatment types selected as the primary focus for inclusion in the sample. Other services, providing a smaller selection of treatment options (including those providing a single treatment type), were then selected in order to supplement the services already selected as part of the sample.

The agencies selected at this initial stage were then sent invitations to participate in the study, followed by briefing meetings. Those agencies who responded positively to the invitation to form part of the sample group were included. Once confirmation of the involvement of a number of agencies has been achieved, the existing sample was re-examined. A number of factors were considered, particularly the geographical distribution of agencies across catchment areas, as well as sufficient representation from major treatment types. Once these criteria were considered to be sufficiently addressed, it was decided that no further agencies were required in order to meet the estimated quota of referrals necessary to meet the interview quota. The final sample included 20 agencies (12 in Victoria; 8 in WA), which included 37 sites (21 outpatient providers; 8 inpatient withdrawal units; 6 residential rehabilitation services (including TC); and 2 supported accommodation services (See Appendix 2.1 for a list of AOD agencies involved as recruitment sites.

## Measures

Clients participating in the study completed a comprehensive assessment interview at baseline and again at follow-up assessing the areas listed below. Standardised instruments that have been validated on Australian populations were used where available.

- i. Participant characteristics.
- ii. Pattern of substance indicated by frequency and quantity of use of all licit and illicit substances in the past 30 days.
- iii. Problem severity using the Severity of Dependence Scale.
- iv. Quality of life using the WHO-QOL BREF which provides a global measure of wellbeing, with four sub-domains; psychological, physical, social, and environmental.
- v. Health, social/welfare and acute service utilisation in the previous 12-months was captured using a tool developed specifically to record referral pathways and number of visits (details collected for up to 5 contacts<sup>5</sup>) across the following areas: withdrawal services; outpatient counselling; residential rehabilitation; peer-support/self-help programmes; GP; ambulance; hospital emergency departments; hospital inpatient services; mental health services; legal aid; financial counselling; employment services; family/relationship counselling; housing, other services; criminal justice involvement.
- vi. Other measures included: the assessment of perceived levels of community support available; perceived level of support from family, friends and significant others; treatment motivation; treatment satisfaction; reasons for seeking AOD treatment; barriers to treatment; and types of discrimination and stigma.

For a more detailed description of the baseline follow-up surveys Table 3.1.

Domain	Survey items/instrument	Purpose
About the participant		
Demographics, social circumstancesa	Post code, age, gender, marital status, education level, employment status, housing situation, country of birth, cultural background, medical statusb, legal status, and family and social relationships	To describe participant characteristics and enable comparisons between different participant groups
AOD use	Primary substance of concern, other substances of concern, drug use past 30 days, drug use 'typical' 30 daysc, prescription drug use past 30 daysc	To identify common substances of concern, to monitor change over time
Alcohol used	Alcohol Use Disorders Identification Test (AUDIT) (Bush, et al., 1998) First 3 items, each scored 0-4	To assess frequency and amount of alcohol consumed by those reporting drinking within past 30 days

Table 3.1 Items included in	structured interview with	clients 'new' to AOD treatment

<sup>&</sup>lt;sup>5</sup> For AOD services, detailed information included drug of concern, month of contact and referral source. Only total number of contacts was recorded for use of self-help and mutual aid programs and GP. For health and community services detailed information included month of contact and referral source and for justice system contacts the month of contact was recorded.

Bomain Purpose	
AOD dependencee Severity of Dependence Scale (SDS) To assess degree of	
(Gossop et al., 1995) dependence on primary	
5 items, each scored 0-3 substance of concern	
Wellbeing	
Social support Multidimensional Scale of Perceived To assess perceived level of	of
Social Support (MSPSS) (Zimet et al., support from family, friend	ds
1988) and significant other	
12 items, each scored 1-7	6
Community support Community Assessment Inventory (CAI) To assess perceived level of	)† bla
2004)	ble
13 items, each scored 1-4	
Quality of life World Health Organization Quality of Life To assess four quality of life	fe
(WHOOOL-BREE) (Skevington et al. 2004) factors: physical health:	C
26 items, each scored 1-5 psychological health; socia	al
relationships, and	
environment	
Help seeking	
Treatment motivation <sup>f</sup> Adapted from the TCU MOTFORMTo assess motivation for	
(originally taken from the TCU CEST treatment as measured by	' the
Intake) (Institute of Behavioral Research, "desire for help" and	
2008). Desire for help, treatment "treatment readiness"	
readiness, and pressures for treatment domains and identify exte	rnal
scales. The problem recognition domain influences on treatment	
was officients who were already "pressures for treatment"	
accessing treatment index	
21 items, scored 1-5	
Past use of services Use of various servicesg in past 12 To identify commonly use	d
months, how many times, for which drug health and welfare service	!S
of concern, when used, source of referral and referral pathways	
to service	
Legal involvementAny legal involvementh in past 12To identify extent of	
months, how many times and when simultaneous involvement	: in
legal system	
Perspectives on treatment	
Reasons for treatment Events as Precipitators of Treatment To determine which life	
Addiction Treatment study adapted from treatment seeking	1
(Weisner, 1990)	
14 items, ves/no. If 'ves' in past 12	
months, rated perceived contribution to	
attending treatment from 1-3	
Barriers to treatment <sup>i</sup> Barriers to Treatment Inventory (BTI) To assess seven perceived	
(Rapp et al., 2006) barriers to treatment:	
25 items, each scored 1-5 absence of problem, nega	tive
social support, fear of	
treatment, privacy concer	ns,
time conflict, poor treatme	ent
availability, and admission	
Reflections on PIT Client satisfaction questionnaire (CSO-8) To assess client satisfaction	n

Domain	Survey items/instrument	Purpose
experiences <sup>i</sup>	(Attkisson & Greenfield, 2004).8 items consisting of 4 possible responses indicating satisfaction with various elements.	with treatment
Reflection on overall AOD service experiences <sup>i</sup>	Items 6 and 7 extrapolated from the CSQ- 8.	To assess overall service effectiveness and satisfaction
Reasons for early treatment cessation <sup>ik</sup>	Women and men in Swedish addiction treatment (Room et al., 2003) 13-16 items.	To identify contributing factors for not completing primary index treatment
Stigma	Modified version of the Discrimination and Stigma Scale DISC-12 (Brohan et al., 2011). 4 sections, 32 items in total, each scored 0-3 or not applicable	To assess three types of discrimination: positive experienced, negative experienced, and anticipated; and overcoming discrimination
Current treatment/substance use goals <sup>1</sup>	Items taken from the Women and Men in Swedish Addiction Treatment study (Room et al., 2003) 2 items, scored 1-5 or 1-6	To differentiate substance use goals as determined by abstinence, reduction, or harm reduction.
Current treatment experience <sup>m</sup>	Items taken from the Women and Men in Swedish Addiction Treatment study (Room et al., 2003). 11 items each scored 1-4	To determine treatment expectations and impressions of treatment.

a) Selected demographics: date of birth, nationality and cultural background not asked at follow-up

b) At baseline individual chronic medical problems not specified. Actual current and past chronic medical problems collected at follow-up only.

- c) This item was added after data collection commenced, therefore data not available for the first 19% of interviews
- d) At baseline, alcohol use measured if participant had consumed any alcohol in the last 30 days or if alcohol was reported as a substance of concern. At follow-up, alcohol use was measured if participant had used any alcohol since the baseline interview or if originally reported as a substance of concern.
- e) At baseline, severity of dependence measured only for primary substance of concern. At follow-up, severity of dependence measure for current substance of concern and original substance of concern (if different).
- f) At follow-up Part B was only asked if the participant was currently in treatment or had an upcoming appointment for AOD treatment.
- g) Services included: withdrawal, AOD counselling, residential rehabilitation, pharmacotherapy (follow-up only), self-help and mutual aid, general practitioner (GP) ambulance, emergency department (ED), hospital inpatient services, mental health service, legal aid, financial counselling, employment service, family/relationship counselling, housing/homelessness service, other.
- h) Legal involvement included: prison, CBO program, court, lock-up/watch house, remand
- i) Asked at baseline only
- j) Asked at follow-up only
- k) Items only administered upon treatment non-completion. Number of items (13-16 items) administered dependent upon primary reason for early treatment cessation
- I) Only administered at follow-up if currently involved in AOD treatment. If not currently involved in treatment, items rephrased as current substance use goals
- m) Only administered at follow-up if currently involved in AOD treatment.

## Data collection

The recruitment and data collection phase of the project occurred between January 2012 and January 2013. Clients were recruited via AOD clinicians introducing the study to clients and then forwarding the client's details to the researchers who contacted the participant

and provided further information about the study and assessed eligibility or directly by researchers during site visits. Informed consent was sought from all participants prior to the commencement of the interview, including consent to collect contact information for follow-up after 12 months. Interviews followed a structured format and were conducted face-to-face at the agency through which the person was recruited (99%), except where factors such as distance to travel necessitated a telephone interview (1%). The full baseline and follow-up interview schedules are in Appendix 2.2 and Appendix 2.3. A summary of the interview schedules, including domains covered, standardised tools used and rationale for inclusion is shown in Table 3.1. Interviews took approximately one hour to complete. Participants were reimbursed \$25 for the baseline interview and \$45 for the follow-up interview in recognition of their time and contribution.

## Follow-up interviews

Contact with participants who had been interviewed at baseline commenced on average twelve months after their baseline interview. Contact was made with participants in the same order with which they were interviewed, so as to ensure that as many participants as possible remained within the eligibility window. Difficulties in contacting participants were encountered. This meant that the end of the fifteen month eligibility window did occur for a proportion of participants. As a result, an extension of the eligibility window was discussed and implemented and extra resources were directed at prioritising these participants. As a result, the follow-up period ranged from 7.6 to 21.2 months (mean 12.5 months), although for the vast majority of participants (85%) the follow-up period was between nine and fifteen months post baseline.

Participants were contacted via telephone, reminded of their involvement in the baseline interview, and offered the opportunity to engage in a follow-up telephone interview at an agreed date and time. Participants were reminded at this stage that they would be reimbursed \$45 for their participation. At the conclusion of the follow-up data collection period, the majority of participants were successfully re-interviewed (70%, 555). Of those who were not re-interviewed, 11 (1%) were deceased, 19 (2%) were incarcerated, 66 (8%) no longer wished to take part (i.e. withdrew from study) and 145 participants (18%) could not be contacted after multiple attempts were made and were lost to follow-up. Follow-up interviews were conducted between December 2012 and February 2014.

Follow-up interviews were conducted by telephone at an agreed time. A small proportion of participants requested to be interviewed in person, usually for reasons related to confidentiality or due to preference for a cash reimbursement. Where this request was made, interviews were conducted at Turning Point (Victoria). At the end of the follow-up interview, participants were asked for permission to be contacted for a further interview at a later date. An overwhelming majority (99%) gave permission for further contact by the researchers.

# Follow-up procedures

Many clients were initially unable to be contacted via the telephone number provided to researchers at the time of the baseline interview. Where this occurred a number of strategies were implemented in order to make contact. Where consistent telephone phone calls and voicemail/text messages to primary contact number/s were unsuccessful – or in the event of a phone number being incorrect or disconnected – a letter and/or email was sent to the nominated addresses if provided at baseline. Following these, the researchers made contact with the original agencies from where the participant was originally recruited

and requested the most recent contact information be provided by the agency. Where all of these avenues of contact were unsuccessful, researchers attempted to make contact with secondary contact persons – that is, family, friends, partners, clinicians and others whom the participants had listed on the locator form at the time of the baseline interview and given permission to contact in the event of a loss of contact. Where this step was required, researchers made sure to uphold confidentiality by not disclosing the exact nature of the call. Where contact with the participant was not possible, and all avenues of contact had been exhausted, further contact attempts were postponed and resumed at a later date. The mean number of days between baseline and follow-up interview was 380.3 (SD 71.8 days)

#### Data management

Data were either recorded on a paper-based version of the interview schedule, or entered directly into an online version of the interview schedule via tablet. All records were transferred to Turning Point for centralised data cleaning and analysis. Prior to analysis, 10% (n=56) of the baseline interviews completed on paper were re-entered and data verification undertaken, which revealed a low rate of data entry error, well within the acceptable range. Where data were missing for individual items of a multi-item scale, decisions regarding whether to calculate the scale score or discard all data for that scale were based on published recommendations by the scale authors where available (WHOQOL and DISC). For other scales, scale scores were calculated based on the mean response to non-missing items only when < 25% of items were missing. No other forms of imputation were used to substitute for missing data and in analyses where data were missing for some participants, those participants' data were therefore deleted listwise for that analysis. Personal information, such as contact details and secondary contacts were stored in a separate password protected database.

## Data analysis

Continuous variables were tested for skew and kurtosis. Where the ratio of either the skew or kurtosis statistic to its standard error exceeded 3.1, variables were considered non-normal. Time between baseline and follow-up was normally distributed, but other continuous variables were not.

Bivariate relationships between categorical variables were analysed with Pearson's 2 statistic. Differences between groupings of participants on normal continuous measures were analysed with independent samples t-tests. For non-normal continuous measures, where there were 3 or more groups, Kruskall-Wallis tests used for between-group comparisons of non-normal variables. Pairwise comparisons (or post-hoc testing after a significant Kruskall-Wallis test result) were analysed with Mann-Whitney U tests. Changes in single variables between baseline and follow-up were analysed with McNemar tests (for categorical variables) or repeated measures Mann-Whitney U tests (for continuous variables). To compare follow-up WHOQOL scale scores to published general population means, we first raised WHOQOL scale scores to the power of 1.5 (i.e. multiplied scores by their square root) to create distributions of scores that did not violate assumptions of symmetry (i.e. skewness statistic: standard error ratio < 3.1 for all 4 scales). These transformed scores were then compared to the general population means (also raised to the power of 1.5) with Wilcoxon signed ranks tests.

Logistic regression was used to analyse predictors of binary outcomes. All predictors being tested were entered in a single block. In models predicting the main treatment outcomes (abstinence from PDOC (or 50% reduction in frequency of use of PDOC)), a 2-stage process was used whereby demographic and PDOC predictors of outcome were first tested. Only

statistically significant predictors from this model were then included in a second model which also included predictor variables indexing the PIT, service use, and the interval between baseline and follow-up. For all analyses, the  $\Box$  value for determining statistical significance was set to .05.

For the purpose of logistic regression analyses, the distribution of the variable "number of mutual aid meetings (follow-up)" was normalised with a log10 transformation. Age was normalised with the following square root transform: V(age-18). PIT duration was normalised by taking the square root of the log10 transformation. For SDS and MSPSS scores, no transformation could be found that simultaneously corrected both skewness and kurtosis to acceptable levels, and they were therefore converted to binary categorical variables for inclusion in logistic regression models. For SDS, this involved grouping those with scores > 7 (i.e. in the "severely dependent" range) into one category, and those with a score < 7 into the other. MSPSS scores were categorised with a median split.

# 3.2 Baseline results

# Participant characteristics

The final sample consisted of 796 participants who completed the baseline interview. Participants' ages ranged from 18.1-71.5 (median = 35.9, IQR = 28.7-44.5). The sample was predominantly male (62%). A large majority of the sample were born in Australia (80%) and spoke English as their first language (95%). Regarding marital status, 20% were currently married or in a de facto relationship, 23% were currently separated or divorced, 1% were widowed, and 56% reported having never married (and not currently in a de facto relationship). Indigenous Australians represented 7% of the total sample (17/404; 4% in Victoria and 39/391; 10% in WA).

Most participants had completed middle secondary school, or obtained further education. While a large majority (85%) had completed at least year 10 or higher, only 48% had completed at least year 12 and/or TAFE and/or an apprenticeship. University degrees were held by 12% of the sample. Regarding their usual employment pattern during the previous year, 27% reported full-time employment, 19% reported part-time employment, 6% reported carer or home duties, 1% were retired, 2% were students, 12% reported a disability that prevented participation in employment, 1% had been in a controlled environment that prevented participation in employment (e.g. prison), and 32% were unemployed. Data on days involved in paid employment in the past 90 days suggest a lower rate of recent workforce participation than that suggested by participants' reporting of their typical past year employment pattern. Only 32% had participated in any paid employment (1 or more days) and only 11% averaged over 4 days per week (52 or more days in total) during these 90 days.

At the time of baseline interview, 84% of participants were in receipt of some type of government benefits, including 48% who received unemployment benefits, 25% who received sickness allowance or disability support pension, and 11% who received some other type of benefit (e.g. student support, aged pension, family tax benefit, etc.). Acute housing problems (defined as not having one's own place to stay for at least one night, requiring the participant to sleep on the streets, in a shelter, hostel, or at a friend's place) were experienced by 26% of the sample in the previous 90 days while 22% reported being at risk of eviction at some time during this period. At least one of these two types of housing problems was reported by 35% of the sample. Chronic medical problems (defined as

requiring regular care and impacting on the participant's ability to engage in activities) were reported by 50% of the sample.

Participants were categorised by the type of substance use treatment they were receiving at baseline (primary index treatment; PIT). Of the 796 participants who met inclusion criteria, 29 (4%) were in assessment, 146 (18%) were receiving individual counselling, 21 (3%) were receiving group counselling, 344 (43%) were undergoing inpatient withdrawal, 6 (1%) were undergoing home-based withdrawal, 128 (16%) were in residential rehabilitation, 89 (11%) were in a therapeutic community, 15 (2%) were in supported accommodation, 15 (2%) were commencing pharmacotherapy, and 3 (0.4%) were referred to a peer support group.

For the purpose of further description and analysis of the sample, PIT was grouped into three categories: withdrawal (inpatient or home-based withdrawal), outpatient (assessment, individual or group counselling, pharmacotherapy, and peer support), and long-term residential (residential rehabilitation, therapeutic community, and supported accommodation). Demographic characteristics of these groups are shown in Table 3.2. Participants in long-term residential treatment had a significantly lower median age than both other groups, were more likely to be male, and were more likely to have experienced recent homelessness, but were less likely to report a current chronic medical condition than outpatients or those undergoing acute withdrawal. While there was a trend for long-term residential participants to be more likely than outpatients to report usually being in paid employment in the past year, they were significantly less likely than other groups to report having been engaged in any paid employment in the past 90 days. Differences in age by PDOC were also examined, and found to be significant (p < .001). Median age of those with alcohol as their PDOC (41.1 years) was significantly higher than the median age of those with cannabis (31.5 years; p < .001), opioids (34.8 years; p < .001), meth/amphetamine (29.5 years; p < .001), or other (32.9 years; p < .01) as their PDOC. Those with opioids as their PDOC were significantly older than those with cannabis (p < .05) or meth/amphetamine (p < .05) .001) as their PDOC.

	Total sample (N = 792- 796*)	Outpatient (n = 212- 214)	Acute withdrawal (n = 348-350)	Residential rehabilitation (n = 229-232)	P6
Age Range Median (IQR)	18.1-71.5 35.9 (28.7- 44.5)	18.9-69.1 36.3 (29.4- 45.2)	18.3-71.5 38.4 (30.6- 46.4)	18.1-65.2 32.3 (25.7-39.6)	< .001
Sex (% male)	62.2%	60.3%	58.3%	70.0%	< .05
Marital status (% proportion currently married or de facto)	19.9%	20.1%	20.3%	19.0%	.93
Born in Australia (%)	80.2%	80.4%	78.0%	83.2%	.31
Education (% completed year 12 and/or TAFE and/or apprenticeship)	48.4%	47.7%	50.7%	45.7%	.47
Employment (% usually in paid employment during past 12 months)	46.4%	40.2%	47.7%	50.0%	.09

#### Table 3.2 Participant characteristics at baseline

<sup>&</sup>lt;sup>6</sup> p values refer to tests of null hypotheses for differences between the three PIT types (see methods section for statistical test used)

	Total sample (N = 792- 796*)	Outpatient (n = 212- 214)	Acute withdrawal (n = 348-350)	Residential rehabilitation (n = 229-232)	P6
Any days engaged in paid employment in past 90 days (%)	32.3%	37.4%	34.8%	23.9%	< .01
Homelessness in past 90 days (%)	26.1%	20.2%	24.6%	33.6%	< .01
Chronic medical condition (%)	50.2%	58.5%	54.6%	35.9%	< .001

\*Amount of missing data differed between analyses presented in this table, thus ranges given for Ns

## Drugs of concern

Participants were asked to nominate which substance caused them the greatest level of concern (PDOC). Alcohol was nominated by 375 (47%), meth/amphetamine by 157 (20%), cannabis by 117 (15%), heroin by 83 (10%), prescription opioid analgesics by 17 (2%), unspecified opioids by 8 (1%), benzodiazepines by 8 (1%), tobacco by 8 (1%) and methadone by 6, buprenorphine by 6, cocaine by 3, GHB by 2, synthetic cannabinoids by 2, ecstasy by 1, and solvent inhalants by 1 (all <1%). For further analyses, PDOC was grouped into five categories: alcohol (47%); cannabis (15%); meth/amphetamine (20%); opioids (heroin, methadone, buprenorphine, opioid analgesics, or other opioids; 15%); and other (3%). Proportions of participants endorsing each of these substances as their PDOC are shown in Figure 3.1. As is shown in Table 3.3, the proportion of participants nominating particular primary drugs of concern differed between treatment types. Alcohol was more commonly the PDOC for participants undergoing acute withdrawal than for other treatment types. Meth/amphetamine was most common in long-term residential treatment, while opioids were most common among outpatients. These differences in PDOC by PIT type are dissimilar to those reported for all of Australia in the 2009-10 National Minimum Data Set, in which alcohol was similarly prevalent (51-55%) across all relevant treatment types, opioids were most strongly represented in acute withdrawal (19%) than in other treatment types (14% in residential rehabilitation, 11% in counselling), and meth/amphetamines were generally less common as the PDOC than in our sample (9% in counselling, 4% in acute withdrawal, and 11% in residential rehabilitation). Participants were also asked to nominate any secondary drugs of concern. Five hundred (64%) nominated a second drug of concern, 257 (32%) nominated a third drug of concern, 103 (13%) nominated a fourth drug of concern, 7 nominated five drugs, and 1 participant nominated six drugs. When those only nominating tobacco as a secondary drug of concern were excluded, a majority (52%) still nominated at least one secondary drug of concern. Participants in long-term residential treatments were more likely to nominate multiple drugs of concern than participants in other types of treatment, whether or not tobacco was counted, and were more likely than other groups to nominate benzodiazepines, meth/amphetamines, or tobacco as either primary or secondary drugs of concern. Remarkably, the majority of participants in longterm residential treatment nominated meth/amphetamines as either their primary or as a secondary drug of concern. Alcohol was less commonly a drug of concern for outpatients than for the other treatment categories.



#### Figure 3.1 Primary drug of concern

Clinical dependence on one's PDOC was assessed using the Severity of Dependence Scale (SDS). Median SDS score was significantly lower in outpatients than in the other two groups. However, all groups tended to have high SDS scores, with 99% of participants scoring in the 'probable dependence' range (using a cut-off score of 3 or more) and 88% in the severely dependent range (using a cut-off score scoring 7 or more). Outpatient participants were significantly more likely to score below both of these cut-off scores than acute withdrawal or long-term residential participants.

	Total sample (N = 792- 7944*)	Outpatient (n = 213)	Acute withdrawal (n = 349-350)	Residential rehabilitation (n = 229-231)	p
Primary drug of concern:					< .001
Alcohol	47.2%	40.4%	55.7%	40.7%	
Cannabis	14.7%	17.8%	14.9%	11.7%	
Meth/amphetamine	19.8%	17.4%	12.3%	33.3%	
Opioids	15.1%	22.1%	12.6%	12.6%	
Other	3.1%	2.3%	4.6%	1.7%	
Median (IQR) SDS score for PDOC	11 (8-13)	10 (7-12)	12 (9-14)	11 (8-13)	< .001
SDS score for PDOC (> 7)	87.8%	82.2%	89.4%	90.4%	< .05
Any secondary DOC (excluding tobacco)	51.8%	47.4%	46.0%	64.8%	< .001
Alcohol as DOC	63.1%	51.6%	70.0%	63.2%	< .001
Benzodiazepines as DOC	13.8%	14.6%	10.6%	17.9%	< .05
Cannabis as DOC	38.5%	37.6%	37.1%	41.3%	.57
Meth/amphetamines as DOC	35.0%	29.6%	26.3%	53.3%	< .001
Opioids as DOC	25.5%	30.5%	22.9%	24.9%	.13

#### Table 3.3 Drugs of concern by index treatment type at baseline

DOC= drug of concern, PDOC = primary drug of concern

\*Amount of missing data differed between analyses presented in this table, thus ranges given for Ns

#### Comparisons with Victorian ADIS data

To examine the degree to which the Victorian data in the Patient Pathways sample was representative of the broader treatment population, we compared information on participant characteristics to that from the Victorian Alcohol and Drug Information Service (ADIS) regarding the entire population of clients new to treatment in the past 31 days at any time during the calendar year 2012 (N = 51,289), during which the majority of Pathways recruitment occurred. The Patient Pathways cohort was broadly representative of the Victorian client population as represented in ADIS data: 65% of the ADIS sample was male, as was 64% of the Victorian Pathways sample. A similar trend was seen in the age categories between the Patient Pathways cohort and ADIS data, with the highest proportion being in the 20-29 and 30-39 age categories, followed by clients aged 40-49 years. ADIS data was comprised of more clients aged 19 or below. However this is due to the inclusion criteria (age 18 or above) adopted in the current study.

Age category	Whole Victorian new-to-treatment population in 2012 (%)	Victorian Pathways sample (%)
10-14*	1.6	n.a.
15-19*	12.3	2.2
20-29	28.3	30.9
30-39	26.6	31.7
40-49	19.1	23.0
50-59	8.5	9.9
60+	3.6	2.2

Table 3.4 Age comparison of Pathways sample and Victorian new-to-treatment population

\*Pathways sample only contains participants aged 18+

## Treatment goals

Participants were asked to choose one of four treatment goals related to their alcohol use and one of five treatment goals related to other drug use. For the purpose of analysing responses related to alcohol, only participants who nominated alcohol as either a primary or secondary drug of concern (n = 498) were included. Proportions who endorsed each goal are shown in Figure 3.2. Complete cessation of alcohol use was the motive for treatment endorsed by the majority of participants in withdrawal and residential services and the most common motive in outpatient services. Outpatient participants who had nominated alcohol as a drug of concern were less likely than other groups to endorse complete abstinence as a goal, and more likely to endorse reduced or more controlled drinking instead.

For the purpose of analysing responses related to other drugs, only participants who nominated any drug other than alcohol or tobacco as either a primary or secondary drug of concern (n = 547) were included. Proportions who endorsed each goal are shown in Figure 3.3. Complete cessation was endorsed by a majority of participants from all PIT types. Participants in long-term residential treatment were significantly more likely than other groups to endorse complete abstinence as their goal and less likely than other groups to endorse any other goal. As with alcohol, outpatient participants were less likely than other groups to endorse complete abstinence as a goal and more likely to endorse reduced or more controlled drug use instead.



Figure 3.2 Proportion of participants who nominated alcohol as a drug of concern endorsing each alcohol-related treatment goal





# Quality of life

Participants were asked to rate their overall quality of life and overall satisfaction with their health on scales of 1-5 (for quality of life: 1 = very poor, 5 = very good; satisfaction with health: 1 = very dissatisfied, 5 = very satisfied). Median ratings differed significantly by PIT type for both overall quality of life (p < .001) and for overall health satisfaction (p < .001). Participants in acute withdrawal reported significantly lower quality of life than both outpatient participants and long-term residential participants (p < .001) and were significantly more likely to give below-neutral ratings of 1 or 2 (very poor or poor; p < .001). Acute withdrawal participants also reported significantly lower health satisfaction than both outpatients (p < .05) and long-term residential participants (p < .001), and outpatients reported significantly lower health satisfaction than both outpatients (p < .05) and long-term residential participants (p < .001), and outpatients reported significantly lower health satisfaction than both outpatients (p < .05) and long-term residential participants in long-term residential treatment (p < .001). Participants in long-term residential treatment were significantly less likely than other groups to give below-neutral ratings of 1 or 2 (very dissatisfied or dissatisfied; p < .001)

Median WHOQOL domain scores for physical, psychological, social, and environmental quality of life were 1.1, 1.8, 1.6, and 1.2 standard deviations below the means reported in an

Australian general population sample by Hawthorne, Herrman, and Murphy (2006). Indeed, for each of these domains, over 80% of participants scored below the mean reported for Hawthorne et al.'s (2006) normative sample, over 50% scored more than 1 standard deviation below these general population means (indicating low quality of life), and over 20% scored more than 2 standard deviations below general population means (indicating very low quality of life). Acute withdrawal participants rated their physical (p < .001), psychological (p < .001), and social (p < .01), quality of life significantly lower than long-term residential participants and rated their physical (p < .05) and psychological (p < .05) quality of life lower than outpatient participants. Outpatient participants rated their physical (p < .001) and psychological (p < .01) quality of life significantly lower than participants in long-term residential treatment. Similar patterns of differences between groups were evident when proportions of participants with scores indicating low or very low quality of life were analysed (data not shown).

	Total sample (n = 794-795)	Outpatient (n = 213-214)	Acute withdrawal (n = 349)	Residential rehabilitation (n = 232)	p
Median (IQR) physical QOL	53.6 (39.3-67.9)	50.0 (39.3-64.3)	46.4 (32.1-60.7)	64.3 (50.0-75.0)	< .001
Median (IQR) psychological QOL	45.8 (29.2-62.5)	41.7 (32.3-62.5)	41.7 (25.0-58.3)	54.2 (37.5-66.7)	< .001
Median (IQR) social QOL	41.7 (25.0-58.3)	50.0 (25.0-58.3)	41.7 (25.0-58.3)	50.0 (33.3-66.7)	< .05
Median (IQR) environmental QOL	59.4 (46.9-71.9)	59.4 (43.8-71.9)	56.2 (46.9-71.9)	59.4 (50.0-71.9)	.36

#### Table 3.5 Level of quality of life by index treatment type at baseline

\*Amount of missing data differed between analyses presented in this table, thus ranges given for Ns

#### Use of services in the year prior to study intake

Participants were asked to report on their use of AOD-specialist treatment, health and welfare and acute service use in the year prior to their PIT. Table 3.6 displays the proportion of participants who engaged in each of these types of services. Based on participants' reports of number of attendances at each type of service, we estimated that the 795 participants who completed these questions collectively engaged in 541 episodes of acute withdrawal, 5,063 AOD counselling sessions, 139 episodes of long-term residential rehabilitation, 8,890 appointments with a general practitioner, 723 ambulance attendances, 1,175 emergency department presentations, 493 hospital inpatient admissions, 3,177 outpatient mental health service appointments, 803 legal aid appointments, 3,666 employment service appointments, and 1,068 attendances at a housing or homelessness service in the year prior to their PIT. Overall, 68% of participants had previously attended some type of AOD service. Prior AOD service use was significantly more common among those in long-term residential treatment (80%) than outpatient participants (60%) or acute withdrawal participants (64%). Participants in long-term residential treatment were significantly more likely than those in other groups to report prior attendance at an acute withdrawal service (perhaps reflecting the fact that supervised acute withdrawal is a prerequisite for attendance at many long-term residential services) and engagement in previous long-term residential treatments.

While there were no differences between groups in the proportion who had attended an appointment with a general practitioner (GP), or in mean number of visits, it is noteworthy that 25% of the sample averaged more than one GP visit per month (13 or more visits in the past year), suggesting a high rate of general health problems in at least a large minority of the sample. This is further supported by the fact that 60% of participants used an acute health service (ambulance, emergency department (ED), or hospital inpatient admission) in this 12-month period, including 53% who reported at least one ED presentation. While overall proportion of participants attending these service types did not differ significantly between groups, long-term residential participants were significantly more likely to report multiple (2 or more) ED presentations than outpatient participants or acute withdrawal participants (37% vs. 23% and 29% respectively). Outpatient participants were significantly more likely than other groups to have attended outpatient mental health services and housing/homelessness services.

Prior service use in past 12 months	Total sample (N = 783-795)	Outpatient (n = 212-214)	Acute withdrawal (n = 341-349)	Residential rehabilitation (n = 230-232)	p
Acute withdrawal	36.0%	25.2%	28.9%	56.5%	< .001
AOD counselling	53.1%	47.2%	55.5%	55.2%	.12
Residential rehabilitation	12.8%	6.5%	8.9%	24.6%	< .001
General practitioner	90.4%	93.5%	89.7%	88.7%	.19
Ambulance	34.8%	29.0%	36.5%	37.5%	.11
Emergency department	53.4%	47.7%	53.7%	58.2%	.08
Hospital inpatient admission	27.7%	27.1%	27.3%	28.9%	.89
Outpatient mental health service	39.0%	47.2%	35.6%	36.6%	< .05
Legal Aid	29.1%	32.2%	21.6%	37.5%	< .001
Employment service	40.8%	42.1%	39.4%	41.8%	.77
Housing or Homelessness service	19.8%	26.4%	17.3%	17.4%	< .05

#### Table 3.6 Level of service use in past 12 months by index treatment type at baseline

\*Amount of missing data differed between analyses presented in this table, thus ranges given for Ns

## Contact with the criminal justice system

Participants had a rate of engagement with the criminal justice system that is typically observed among this population, with 35% having either been imprisoned, in a community-based offender program, held in lock-up, or remanded in custody in the past year or currently on bail; awaiting charges, trial, or sentencing; on bond; on some type of court order; or on parole, suspended sentence, or probation; or facing a warrant. These problems were significantly more common in long-term residential participants than in outpatients or acute withdrawal participants (49% vs. 34% and 26% respectively). Specific indices of

involvement in the criminal justice system are shown in Table 3.7. Long-term residential participants had substantially higher rates of involvement for every one of these indices.

	Total sample (N = 775-793)	Outpatient (n = 208-213)	Acute withdrawal (n = 340-350)	Residential rehabilitation (n = 227-231)	p
Prison in past year	8.0%	4.2%	2.3%	19.9%	< .001
Community-based offender program in past year	11.0%	11.8%	5.8%	17.8%	< .001
Held in lock-up or watch-house in past year	14.3%	6.7%	9.4%	28.6%	< .001
Remanded in custody in past year	8.5%	3.8%	4.4%	18.9%	< .001
Current legal problems**	29.9%	29.1%	23.1%	40.9%	< .001

Table 3.7 Contact with the justice syster	n by index treatment type at baseline
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\*Amount of missing data differed between analyses presented in this table, thus ranges given for Ns

\*\* Currently on bail; awaiting charges, trial, or sentencing; warrant; bond; court order; parole; suspended sentence; or probation.

Table 3.7 indicates that participants with involvement in the criminal justice system (CJS) were significantly more likely to have residential rehabilitation as their PIT than other treatment types. These participants also appeared to have more entrenched problems and greater marginalisation: Those with current or past year criminal justice system involvement were less likely to be in a stable relationship (p < .01), to have completed year 12 and/or TAFE and/or an apprenticeship (p < .001) or be employed in the previous 90 days (p < .001), and were significantly more likely to have been homeless (p < .01). They were also significantly more likely to have meth/amphetamine as their PDOC, and less likely to have alcohol as their PDOC, than those with no current or past year criminal justice system involvement (p < .001).

# 3.3 Follow-up

# Overview

The outcomes for 73% (585/796) of the sample were ascertained, with 555 (70%) of participants successfully re-interviewed, 11 deceased and 19 incarcerated. Sixty-six participants (8%) withdrew from the study and 145 (18%) could not be contacted and were lost to follow-up. The participants who completed follow-up interviews were compared to those who did not on several baseline demographic, substance use, and treatment variables to detect potential sources of bias in follow-up data. Follow-up completers did not differ significantly from non-completers in gender, marital status, whether or not they were born in Australia, having English as a first language or not, completion of either year 12 and/or TAFE and/or an apprenticeship, usual employment pattern in the past 12 months, current receipt of government benefits, SDS score for their PDOC, overall QOL, overall health satisfaction, physical QOL, psychological QOL, social QOL, or environmental QOL ratings, nor current receipt of government benefits (all ps >. 05).

Those who completed a follow-up interview were significantly older at baseline than noncompleters (p < .001). Participants from Western Australia were significantly less likely to complete the follow-up interview than participants from Victoria (64% vs. 75%, p < .001) and those who had experienced homelessness in the 90 days prior to baseline were less likely to complete the follow-up interview than those who did not (61% vs. 73%; p < .01). Participants who reported suffering a chronic medical condition at baseline were more likely to be followed up than those who did not (73% vs. 67%; p < .05). Participants who were involved in the criminal justice system at baseline were also significantly less likely to complete the follow-up interview than those with no criminal justice system involvement (60% vs. 74%, p < .001). Participants whose PIT was outpatient treatment were most likely to complete the follow-up interview, while those in long-term residential treatment were least likely (outpatient: 82%, acute withdrawal: 69%, long-term residential: 59%; p < .001). Having meth/amphetamine as the PDOC was associated with a significantly lower likelihood of completing the follow-up interview than other PDOC categories (alcohol: 73%, cannabis: 73%, opioids: 73%, meth/amphetamine: 59%, other: 64%; p < .01).

The time between baseline and follow-up interviews ranged from 232 to 644 days (mean = 380.3, SD = 71.8). This follow-up interval differed significantly between PIT types (p < .001). Outpatient participants' mean follow-up interval (400.2 days) was significantly longer than the follow-up intervals for those whose PIT was acute withdrawal (375.2 days) or long-term residential treatment (363.9 days).

PIT completed: 364/553 (66%) reported completing their PIT and 33 (6%; 28 outpatients, 5 long-term rehabilitation participants) were still in the same programme as when recruited. The proportion of participants who had either completed their PIT or were still engaged in it was significantly higher for acute withdrawal (86%), followed by long-term residential rehabilitation (64%) and lowest among outpatient participants, (59%), p < .001.

Treatment satisfaction: Those who were no longer in their PIT (completed or ceased before completion; N = 513) were asked "Did you feel you successfully achieved what you wanted from treatment?" Positive endorsement of this item was significantly higher among acute withdrawal participants (77%) and long-term residential participants (70%) relative to outpatients (62%) (p < .01). Median scores on the CSQ-8, a standardised measure of treatment satisfaction, were significantly higher among those who completed their PIT than those did not (p < .001).





# Duration of PIT

Participants who were not still engaged in their PIT at follow-up (i.e. whose PIT was either completed or ended prematurely) were asked about the duration spent engaged in the PIT. Among outpatient participants whose PIT had ended prior to follow-up (n = 123), duration of engagement in PIT ranged from 1-483 days (median = 70; IQR = 28-168). No acute withdrawal participants (n = 234) were still engaged in their PIT at follow-up, and PIT duration ranged from 1-22 days. A seven-day course of treatment was the norm for this group, with 62% reporting this as their duration, 10% reporting shorter durations, and 28% reporting durations of 8 or more days. Long-term residential treatment duration in those

not still engaged in their PIT at follow-up (n = 129) ranged from 4 to 392 days (median = 63, IQR = 28-143.5).

# Changes in personal circumstances between baseline and follow-up

Table 3.8 shows that there were some markers of increased stability and functioning one year after the PIT. Whilst unemployment rates were unchanged, the proportion of participants receiving unemployment benefits at the time of follow-up had fallen significantly. In addition, a significantly lower proportion had experienced recent homelessness at follow-up. There were non-significant trends in a positive direction for both stable relationships and criminal justice involvement.

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	Baseline n (%)	Follow-up n (%)	р
Unemployment (no paid employment in past 90 days)	368 (67.0)	367 (66.8)	1.0
Current receipt of unemployment benefits	248 (44.8)	211 (38.1)	< .01
Homeless/housing issues	126 (22.8)	99 (17.9)	< .05
Criminal justice involvement	142 (25.8)	122 (22.1)	.09
Stable relationship (married/de facto)	109 (19.7)	119 (21.5)	.29

#### Table 3.8 Changes in personal circumstances at baseline and follow-up (post-PIT) (ns =549-554)

## Service use post-PIT

There were few changes in the proportion using AOD specialist, community and acute services between baseline and follow-up, with almost all (94%) visiting a GP and more than two thirds attending further AOD-specialist treatment (see Table 3.9). In contrast, the proportion engaging with financial counselling services (12%) and family/relationship counselling services (8%) remained similarly low, and significantly dropped for legal aid (from 26% to 20%). The proportion engaging with acute withdrawal decreased significantly whilst the proportion who engaged with residential rehabilitation increased significantly. There was a significant increase in the proportion who engaged with mutual aid groups (e.g. AA, NA, other 12-step, SMART Recovery or other recovery groups such as Gamblers Anonymous, etc.,) which were attended by 33% at baseline and 49% at follow-up. Although more than half of participants had used at least one type of acute health service (ambulance, ED, hospital inpatient admission) at follow-up, there was a statistically significant decrease in rates of acute service use relative to rates of use before baseline. There was a 16% reduction in the proportion of participants accessing at least one of these service types, which is likely to reflect a substantial reduction in health care costs.

Table 3.9 Use in the years before and after PIT of AOD specialist, community and acute medic	:al
service	

Health / social service	n	Pre-PIT	Post-PIT	p
Any AOD Tx (exc. Mutual aid)	552	68.7%	67.6%	.73
Acute withdrawal (detoxification)	553	34.7%	23.7%	< .001
AOD counselling	552	55.4%	52.2%	.27
Residential rehabilitation	553	12.7%	26.6%	< .001
Self-help and mutual aid programs	537	32.6%	48.6%	< .001
Any community service (exc. GP)	550	81.3%	76.9%	.052
General practitioner	551	91.3%	94.0%	.07

Health / social service	n	Pre-PIT	Post-PIT	р
Mental health service1	550	39.1%	35.3%	.13
Legal aid	550	25.8%	20.4%	< .05
Financial counselling	550	11.5%	12.4%	.66
Employment service	550	40.5%	40.0%	.88
Family/relationship counselling	550	6.4%	7.6%	.44
Housing/homelessness service	539	20.4%	21.0%	.86
Any acute service use	550	60.4%	50.9%	< .001
Ambulance	551	35.4%	29.9%	< .05
Hospital emergency department	550	53.1%	43.6%	< .001
Hospital inpatient services	550	28.5%	24.4%	.08

Note: 1) Mental health services included visit to outpatient psychologist, psychiatrist, mental health nurse, mental health worker, crisis and assessment team (CATT)

# Table 3.10 Use in the years before and after PIT of AOD specialist, community and acute medical service among outpatient participants

Health / social service use	n	Pre-PIT	Post-PIT	Ρ
Any AOD (exc. Mutual aid)	175	61.1%	50.3%	< .05
Withdrawal (detoxification)	176	25.6%	20.5%	.24
AOD counselling	176	48.3%	36.9%	< .05
Residential rehabilitation	176	6.2%	9.1%	.38
Self-help and mutual aid programs	169	31.4%	31.4%	1.00
Any community service (exc. GP)	175	88.0%	77.1%	< .01
General practitioner	175	93.7%	94.3%	1.00
Mental health service	175	46.3%	37.7%	< .05
Legal aid	175	30.9%	21.1%	< .05
Financial counselling	175	13.1%	8.6%	.13
Employment service	175	41.7%	41.7%	1.00
Family/relationship counselling	175	4.6%	4.6%	1.00
Housing/homelessness service	173	26.6%	19.1%	.07
Any acute service use	175	56.0%	50.3%	.24
Ambulance	175	28.6%	28.0%	1.00
Hospital emergency department	175	48.6%	45.1%	.50
Hospital inpatient services	175	28.0%	22.9%	.23

Service use in the past year was not consistent across PIT type. Among outpatient participants there was little change except a small reduction in the proportion engaging in counselling and community services (particularly legal aid and mental health services) (see Table 3.10). Among acute withdrawal participants, there was a significant increase in GP attendance rates and in the proportion engaging in any form of AOD-specialist treatment (77%), with the most significant increase in residential rehabilitation, attended by more than one-third post-PIT. The proportion attending mutual aid groups also increased significantly so that just over half were attending post-PIT (see Table 3.11).

Health / social service use	n	Pre-PIT	Post-PIT	Р
Any AOD (exc. Mutual aid)	240	67.1%	76.7%	< .05
Withdrawal (detoxification)	240	28.8%	27.1%	.75
AOD counselling	239	59.0%	60.3%	.84
Residential rehabilitation	240	7.9%	34.2%	< .001
Self-help and mutual aid programs	233	30.0%	50.2%	< .001
Any community service (exc. GP)	239	76.2%	77.0%	.90
General practitioner	239	90.0%	95.4%	< .05
Mental health service	239	37.2%	37.2%	1.00
Legal aid	239	18.8%	19.2%	1.00
Financial counselling	239	13.0%	15.5%	.46
Employment service	239	38.9%	36.8%	.64
Family/relationship counselling	239	6.3%	8.8%	.34
Housing/homelessness service	232	18.1%	19.0%	.89
Any acute service use	239	59.8%	55.2%	.29
Ambulance	239	37.2%	33.9%	.43
Hospital emergency department	239	51.9%	46.0%	.17
Hospital inpatient	239	28.5%	28.9%	1.00

Table 3.11 Use in the years before and after PIT of AOD specialist, community and acute medicalservice among acute withdrawal participants

Among participants in residential rehabilitation (Table 3.12) there was little change except a reduction in the proportion undergoing inpatient detoxification post-PIT and in their acute service use (though this is likely an artefact of their increased time in residential services where substance use is prohibited and where they receive more regular medical attention). There was however a significant increase in the proportion attending mutual aid meetings, with over two-thirds attending during the year after their PIT, though this could reflect the philosophy of the PIT type; since encouragement to engage in peer-support following discharge is common in residential rehabilitation settings (or even a component of the rehabilitation treatment itself).

Table 3.12 Use in the years before and after PIT of AOD specialist, community and acute medical
service among residential rehabilitation participants

Health / social service	n	Pre-PIT	Post-PIT	Р
Any AOD (exc. Mutual aid)	137	81.0%	73.7%	.16
Withdrawal (detoxification)	137	56.9%	21.9%	< .001
AOD counselling	137	58.4%	57.7%	1.00
Residential rehabilitation	137	29.2%	35.8%	.25
Self-help and mutual aid programs	135	38.5%	67.4%	< .001
Any community service (exc. GP)	136	81.6%	76.5%	.28
General practitioner	137	90.5%	91.2%	1.00
Mental health service	136	33.1%	28.7%	.41
Legal aid	136	31.6%	21.3%	< .05
Financial counselling	136	6.6%	11.8%	.14
Employment service	136	41.9%	43.4%	.89

Health / social service	n	Pre-PIT	Post-PIT	Ρ
Family/relationship counselling	136	8.8%	9.6%	1.00
Housing/homelessness service	134	16.4%	26.9%	< .05
Any acute service use	136	66.9%	44.1%	< .001
Ambulance	137	40.9%	25.5%	< .01
Hospital emergency department	136	61.0%	37.5%	< .001
Hospital inpatient	136	29.4%	18.4%	< .05

# Service use Post-PIT by Primary drug type

Participants with opioids as their PDOC were much more likely to engage in specialist AOD services post-PIT. Participants with alcohol as their PDOC were more likely to engage with acute services in the year following their PIT. In contrast, use of community services and mutual aid showed little variation according to PDOC. The referral source for the 36 outpatient participants who attended an acute withdrawal post-PIT was most commonly self-referral (n=16, 44%) followed by referral from an AOD service (n=13, 36%). The referral source for the 82 acute withdrawal participants who attended residential rehabilitation post-PIT was most commonly self-referral (n=21, 26%), and then referral from an emergency department (n=15, 19%).

				-		
Service type attended	Alcohol (%)	Cannabis (%)	Opioids (%)	Meth/amphet (%)	Total (%)	р
AOD services (not including mutual aid or pharmacotherapy)	67.0	64.7	67.4	69.6	67.6	.76
Community service	72.8	82.4	80.2	79.3	77.0	.21
Acute or emergency services	58.1	42.4	41.9	46.7	51.0	< .05
Mutual aid or self help groups	50.4	35.7	51.2	53.8	48.6	.12
Pharmacotherapy	17.2	9.4	60.7	9.8	21.6	< .001

#### Table 3.13 Post PIT AOD specialist, community and acute medical service use by PDOC

## Participant outcomes

#### A. Abstinence

At follow-up 37.5% (208/554) reported that they had been abstinent from their PDOC in the month prior to interview. Abstinence rates were highest when the PDOC was meth/amphetamine (61%), followed by opioids (45%); cannabis (34%) and lowest for alcohol (28%). Participants who were prescribed their PDOC, or a pharmacologically similar substance (e.g. substitution pharmacotherapy), but only used it as prescribed (i.e. never used more than the prescribed dose or sourced additional illicit supplies of the substance) were considered abstinent for the purpose of these analyses (n = 22). A similarly superior outcome for participants with meth/amphetamine as their PDOC was observed when abstinence from all drugs of concern other than tobacco was analysed (see Figure 3.5).



# Figure 3.5 Differences in rates of abstinence for PDOC and all DOCs when the PDOC is the indicated substance

Rates of abstinence were significantly higher among those for whom residential rehabilitation was their PIT (56%; p < .001). Abstinence rates were 33% among those for whom outpatient counselling was their PIT and 30% among those for whom acute withdrawal was their PIT. The rates of abstinence from all drugs of concern (DOCs) other than tobacco by PIT are shown a similar trend (see Figure 3.6). Twenty-one percent of the sample were entirely abstinent from all drugs in the past month, including alcohol (but not including tobacco) at follow-up. The highest rate of complete abstinence was achieved by long-term residential participants (30%), which was significantly higher than rates achieved by other PIT groups (outpatient: 16%; acute withdrawal: 20%, p < .05). Taking a conservative estimate and assuming all participants lost to follow-up (excluding those deceased or incarcerated from the analysis) were still using, the overall past month abstinence rate from PDOC was 27%.

These results consistently show long-term residential treatment to be associated with higher rates of abstinence. To test this further, we compared participants who had any residential rehabilitation either in the year preceding their PIT, as their PIT, or between their PIT and follow-up (n = 253) to participants with no residential rehabilitation during this 2 year period (n = 302). Participants who had been in any residential rehabilitation were significantly more likely to be abstinent from all DOCs (40% versus 22%; p < .001) and from their PDOC (48% versus 29%; p < .001). Fourteen percent reported being abstinent from their PDOC during the past year, and rates were 26% when the PDOC was meth/amphetamine, 17% for opioids, 16% for cannabis, and 8% for alcohol (p < .001). Only 4% reported being entirely abstinent from all drug and alcohol use during the past year.





#### Differences in abstinence rates by age, gender, ethnicity

Logistic regression results showed that being older predicted lower likelihood of abstinence from PDOC (OR = 0.85, CI = 0.74-0.98), but not all DOCs (OR = .96, CI = 0.83-1.11), though this is likely to be biased by the higher drop-out rate among younger participants. There were no significant differences in gender with abstinence rates of 35% for men and 41% for women for PDOC (p = .21) and 27% of men and 35% of women for all DOCs (p = .08). There were no significant differences in the rates according to ethnicity, which for PDOC were 37% for Australian-born and 42% for foreign-born participants (p = .32), though there was a nearsignificant trend for foreign-born participants to be more likely to abstain from all their DOCs (29% among Australian-born; 38% among foreign-born; p = .06) (Table 3.14).

Abstinence rates in relation to Health or	Primary Drug of Concern (PDOC)			All Drugs of Concern (ALL DOCs)		
social service use	Attended	Did not attend	p	Attended	Did not attend	р
AOD service use (N = 551)	38.4%	35.1%	.46	32.0%	27.4%	.27
Self-help and mutual aid programs (N = 548)	45.5%	29.8%	< .001	39.1%	22.0%	< .001
Acute service use (N = 550)	35.2%	40.1%	.23	29.6%	31.5%	.64
Community service use (exc. GP) (N = 550)	38.1%	36.2%	.71	31.0%	29.1%	.69

#### Table 3.14 Abstinence rates by service use post-PIT

The rates of abstinence from both PDOC and all DOCs showed little variation according to type of services used post-PIT, with the exception of attendance at mutual aid groups, which was associated with significantly higher rates of abstinence.

#### B. Treatment Success



# Figure 3.7 Proportion of participants (total sample) achieving different degrees of treatment success (frequency of use)

Success in reducing frequency of use of the PDOC by at least 50% (or being abstinent from the PDOC) at follow-up was achieved by 53% of the total sample. The rate of success achieved by long-term residential participants (62%) was higher than those achieved by outpatient participants (50%) and acute withdrawal participants (50%), though these differences did not reach statistical significance (p = .06). However, those who had residential rehabilitation during any part of their 2-year treatment journey (pre-PIT, PIT, or post-PIT) were significantly more likely to succeed than those with no long-term residential treatment in this period (59% vs. 48%, p < .01). When the sample was grouped by PDOC, success rates were significantly higher (p < .001) for meth/amphetamine (73%), followed by opioids (58%), cannabis (51%), and alcohol (46%). Taking a conservative estimate and assuming all participants lost to follow-up (excluding those deceased or incarcerated from the analysis) were treatment failures, the treatment success rate was 38%.

# C. Changes in severity of dependence

Table 3.15 shows that there were significant reductions in the severity of dependence (SDS score) for PDOC between baseline and follow-up and that this was observed across all PIT types. A clinically meaningful reduction in SDS score (i.e. > 50%) was achieved by 32% (173/540) of the overall follow-up sample; 42% of residential rehabilitation, 29% of acute withdrawal and 28% of outpatient participants (p < .05).

PIT-type	Baseline (median)	Follow-up (median)	р
Outpatient (n = 174)	10.0	7.5	< .001
Acute withdrawal (n = 237)	12.0	9.0	< .001
Residential rehabilitation (n =	11.0	7.0	< .001
Total (n = 547)	11.0	8.0	< .001

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## D. Changes in Quality of Life (QOL)

Participants within each PIT type had a significantly higher median scores on each of the WHO-QOL domains than they had at baseline, reflecting improved QOL (see Table 3.16), with the exception of physical QOL among the residential rehabilitation participants. Australian general population means for each domain appear in parentheses in the "total" section. At follow-up, median physical, psychological, social, and environmental QOL remain

significantly lower than Australian general population means (all ps < .001). Median scores at follow-up were 0.71, 1.17, 0.73, and 0.73 SDs below general population norms, respectively.

Table 3.16 Changes in median score on each WHOQOL domain between baseline and follow-up for
each PIT type

PIT-type	WHO QOL Domain	Baseline median	Follow-up median	р
Outpatient	Physical	50.0	60.7	< .001
	Psychological	41.7	54.2	< .001
	Social	41.7	58.3	< .001
	Environmental	59.4	68.8	< .001
Acute withdrawal	Physical	46.4	57.1	< .001
	Psychological	41.7	54.2	< .001
	Social	41.7	50.0	< .001
	Environmental	57.1	62.5	< .001
Residential rehabilitation	Physical	67.9	67.9	.62
	Psychological	54.2	58.3	< .05
	Social	50.0	58.3	< .001
	Environmental	59.4	71.9	< .001
Total (Norms)	Physical (73.5)	53.6	60.7	< .001
	Psychological (70.6)	41.7	54.2	< .001
	Social (71.5)	41.7	58.3	< .001
	Environmental (75.1)	59.4	65.6	< .001

Using the standard deviations of Hawthorne et al.'s (2006) Australian general population sample, WHO-QOL scores on each domain were then recoded as significant improvement (i.e. > 1 SD increase), no significant change (< 1 SD change), or significant deterioration (> 1 SD decrease). This indicated that 37% of the followed-up sample improved on the psychological domain, 36% on the social domain, 33% on the environmental domain and 28% on the physical domain (Figure 3.8). In summary this indicates that irrespective of PIT, treatment significantly improves quality of life for the majority of participants.



Figure 3.8 Direction of change in each WHO-QOL domain between baseline and follow-up

## E. Defining unmet needs

It was hypothesised that participants with more extensive AOD specialist treatment and greater engagement with community service would achieve better outcomes. However not all participants would need to engage with all of the various community services examined. It was expected that participants who were homeless or unemployed at baseline would achieve better outcomes if they engaged with employment/housing agencies during the one-year period, and that those who did not engage with these services would have had an on-going 'unmet need'. As there was no measure of mental health morbidity at baseline, the psychological domain score on the WHO-QOL was used as a proxy measure of psychological ill-health (> 1.5 SD below Australian norms), with an expectation that those participants would have done better had they engaged with mental health services and that there would be an unmet need in relation to mental health if they had not. In total, 25% of the sample was identified as having an unmet need for employment services, (38% among long-term residential participants, 21% among outpatient participants, and 22% among acute withdrawal participants; p < .001). Unmet housing service needs were identified in 14% of the sample (15% among long-term residential participants, 12% among outpatient participants, and 15% among acute withdrawal participants; p = .64). Unmet mental health service needs were identified in 34% of the sample (28% among long-term residential participants, 35% among outpatient participants, and 38% among acute withdrawal participants; p = .13).

# Predictors of treatment success

## Demographic Predictors

Demographic and PDOC predictors (transformed age, gender, born in Australia, in marriage or de facto relationship at baseline, PDOC, SDS score for PDOC > 7) of treatment success (abstinence from PDOC or > 50% reduction in frequency of use of PDOC relative to baseline rate of use) were first analysed with binary logistic regression. Being foreign-born was significantly associated with higher likelihood of treatment success (OR = 1.88, CI = 1.19-2.99), as was PDOC (p < .001). Compared with participants for whom alcohol was the PDOC, participants with opioids (OR = 1.74, CI = 1.03-2.93) or meth/amphetamine (OR = 3.53, CI = 2.00-6.22) as the PDOC had increased likelihood of success. PDOC and being born in Australia were therefore included as predictors in the following analyses. (Appendix 2.4)

## Baseline Predictors (complexity, PIT and PDOC)

The subsequent model examined treatment success with PIT type, PIT completion, unmet need in terms of employment, housing and mental health (meaning problem present at baseline but did not engage with the relevant service post-PIT), any post-PIT AOD service use (including pharmacotherapy), any 'other' community service use (i.e. excluding housing, mental health and employment agencies), any mutual aid attendance, interval between baseline and follow-up (in days), and transformed PIT duration.

Having opioids (OR = 1.92, CI = 1.08-3.42), or meth/amphetamine (OR = 4.05, CI = 2.21-7.42) relative to alcohol as the PDOC, PIT-completion (OR = 2.01, CI = 1.27-3.18), and mutual aid attendance in the 12 months prior to follow-up (OR = 1.80, CI = 1.19-2.72) were significant predictors. Being foreign-born also predicted a higher likelihood of success (OR = 1.93, CI = 1.18-3.16), while a longer interval between baseline and follow-up was associated with reduced likelihood of success (OR = 0.997, CI = 0.994-0.9998). Surprisingly, after controlling for the effects of other variables, increased PIT duration predicted reduced likelihood of

success (OR = 0.25, CI = 0.07-0.86). Unmet needs, attending AOD services post-PIT, and community service engagement did not predict treatment success. However, the positive effect for mutual aid attendance is likely to reflect the high rates of (often mandatory) mutual aid attendance in the long-term residential group, since mutual aid was not a significant predictor when analyses were restricted to the other 2 PIT types (Appendix 2.4).

#### Predictors of abstinence from PDOC

#### **Demographic Predictors**

Demographic and PDOC predictors (transformed age, gender, born in Australia, in marriage or de facto relationship at baseline, PDOC, SDS score for PDOC > 7) of abstinence from the PDOC were first analysed with binary logistic regression. PDOC was the only significant predictor of abstinence (p < .001). Participants who reported opioids (OR = 2.38, CI = 1.41-4.00) or meth/amphetamine (OR = 4.42, CI = 2.57-7.61) as their PDOC were more likely to be abstinent than those who reported alcohol as their PDOC. PDOC was therefore included in the following regression model

#### Predictors (need and overall service engagement)

The model examined abstinence from the PDOC as the outcome with PIT type, PIT completion, unmet need in terms of employment, housing and mental health, any post-PIT AOD service use, any community service use (other than housing, mental health and employment agencies), any mutual aid attendance, interval between baseline and follow-up (in days), PDOC, and transformed PIT duration. PDOC was again a significant predictor (p < 1.001) and opioids (OR = 2.18, CI = 1.21-3.93) and meth/amphetamine (OR = 3.88, CI = 2.18-6.91) were again associated with higher rates of abstinence than alcohol. PIT type was also a significant predictor (p < .001), with long-term residential treatment associated with significantly higher (OR = 2.06, CI = 1.16-3.66), and acute withdrawal with non-significantly lower (OR = 0.58, CI = 0.28-1.23) rates of abstinence than outpatient treatment. PIT completion (OR = 2.73, CI = 1.66-4.50), engagement in mutual aid in the 12 months prior to follow-up (OR = 1.67, CI = 1.09-2.57), and use of community services (OR = 1.56, CI = 1.04-2.34) also significantly predicted higher rates of abstinence. Surprisingly, having an unmet need for employment services also predicted increased likelihood of abstinence (OR = 1.67, CI = 1.07-2.62), though given the lack of temporal resolution to determine exactly when participants experienced unemployment and accessed employment services, this is difficult to interpret. As with treatment success, the effect of mutual aid appears to be largely driven by the high attendance rates in the long-term residential group. However, further univariate logistic regression analysis indicated that, among those with any mutual aid attendance, a 10-fold increase in number of mutual aid meetings attended more than doubled the likelihood of achieving abstinence from their PDOC (OR = 2.34, CI = 1.58-3.49).

A consistent finding from the regression models is that participants with alcohol as their primary drug of concern are less likely to achieve reduction of use or abstinence than those with other PDOCs (particularly opioids and meth/amphetamine). Since PDOC was a significant predictor, the regression analyses predicting abstinence from PDOC were re-run separately for those with alcohol as their PDOC and those with other drugs (other than tobacco) as their PDOC. For participants with alcohol as their PDOC, having residential rehabilitation as the PIT (OR = 2.79, CI = 1.07-7.27), attending 'other' community services (OR = 2.11, CI = 1.14-3.88), and attending mutual aid (OR = 1.99, CI = 1.03-3.85) were predictors of increased likelihood of abstinence from PDOC, while having an unmet housing service need (OR = 0.23, CI = 0.06-0.86) predicted decreased likelihood of abstinence.

When the PDOC was any substance other than alcohol or tobacco, completing the PIT (OR = 3.40, CI = 1.74-6.64) predicted significantly higher likelihood of abstinence at follow-up. There was a significant overall effect of PIT type which appears to be due to the combined effect of non-significant trends for those with acute withdrawal as their PIT to be less (OR = 0.40, CI = 0.15-1.07), and those with long-term residential treatment as their PIT to be more likely (OR = 2.10, CI = 0.97-4.52) to achieve abstinence than outpatient participants. The overall effect of PDOC did not reach significance (p = .06), though it appeared that those with meth/amphetamine as their PDOC were more likely to achieve abstinence than those with cannabis as their PDOC (OR = 2.60, CI = 1.23-5.50). Longer follow-up intervals (OR = 0.995, CI = 0.991-0.999) and, surprisingly, longer PIT duration (OR = 0.16, CI = 0.03-0.81) were associated with lower rates of abstinence from the PDOC.

Characteristics of participants who attended Mutual Aid Groups

The proportion of participants who attended mutual aid meetings increased from around one third of the sample in the year prior to baseline to almost half in the year prior to follow-up, although some of these may have done so as part of their rehabilitation or aftercare programs. Mutual aid attendance was broken down into the different types of meetings attended. Alcoholics Anonymous was attended by 33% of the follow-up sample, Narcotics Anonymous by 33%, SMART Recovery by 5% and 'other' recovery groups by 5%. Among participants who attended any meetings in the 12 months prior to follow-up (n = 267), number of meetings attended ranged from 1-500 (median = 20, IQR = 6-65). A logistic regression analysis was performed to identify characteristics of participants who attend Mutual Aid Groups in the year prior to follow-up, with the following entered as predictors; transformed age, gender, PIT-type, SDS score at baseline > 7, PDOC, any mutual aid group attendance at baseline, total perceived social support (median split), and total number of complexities (homelessness, unemployment, poor psychological quality of life, poor physical quality of life, and current involvement in the criminal justice system; range 0-5; this variable met criteria to be considered normally distributed and was therefore included in logistic regression models without transformation).

Those attending Mutual Aid groups at baseline were more than four times as likely to attend post-PIT (OR = 4.60, CI = 2.99-7.05). Participants with acute withdrawal as their PIT were more than twice as likely to attend as outpatient participants (OR = 2.75, CI = 1.71-4.41), and residential rehabilitation participants were nearly five times as likely to attend compared to outpatient participants (OR = 4.95, CI = 2.85-8.60). The only other significant predictor was severe dependence, as indexed by an SDS score > 7: participants with severe dependence were more likely than those with a lower level of dependence to attend (OR = 2.15, CI = 1.14-4.03) (Appendix 2.4).

## Predictors of acute service use

#### **Demographic Predictors**

We examined whether demographic or PDOC variables (transformed age, sex, whether or not in stable marital/de facto relationship, born in Australia, PDOC, SDS score for PDOC > 7) predicted follow-up acute health service use (ambulance, emergency department, and/or hospital inpatient admission) after controlling for whether or not participants had used acute health services in the 12 months prior to baseline. Baseline acute health service use significantly increased likelihood of follow-up acute health service use (OR = 2.75, CI = 1.91-3.94). While the overall effect of PDOC was non-significant (p = .15), pair-wise comparisons between specific PDOC groupings involving the reference group (alcohol) suggested that participants with opioids as their PDOC were less likely to use these services (OR = 0.56, CI = 0.34-0.95). PDOC was therefore selected for inclusion in the subsequent model (Appendix 2.4).

## Baseline Predictors (complexity, PIT and PDOC)

The subsequent model examined likelihood of follow-up acute service use with PIT type, PIT completion (completed or still engaged vs. prematurely ended), the presence of housing, criminal justice, and employment issues (at baseline), poor physical and poor psychological QOL score (at baseline), interval between baseline and follow-up (in days), PDOC, and baseline acute health service use as a control variable. Having cannabis as a PDOC relative to alcohol (OR = 0.53, CI = 0.31-0.91), or opioids relative to alcohol (OR = 0.45, CI = 0.26-0.76), acute service use at baseline (OR = 2.86, CI = 1.97-4.16) and having poor physical QOL (OR = 1.57, CI = 1.02-2.41), and follow-up interval (OR = 1.004, CI = 1.001-1.007) at baseline were the only significant predictors of follow-up acute service use. When the model was re-run with alcohol vs. other drugs as PDOC, participants with alcohol as their PDOC were almost twice as likely (OR = 1.85, CI = 1.27-2.69) to have used acute services post-PIT than those with other drugs as their PDOC, after controlling for other variables in the model (Appendix 2.4).

# Continuity in AOD specialist treatment

Participants were recoded as having had continuity in AOD treatment or not, specific to their PIT. For participants whose PIT was acute withdrawal, 1 "treatment continuity" point was awarded for having outpatient counselling pre-PIT, and one further point awarded for either residential rehabilitation or counselling post-PIT. For outpatients, 1 point was awarded for any pre-PIT AoD service attendance and 1 point for any post-PIT AoD service (pharmacotherapy was not counted for this purpose). For participants whose PIT was longterm residential treatment, 1 point was awarded for counselling or acute withdrawal pre-PIT and 1 point for counselling post-PIT. Continuity scores were therefore 0 (PIT-only), 1 (PIT + relevant treatment before or after) and 2 (PIT + relevant treatment both before and after). A chi-square test found no significant association between this continuity score and treatment success (abstinent from PDOC or at least 50% reduction in days used PDOC; p = .52), PDOC abstinence (p = .17), or abstinence from all DOCs (p = .17). When attendance at mutual aid was added to the pathway (i.e. earning an extra one point in the AOD continuity score), PDOC success and abstinence again did not differ by score (ps = .82 and .07, respectively), but abstinence rates from all DOCs were significantly higher for those with more extended AOD treatment pathways (18%, 29%, 31%, and 37%, respectively, for those scoring 0, 1, 2, and 3, p < .05).

# Optimal care pathways as predictor of outcome

Participants were assigned an optimal care pathway score based on the following; having had relevant pre-PIT AOD specialist treatment (1 point), completing their PIT (1 point), having had relevant post-PIT AOD specialist treatment (1 point), engaging in other community services (except housing, employment and mental health services) (1 point), engaging in mutual aid in the year prior to follow-up (1 point) and with a point deducted for having any unmet needs (i.e. housing, legal or psychological problems for which they did not attend the relevant services). This gave an optimal care pathway score ranging from -1 (meaning they only had their PIT plus some unmet need) to 5 (optimal care pathway) (see Figure 3.9). This variable met our criteria to be considered normally-distributed and was therefore included in logistic regression models without transformation.



#### Figure 3.9 Proportion of participants receiving the various levels of optimal care pathways

The optimal care pathway score was significantly higher (mean = 2.5 versus 2.2), among participants who were abstinent from their PDOC at follow-up than those who were still using their PDOC, (p < .01), but did not differ significantly between those who were a treatment success than those who were not (mean = 2.4 versus 2.2; p = .15). This suggests that individuals who receive more components of this care pathway are more likely to achieve abstinence.

The final analysis examined predictors of abstinence from the PDOC based on previously identified significant predictors (PIT, PDOC, follow-up interval, and PIT duration (transformed)) and optimal treatment pathway. The significant predictors were residential rehabilitation as the PIT relative to outpatients (OR = 2.19, CI = 1.29-3.72), opioids (OR = 2.07, CI = 1.20-3.59) or meth/amphetamine (OR = 3.72, CI = 2.14-6.45) relative to alcohol as the PDOC, and optimal care pathway score (OR = 1.20, CI = 1.03-1.39) indicating that for every additional point (component) in the optimal care pathway score the odds of being abstinent increased by 20%.

The model predicting abstinence from the PDOC was run separately for alcohol and illicit drugs. For alcohol participants, residential rehabilitation as the PIT (OR = 2.96, CI = 1.21-7.28) and optimal care pathway score (OR = 1.43, CI = 1.14-1.81) were significant predictors. For participants whose PDOC was a drug other than alcohol or tobacco, optimal care pathway score was not a significant predictor of abstinence (OR = 1.06, CI = 0.86-1.30). Long-term residential treatment was again superior to outpatient treatment (OR = 2.03, CI = 1.01-4.08). Those with meth/amphetamine as their PDOC were more likely to achieve abstinence than those with cannabis as their PDOC (OR = 2.42, CI = 1.20-4.88). This suggests that optimal care pathways are only important if the PDOC is alcohol.

## Predictors of outcomes among participants with complex needs

The following analyses explored whether engaging in the appropriate service (housing, mental health or employment) for those with an identified need at baseline impacted on outcome (abstinence from PDOC). The first step involved identifying demographic and PDOC characteristics (transformed age, gender, marital status, born in Australia, PDOC, and SDS > 7) that predicted PDOC abstinence at follow-up. In the case of those with recent homelessness (n = 125) at baseline, both PDOC and SDS category were significant predictors, while for those with employment difficulties (n = 296) or with poor psychological QOL (n = 308) at baseline, only PDOC was a significant predictor. PDOC (and SDS for those with recent homelessness) were therefore added to a second regression model predicting

PDOC abstinence at follow-up, which included engagement in the relevant service use (e.g. housing service use post-PIT when analyses were run on those with recent homelessness at baseline), optimal AOD treatment pathway (0, 1, or 2), any other community service use, any mutual aid attendance, PIT completed, PIT-type, follow-up interval, and PIT duration (transformed).

For participants with recent homelessness at baseline, having cannabis (OR = 6.55, CI = 1.33-32.16) or meth/amphetamine (OR = 12.29, CI = 2.85-52.94) compared to alcohol as the PDOC were significant predictors of PDOC abstinence, along with having an SDS score > 7 (OR = 6.61, CI = 1.10-39.63). There was an overall significant effect of AOD treatment pathway (p < .05), though this is difficult to interpret because neither scoring 1 point (OR = 1.41, CI = 0.26-7.59), not scoring 2 points (OR = 0.28, CI = 0.04-1.76) predicted an outcome significantly different to scoring 0 points. Engaging with a housing service between baseline and follow-up was not a significant predictor of abstinence.

For participants with poor psychological QOL at baseline, having cannabis (OR = 2.78, CI = 1.24-6.26), meth/amphetamine (OR = 5.13, CI = 2.19-11.97) or opioids (OR = 3.18, CI = 1.53-6.60) as a PDOC compared to alcohol were significant predictors of PDOC abstinence, as were PIT completed (OR = 2.11, CI = 1.07-4.16) and mutual aid attendance (OR = 1.97, CI = 1.07-3.62). Engaging a mental health service in the year after their PIT was not a predictor of abstinence, though engagement in these services is likely to be associated with greater morbidity, which in turn is likely to be associated with poorer outcomes, thus confounding our ability to detect any positive effect of engagement.

Finally, for participants with employment problems at baseline, having meth/amphetamine (OR = 8.60, CI = 3.76-19.63) or cannabis (OR = 2.51, CI = 1.06-5.95) as a PDOC compared to alcohol, having residential rehabilitation as their PIT (OR = 3.28, CI = 1.43-7.50), PIT-completed (OR = 2.83, CI = 1.39-5.74) and mutual aid attendance (OR = 1.94, CI = 1.005-3.73) were significant predictors of PDOC abstinence. Engaging with an employment service significantly predicted reduced likelihood of abstinence from the PDOC (OR = 0.44, CI = 0.24-0.78). There was an overall effect of AoD pathway score (p < .01) but this was difficult to interpret as neither having 1 point (OR = 1.70, CI = 0.65-4.41) nor having 2 points (OR = 0.57, CI = 0.21-1.51) significantly predicted a different outcome from those with 0 points.

# Weighting of sample according to PIT type

The proportion of our sample in each treatment type differed markedly from the proportion of total episodes of each type of treatment (for clients' own substance use) in the specialist AOD treatment system based on the 2011-12 AIHW dataset (combining data from WA and Victoria).

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Withdrawal	24.0	17.3	10.8	11.2	22.3	2.4	22.3	14.7
Counselling	18.9	27.7	21.6	34.5	27.7	59.3	52.1	58.3
Rehabilitation	6.1	13.0	15.3	5.5	11.7	8.9	3.7	6.3
Case management only	16.1	9.9	2.0	4.3	2.2	5.8	11.7	5.6
Information/education	12.9	0.9	22.2	19.5	6.2	12.5	0.4	5.6
Assessment only	18.1	15.3	41.0	22.1	22.9	10.2	8.6	7.4
Other/pharmacotherapy	3.8	15.9	7.1	2.9	7.0	0.8	1.1	2.2

#### Table 3.17 Proportion of treatment episodes by treatment type and jurisdiction

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Total number of	4,010	40,014	3,175	24,705	8,613	1,554	50,004	17,403
treatment episodes								

Source: AIHW AODTS NMDS, AOD treatment services in ACT 2011-12

We therefore repeated selected analyses with our data weighted according to PIT type to make our baseline sample representative of the whole population of closed treatment episodes. The AIHW reports numbers of closed episodes for counselling, withdrawal management, assessment only, support and case management only, rehabilitation, information and education only, pharmacotherapy, and "other". Our sample did not include participants whose PIT types were support and case management only or information and education only, and the types of treatments defined as "other" in the AIHW data are unclear. Thus, numbers of episodes where these were the main treatment types were not counted in the total "population" of treatment episodes in WA and Victoria that we used to calculate weightings. Moreover, no data is presented in the AIHW report for Victoria or WA regarding number of treatment type, and our participants who reported these as their PIT types were therefore excluded from weighted analyses. First we repeated bivariate chi-square analyses examining differences in outcome rates by PIT type (see Table 3.18).

PIT type	Abstinence	Abstinence (weighted)	Success	Success (weighted)
Outpatient	27.6	27.4	41.8	41.3
Acute withdrawal	21.3	21.3	35.1	35.2
Residential rehabilitation	36.2	36.1	40.1	40.0
Total	27.2	26.4	38.3	39.9
χ2 and (p value)	14.6 (p <.01)	4.3 (p = 0.11)	2.7 (p = 0.25)	2.0 (p = 0.36)

<b>Fable 3.18 Abstinence and Success rates</b>	s by PIT using	g weighted and	unweighted data
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The overall weighted rate of abstinence from the baseline PDOC at follow-up was 33% (down slightly from the 38% observed in unweighted analysis). The rate of this outcome differed significantly by PIT type. Those with long-term residential treatment as their PIT showed superior rates of abstinence to outpatients and those in acute withdrawal (57% vs. 33% and 30% respectively, p < .05). The weighted rate for treatment success (abstinence or at least a 50% reduction in frequency of use of PDOC) was 50% and for abstinence from all DOCs was 28%. Differences between PIT types did not reach significance for these outcomes in weighted analyses. Assuming that all participants who withdrew or were lost to follow-up were treatment failures, weighted outcome rates would be 26% for PDOC abstinence and 40% for treatment success, and these rates did not differ significantly by PIT type. Chi square analyses comparing these outcomes by PDOC suggested that participants with opioids or meth/amphetamine as their PDOCs had consistently better outcomes than those with alcohol, cannabis, or other substances as their PDOC (see Table 3.19 to Table 3.21).

PDOC	Abstinence	Abstinence (weighted)	Success	Success (weighted)
Alcohol	21.3	19.7	34.9	34.3
Cannabis	23.4	24.6	38.1	39.9
Opioids	34.5	37.0	43.2	47.5
Meth/amphetamine	37.8	38.4	45.2	51.3

#### Table 3.19 Abstinence and Success rates by PDOC using weighted and unweighted data
PDOC	Abstinence	Abstinence (weighted)	Success	Success (weighted)
Other	25.0	21.7	27.3	22.7
Total	27.3	26.6	38.4	40.0
χ2 and (p value)	18.0 (p <.001)	25.1 (p <.001)	6.9 (p = 0.14)	16.0 (p <.01)

#### Table 3.20 Key outcome by PIT using weighted data

Key Outcomes	Outpatient (%)	Detoxification (%)	Residential rehabilitation (%)	Total
Abstinence from PDOC	32.6	30.4	56.5	33.1 (p < .05)
Success (PDOC)	49.5	50.4	60.9	50.2 (p = .57)
Abstinent from all baseline	27.8	25.4	43.5	27.9 (p = .20)
Abstinent from PDOC *	27.4	21.3	36.1	26.4 (p = .11)
Success (PDOC) *	41.3	35.2	40.0	39.8 (p = .63)

\*assuming non-abstinence in participants who had withdrawn or were and lost to follow-up

We then repeated chi square analyses comparing participants with any residential rehabilitation either pre-PIT, as their PIT, or post PIT to participants with no residential rehabilitation during this two-year period. Engagement in rehabilitation improved rates of abstinence from the PDOC (47% in those with any rehabilitation vs. 29% in those with no rehabilitation, p < .001) and from all DOCs (42% vs. 24%, p < .001). The effect of having any rehabilitation on PDOC treatment success only approached statistical significance (57% vs. 48%, p = .07).

Table 3.21 Ke	y outcome	by PDOC	using	weighted	data
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	Alcohol (%)	Cannabis (%)	Opioids (%)	Meth/amphetamine (%)	Other (%)	Total (%)	р
Abstinence from PDOC	24.3	29.3	47.47	49.48	31.3	33.2	< .001
PDOC success	43.0	47.4	62.0	67.0	33.3	50.3	< .001
Abstinent all baseline DOCs	22.9	23.1	37.0	39.2	25.0	27.9	< .01
Abstinent from PDOC*	19.7	24.6	37.0	38.4	21.7	26.6	< .001
PDOC success*	34.5	39.9	47.5	51.3	22.7	40.0	< .01

\*Assuming non-abstinence in participants who had withdrawn or were and lost to follow-up

We also repeated selected binary logistic regression analyses of predictors of treatment success and abstinence, including the same predictors as previously included in the final models for these outcomes. For treatment success, as in the unweighted analyses, PIT completion, mutual aid attendance, being foreign-born, and having opioids or meth/amphetamine as the PDOC (relative to alcohol as PDOC) were significant predictors of success and a longer follow-up interval and longer PIT duration predicted reduced likelihood of success. In addition, use of community services (other than mental health, employment, or housing services), and having outpatient treatment (relative to detox) as the PIT predicted increased likelihood of success in the weighted model.

For PDOC abstinence, as in the unweighted analyses, having opioids or meth/amphetamine as the PDOC (relative to alcohol), PIT completion, mutual aid attendance, and unmet employment service need all predicted increased likelihood of abstinence, though use of other community services was no longer a significant predictor. PIT type remained a significant predictor, though in this analysis, acute withdrawal was inferior to outpatient treatment, but long-term residential treatment was no longer superior to outpatient treatment. Re-analysis with long-term residential treatment as the reference PIT did, however, show that long-term residential treatment as PIT was superior to acute withdrawal as PIT. When the optimal care pathway score was entered as a predictor, rather than individual components of the pathway, this pathway score and having opioids or meth/amphetamine as the PDOC (relative to alcohol) were the only significant predictors of abstinence.

Repeating the above weighted analyses only for participants with alcohol as their PDOC showed that mutual aid attendance and "other" community service use predicted both treatment success and PDOC abstinence. For PDOC abstinence, PIT completion and (in contrast to previous findings) a longer follow-up interval were also positive predictors. When the overall pathway score was entered, rather than its individual components, this pathway score and follow-up interval were significant predictors of abstinence.

Repeating the weighted analyses only including participants with drugs other than alcohol or tobacco as their PDOC showed that PIT completion, being foreign-born, and having opioids or meth/amphetamine (relative to cannabis) as the PDOC were significant predictors of treatment success. Longer follow-up interval, longer PIT duration, and further post-PIT AOD service use predicted reduced likelihood of success. PDOC, PIT completion, follow-up interval, and PIT duration were also significant predictors of PDOC abstinence (all effects in the same direction as for prediction of treatment success). While the overall effect of PIT type was not a significant predictor of PDOC abstinence, when long-term residential treatment was entered as the reference PIT, it predicted significantly better likelihood of abstinence than having acute withdrawal as the PIT. When the overall optimal care pathway score was entered as a predictor, rather than its individual components, only PDOC, followup interval, and PIT duration were significant predictors, while the optimal pathway score was not.

In summary, overall the weighted analyses generated few changes in terms of participant outcomes. After weighting the data, abstinence and success rates were only slightly reduced relative to the unweighted analyses and remained highest among with long-term residential rehabilitation PIT and having attended this treatment at any point in the past two-years remained significantly associated with higher abstinence rates. When examining predictors of success, using weighted data confirmed PIT completion and mutual aid and meth/amphetamines and opioids relative to alcohol as the PDOC as significant predictors, but residential rehabilitation was no longer superior to the other PIT types. A further finding to note concerns the impact of engagement in community services on outcomes. This was a significant predictor of abstinence in the unweighted (but not weighted) data, and a significant predictor of success in the weighted (but not unweighted) data.

# 3.4 Qualitative findings

This section summarises the qualitative findings about participants' experience of AOD treatment and contact with non-AOD services such as mental health, housing and homelessness services, medical and social services.

The qualitative component provides an in-depth perspective of participants' experience of treatment, including pathways into and out of AOD treatment. In addition, this component sought to explore participants' experience of formal and informal supports (e.g., family, friends, self-help groups) and service responses, the level of integration between the AOD

and non-AOD systems, and the perceived effectiveness of services and areas for improvement.

## Methods

#### Sampling process

Qualitative interviews were conducted with 41 participants between February and April 2014. A two-stage purposive sampling approach was used to identify potential participants from the sample of 550 participants who had completed a baseline and follow-up interview and agreed to be re-contacted for future research interviews. As the main purpose of the qualitative interviews was to explore experiences of the AOD treatment system and non-AOD systems, the first stage of the sampling approach was designed to ensure a diversity of experiences in terms of:

- Perceived effectiveness of PIT
- PDOC reported at baseline
- PIT type (i.e., outpatient, acute withdrawal, residential rehabilitation)
- Engagement with AOD treatment post PIT (high =3 or more contacts; medium use = 2 contacts; low = 1 or no contact)
- Engagement with acute and/or community services post PIT (high = 5 or more; medium = 3 to 4; low = 2 or fewer)

Two members of the research team assessed participants' eligibility based on the above variables and identified 120 potential participants, 60 of whom were recruited from Western Australia and 60 from Victoria. The second stage of the sampling approach involved assigning each of the 120 potential participants a priority score based on the date of the follow-up interview. Interviews completed most recently were marked as 'high' priority to increase the likelihood of successful contact.

#### Data collection

A semi-structured interview schedule was used to explore six broad topics: experience of seeking AOD treatment; experience of PIT; follow-up AOD care post-PIT; accessing non-AOD services; experience of AOD and non-AOD services working together; experience of informal support (e.g., family, friends, self-help groups) as well as issues important to the participant's unique experience. The interviews were contacted by two interviewers. Participants were contacted via telephone, reminded of their involvement in the follow-up interview, and offered the opportunity to engage in an in-depth telephone interview at a mutually agreeable date and time.

Consent for the interview to be audio-recorded was sought from the participant as part of the interview overview. All participants consented for the interview to be audio-recorded. Participants were reimbursed \$30 for their time.

#### Analysis

Audio-recordings were transcribed and NVivo10, a qualitative software package, was used to organise the interview data into a set of codes with common experiences grouped under the same code. Codes were grouped into provisional themes and sub-themes. Provisional themes were then clustered into groups of themes, and those insufficiently grounded in the data were omitted. A more focused analytical ordering of themes and was then undertaken. Finally, exemplars were identified to illustrate the different themes and sub-themes relating to the treatment experience. Identifying information such as town or suburb has been removed from the exemplars and the name of the AOD agencies providing the PIT has been replaced with generic labels such as 'AOD service A'. Pseudonyms have been used in the three case studies.

#### Structure

Qualitative interview findings are presented in four broad sections (see Appendix 2.5 for interview schedule):

- Entry into PIT and the treatment experience
- Continuity of care and service links
- Barriers
- Areas for improvement

# 3.5 Entry into PIT and the experience of treatment

## AOD treatment prior to PIT

For the majority of participants, the PIT was not their first experience of AOD treatment, as they had previously engaged in one or more forms of AOD treatment such as counselling, typically from a specialist AOD service, inpatient withdrawal or residential rehabilitation. Furthermore, events leading to participants' initial and subsequent contacts with AOD services were occasionally reported and reflected the '4 Ls model' of harm, which often bring cases into treatment (i.e., liver, lover, livelihood, and law; Roizen and Weisner, 1979).

Then I stopped seeing her and about two months later, which isn't - but yeah, had a bit of psychotic episode and then got into trouble with the law and had a car accident. Yeah, lost my relationship and the house, that wasn't good. I didn't realise how much it was keeping me in check, just seeing someone (Interviewee 38).

# Level of complexity

Co-morbidities were common among the participants, as the majority indicated they had previous contact with a psychologist and/or psychiatrist. Reported mental health concerns ranged from psychotic disorders, such as schizophrenia, to depression and mood disorders. Some therapeutic relationships were long-standing, suggesting contact with mental health services pre-dated the PIT.

Contact with the prison system and/or housing services (to apply for stable housing) or homelessness services also indicates that the participants have multiple needs. While less common, some reported a recent history of domestic violence, and others indicated they had ongoing co-morbid health issues. As illustrated in the exemplar below, multiple issues experienced by participants are evident through their contact with a range of services and the cumulative impact of issues fluctuated over time, as issues tended to be present before and after PIT.

I've got a family support worker, but they're more early intervention for the children. Now I've got a - I go to a women's centre who has an intense support worker that works more intensively with myself. Then the house that I'm staying in at the moment, it's a DV house (i.e. domestic violence crisis accommodation service) so I've got a housing worker though *them. They monitor where I'm at on my housing list through the Government (Interviewee 26).* 

# Referral to PIT

The referral pathway into the PIT was reflective of participants' existing support networks (e.g., mental health service, GP, AOD service) and prior engagement with AOD treatment. Involvement of a health worker, typically an AOD worker, was common and the support came in many forms, from making the referral on behalf of the participant, and in some cases providing transportation to and from the PIT, to exploring treatment options with the participant and providing ongoing support.

[Interviewer: So can you tell me the good things, if any, about your experience accessing the inpatient withdrawal unit] It was very easy going. Yeah it was all done for me so I was really lucky in that sort of sense. I'm not sure, if I was on my own it'd be a bit harder, but yeah it was very straightforward and they all organised it for me. So all I had to do was turn up, so that was really good, yeah (Interviewee 24).

My first experience was at [AOD service E]. I had talked through my - the full extent of my problem with my GP, and she had given me the phone number of [AOD service E] and they talked to me about detoxification...Yep. She [GP] said that she would support me whether I wanted help with my drinking or not, and said this is a good first contact (Interviewee 19).

Prior treatment experience and knowledge of the referral processes enabled other participants to self-refer to PIT. Furthermore, initiating contact with an AOD service and organising supporting documentation, such as a referral letter from a GP, provided some participants with a sense of ownership.

Well, what I did was I had to make the phone call [to the withdrawal unit] and then let the counsellor I was seeing at the time [know]. I also had to get the referral from the doctor, oh god there was quite a bit involved. But I managed - second time was a lot easier than the first time, the second time I organised a lot more myself. Because I wanted to do it myself and I was keen to do it the second time (Interviewee 27).

Information on awareness of treatment services was also sourced through family and friends and the participants' own research. Participants tended to be less familiar with the AOD system and had fewer formal supports. Few reported that their referral to PIT was the result of a mandated court order.

# Entry and admission into PIT

For most participants, entry into PIT was straightforward, with completing forms and attending assessment interviews considered a standard component of the admission process. Prior treatment experience enabled them to navigate the AOD system and organise a package of care, such as inpatient withdrawal followed by long-term residential treatment. For these participants, waiting lists were a source of frustration, and often required them to frequently contact the service regarding an admission date. For some participants, making regular contact with a service demonstrated their level of commitment and/or level of need.

Just the waiting list basically, it was really, really 'chockers' when I tried to get there. It was quite disheartening, you know.... Yeah, I think it was four or five months which is quite a long time. ...I contact[ed them] at least once a fortnight. Towards the end I was ringing them every day (Interviewee 16).

Entry and admission into PIT often involved referrals between services within the same agency (i.e., intra service referrals) or referrals between two or more AOD agencies (i.e., inter service referrals). In many cases, intra-and-inter service referral processes were streamlined as assessment information was passed from one service to the next. From the participant's perspective this reduced the need to repeat their story. Access to treatment was also facilitated by services providing or organising transport to take the participant from one treatment site to the next.

Well, I found with [AOD service F] that program and then you go to the [AOD service G]. I found that's a very good service, because what happens is you complete the six weeks and what they do is they personally drive you down [AOD service F to AOD service G]...The process is [made] a lot easier, because you don't have to go through all the paperwork and it's all linked up (Interviewee 27).

# Components of treatment received

As part of the interview, participants were asked to describe what happened during treatment and if anything were missing from their treatment experience. This section is divided into two parts: inpatient and residential treatment, followed by outpatient treatment.

#### Inpatient and residential treatment

For participants receiving acute withdrawal or residential rehabilitation, the treatment experience reflected three main themes:

- Supportive service environment
- Skills and insights gained from psycho-educational group work
- Learning from peers

# Supportive service environment

'Feeling safe' was frequently mentioned by participants and this was typically attributed to the quality of care provided by clinicians, particular the management of withdrawal symptoms. The non-judgmental and respectful approach of staff also contributed to the treatment experience.

# Just the safety aspect, knowing that I was around people who knew what was going on really (Interviewee 18).

The communal living aspect of residential and inpatient treatment, such as sharing household responsibilities and eating together was viewed as a positive part of the treatment experience by many participants. For others, the structured nature of the residential program and the emphasis placed on developing a healthy daily routine was beneficial.

[Interviewer: So if someone asked you to describe what happens in [residential rehabilitation] what would you tell them?] It's quite life changing. They teach you basic boundaries and life skills, like cooking and getting up early in the morning, even to hanging your towel up, making your bed. Just things that when you're on drugs you kind of lose that from when you were a child. Which I think is fantastic. Then comes the personal growth and it's very protected in there, so it's quite innocent and real, if you know what I mean. [So they helped you to get organised?]. Yeah, definitely. In the real world (Interviewee 20).

For some participants, a positive group dynamic within the inpatient unit or residential service was associated with a supportive environment, which led to most participants engaging in various activities.

## Benefits from psycho-educational group work

According to participants, residential treatment was structured around psycho-educational group-work (e.g., relapse prevention, mindfulness, behaviour management, reflective learning, goal setting) as well as physical and creative activities. These activities were associated with personal growth and increased awareness.

I'd say it was a lot of learning - you know, learning about drugs and what they do to you. Sort of like why you take them. Sort of like learning about triggers and stuff like that and learning about yourself. So I'd say it's a big learning thing (Interviewee 32).

A number of participants indicated that the communal living and range of activities undertaken during inpatient or residential treatment may not align with everyone's preferred way of learning or personality but there was a sense that it is up to the individual to take what they can from the experience. Furthermore, some found the intensity of the group session confronting as participants disclosed personal challenges or difficulties.

There was a lot of group work and sometimes it became a bit 'full-on', but, overall, it was a really good program. [Interviewer: A bit full on, okay]. The subjects - I don't know. Emotionally intense, I suppose? Either for myself or for other people, watching what other people had been through. Having to face up to issues and deal with things (Interviewee 38).

Individual counselling was considered a beneficial component of residential rehabilitation and few participants mentioned that one-to-one counselling was available during inpatient withdrawal; however this was not part of the regular program. Others mentioned that staff was generally responsive to requests for a private discussion

#### Learning from peers

The opportunity to learn about and engage with self-help groups such as AA and to a lesser degree, other mutual aid programs was provided during inpatient withdrawal and residential rehabilitation. According to most participants, attending group activities, including self-help meetings such as AA was a compulsory part of residential rehabilitation; however it was also encouraged in inpatient withdrawal units. Learning from peers in recovery was valuable for many participants in terms of exploring new options of support and generating a sense of hope that recovery was achievable. In contrast, a small number of participants found the concepts of AA confusing and did not benefit from the sessions.

[Interviewer: In terms of the activities, though, was there any one in particular or a couple of particular activities that were really good or...] Possibly the ones where the people came in and shared their experiences [NA]. Yeah because when they came in and were talking about their experiences it helped us feel like, well people have done it and you can see how far they've come in life now and it gave us that, encouraged to want to be strong and know that we can do it (Interviewee 28).

Sharing the treatment experience with others was a key benefit of the treatment for many participants. For some, it helped normalise their addiction, and others drew strength from fellow clients.

I think you cope better together, or I find that I do. Yeah you share experiences and that sort of thing. If I was to go there alone I think I'd struggle a bit more because I was going on my own (Interviewee 22).

#### Outpatient treatment: Having access to someone to talk to

'Having someone to talk to' was regarded as one of the main benefits of outpatient counselling. Similar to inpatient services, learning techniques to modify behaviour (e.g., managing cravings), mindfulness techniques, anger management and goal setting were common elements of the treatment experience. While participants were generally satisfied with the treatment they received and found the experience to be beneficial, some indicated that it was often difficult to apply the techniques on an ongoing basis. This was also a factor for participants receiving inpatient or residential treatment.

Just talking with my counsellor about my issues. It's something that - with heroin addiction, it's the reason I use heroin, so I didn't have to think and talk about my problems and issues. I'd buried my problems for so long it was just helpful to be able to talk to someone who was wanting to listen to my problems, and able to give me steps and provide me with tools that I can use to overcome my issues (Interviewee 3).

The following case study illustrates a successful AOD treatment experience including entry into treatment

#### Case study 1: Successful AOD treatment experience

Alex was aged between 20 and 25 and lived in a regional city and had been using alcohol and cannabis for a number of years. However recently his use had increased and he was experiencing significant relationship, health and financial problems 'I was starting to spiral out of control and I was hitting rock bottom'. Alex realised he needed help and contacted a community health centre. Alex started to see an alcohol and drug counsellor and together they discussed possible treatment options including residential rehabilitation. Apart from general counselling, Alex had not received AOD treatment before and he was unsure if he wanted to go to rehab. After a few more counselling sessions, and encouragement from the AOD counsellor, Alex decided he had nothing to lose 'I woke up and I thought no, this is it. This is my time to go and do it'. The AOD counsellor contacted the residential rehabilitation and arranged an initial meeting and a plan was developed which included inpatient withdrawal, and transportation from the inpatient withdrawal unit to the rehabilitation. For Alex, access was timely and streamlined - 'All up, entry into treatment was easy as the AOD counsellor and rehab service organised everything'. Following inpatient withdrawal, Alex spent two months in residential rehabilitation. Treatment provided Alex with an opportunity to learn about the adverse effects of drugs and address different areas in his life which were sources of stress (e.g. financial and relationship issues). As he said: 'I was getting every aspect of my life sorted out whilst living there. Like I'm talking financial advice, relationships – I'm talking lots of things – and I mean every area'. In addition, Alex developed a healthy routine including morning exercise and an interest in various creative activities like song writing. This provided him with a new sense of motivation and confidence as he 'wanted to excel in life and get somewhere and not be a nobody'. Alex had regular contact with his family during his stay in residential rehabilitation and this contact was a great source of support.

Post treatment completion, Alex received a number of follow-up calls from the residential rehabilitation. The follow-up calls were useful as they reminded Alex of what he had achieved. According to Alex, the calls 'just [confirmed in the back of your head], you're not going to go back down that pathway, unless you want to end up back there and go through all the shit that you've already been through'. After leaving rehabilitation, he re-engaged with his AOD counsellor as a way of closing his treatment journey. Alex also resumed his apprenticeship and secured a new job.

# Continuity of care

#### AOD care pathways and post treatment support

Follow-up care is viewed as a fundamental component of effective treatment, yet half of the participants reported that they received AOD-specific follow-up support after their index treatment episode. For those who did, the follow-up support was generally pre-arranged in terms of completing inpatient withdrawal followed by residential rehabilitation. Participants who received residential treatment either as part of their PIT treatment experience, or following their PIT, often reported that they also received or accessed some form of aftercare. In some cases, the aftercare was arranged as part of their treatment exit plan and involved outpatient counselling. For some participants, their treatment pathway was facilitated by a key worker, particularly in rural settings, where a rural AOD clinician provided support pre and post PIT. For others, accessing multiple services provided by the one AOD treatment agency ensured continuity of care.

Well because I am from [regional area], my drug and alcohol counsellor drove me to [metropolitan suburb] and then after the week she came and picked me up and brought me back home. [Interviewer: Yeah. So you felt that you didn't need any further contact or assistance?] Assistance yeah no. Because when I came back home I still had my AOD counsellor so she was still always really supportive (Interviewee 28).

[Interviewer: Did you also say that you were doing some counselling, like you continued on with the counselling that you were doing? Yeah so before [outpatient group program] I would have seen her every once a week but I only saw her once while I was doing [outpatient group program] in those four weeks. Then I saw her after [outpatient group program] more regularly. [Interviewer: So you continued to see the counsellor, and what...] Yeah. [Interviewer...were the good things, if any, about the assistance you received from the counsellor?] I guess she motivated me to finish it and she was there to have another opinion on. So yeah she was a check in person, so just letting her know how I was doing and what I was doing in the program and that sort of thing and how I was going (Interviewee 24). Few participants who received outpatient treatment as their PIT reported receiving any follow-up contact from the service once their treatment had finished. However, most participants indicated that they were encouraged or given the option to re-engage with the service for further support.

Similarly, some participants receiving inpatient withdrawal treatment were encouraged to re-engage with the service if they required additional support. Others did not expect to receive any follow-up contact from the inpatient withdrawal service as treatment had been completed, and others felt it was the client's responsibility to contact the service if further treatment was needed. For a few participants, the role or need of follow-up support only became apparent in the months following treatment. As one participant explained, 'I didn't realise at the time that I needed more.' This suggests that staggered follow-up contact may facilitate re-engagement or the opportunity for a brief intervention.

[Interviewer: So after you finished up with the detox, did you make any further contact or receive any assistance from them?] Yeah, I got a few calls and that. [Interviewer: From [AOD service J?] Yeah, they would have called me a few times but I would have said yeah, look, I'm fine. [Interviewer: So you were fine at the time?]. Oh probably not, yeah. To me I was. My life actually revolves around on and off and on and off use, because I've got ADHD as I said and I've been on amphetamine pills since I was a kid. So amphetamine's part of my life (Interviewee 22).

When participants were asked 'what service or assistance if any, would you have liked to receive following inpatient withdrawal', the majority of participants suggested a follow-up telephone call and some recommended follow-up counselling. This was the case for participants who had a subsequent treatment in place after the PIT, as well as those with no plans for further treatment. A few participants expressed dissatisfaction with the lack of follow-up care provided.

[Interviewer: What services or assistance if any, would you have liked to have received following the acute withdrawal?] I really would have liked some follow-up, maybe even a home visit or something like that. Just someone to touch base with me and say, hey, are you coping? Are you going to your counselling sessions? Or if there's anything else that you need. Yeah, it just seemed to be a little bit like, once you're out the door, that's it. But then, again, like I said, I think that's the nature of detox (Interviewee 41).

#### Multi sector links

The presence of a key worker, such as an AOD clinician, housing worker, mental health worker, welfare worker, or job network provider, was a stable source of support for many participants and these workers provided links to a range of services within and across the health and non-health system.

For example, several participants reported contact with multiple health professionals and in some cases, care plans were in place and an integrated team approach was supported through regular contact. These arrangements often meant that they had access to a wide range of options and communication channels were clear.

Yeah, that's when I got out [of prison] this time and I joined up with a [mental health service] and they're taking care of me. They've got a four-psych team, like a doctor, what do you call it: a case manager and a nurse (Interviewee 21).

[Interviewer: Do you think that services work together to support or help you or not really?] Yeah, no, they do. My GP, he's really good and the doctor in [rural town] they all work together and they all know that I see drug and alcohol counsellors and all that sort of stuff. But mainly it's just the social workers and the counsellors and all, that they have meetings every month and they sit down and they work out what they could do better and what they could improve on and all that sort of stuff. So they all work together or they do down here anyway. [Interviewer: What were the good things if any about services working together to help you, what are the good things?] You don't have to repeat yourself. I can just say something to my drug and alcohol counsellor and she says can I discuss this with somebody else and I say you can, you can talk to the other workers and that sort of thing. They're always coming up with things that might help (Interviewee 16).

For other participants, a welfare or church-based service, or community health service was instrumental in terms of providing practical supports (e.g., food, electrical appliances) and suggesting other services that could assist.

It's good because there's a couple - there's like about seven people in there and there's a lady that runs the group and she brings people in for all different things like the police officer in to tell you to be careful for this, this, this or that. Or a painting person to come in and show you how to paint or a jewellery person. A Centrelink person they get to come, if you'd got a problem with that. It's pretty good. Because there's other people you can bounce off each other sort of thing. It's people you know because it's your community sort of thing. So that makes it a bit easier (Interviewee 7).

Job network agencies are not providers of therapeutic care, however many participants indicated that the job network agencies facilitated access to a range of essential services such as mental health, AOD treatment and housing. Given that addressing housing, employment and training needs are critical to an individual's recovery capital, the service linkage role of job network providers has a therapeutic benefit.

They're a job search network and you get a worker who has to help you. Because I've been in and out of jail a lot and use heroin a lot they get me work ready. Make sure that my - if I need drug and alcohol counselling I get drug and alcohol counselling. If I need psychiatric help, to talk to someone about stuff, go to see the psych. If he thinks I'm a bit better than that then go into a course or something (Interviewee 37).

However in other cases, the level of coordination between services was unclear, with few formalised links between them.

Well I've gone and seen [housing service], I've gone – [employment agency] are helping me out. I've seen [family service and financial service] as well, yeah, all them. Some of them help me out with food, some of them help me out with getting my bills paid. Some of them help me out with I don't know, a combination. I got a tent and swag a couple of months ago, yeah, so they've been pretty sweet (Interviewee 22).

As one participant who had contact with a number of services, including an AOD service and support group and community based services said, 'so one referral tends to lead to another, which is good'.

A variety of care pathways were experienced by participants ranging from optimal to fragmented. The two cases studies below provide an illustration of both ends of the care pathway spectrum.

#### Case study 2: successful treatment journey and linkages with services

Joe had received AOD treatment on and off over the past five years, had previous contact with the legal system and had experienced ongoing mental health issues. Following the most recent episode of inpatient withdrawal, Joe engaged in a short-term supported accommodation program. As part of the program, Joe was required to attend AOD counselling at a nearby AOD specialist service. Accessing the counselling was fairly easy and required an initial telephone call to book an assessment appointment. Joe attended counselling on a regular basis and 'clicked' with the counsellor. Around this time, Joe became a new father and was given full custody of his child. Joe had few friends and received little support from his family. In many ways, Joe's AOD counsellor was his main support source. Together, Joe and the counsellor developed a care plan as a way to help Joe identify and manage immediate issues as well as work through some long-standing problems associated with violence, drug use and low self-esteem. To help Joe address his mental health issues, the AOD counsellor recommended that Joe speak with his GP about organising a mental health plan and referral to a psychologist. Through recommendations and support from his AOD counsellor, Joe also accessed a crisis centre which provided emergency supplies and links to financial support services, including an advocate who helped Joe organise a payment plan arrangement with utility providers. Bit by bit, Joe's support network expanded as he became engaged with a range of services including a parenting support group, a family support worker and a child health nurse who made regular home visits. During this time, Joe stopped seeing the AOD counsellor as the counsellor changed job, but this was okay as Joe felt he had achieved a lot from the counselling and had established supports in place.

Given the number of services Joe was engaged with, the referral pathway was often unclear. However, in Joe's case one referral tended to lead to another referral and via the support he received from multiple sources he was able to maintain custody of his child, manage his mental health and minimise the risk of relapse. As Joe said 'it was like I might not have directly asked the question, but they helped me to realise that it is a question that is worth being asked, because there is a link. There is something they can provide'.

#### Case study 3: Complex needs and high level of services use (or fragmented service experience)

Jim has had episodic contact with various AOD and welfare agencies for over a decade. He is quite knowledgeable and proactive about engaging with the services that he needs. He self-referred to his most recent detox centre, by attending his regular GP in order to get the appropriate referral – "Listen Doc, I need to get this paperwork filled so I can go into detox". Jim's main goal has been attending rehab, however this has been complicated by factors including homelessness and mental health issues. He has made numerous attempts at rehab, largely driven by his need for accommodation. Jim has overall been very satisfied with the quality of the programs and has developed rapport with the staff, whom he describes as "very compassionate people". He has, however struggled with the daily rigours of life in rehab occasionally, and has gotten into trouble and been asked to leave. By admitting responsibility, he has been allowed to re-enter some services.

A recent stint in rehab has seen Jim reach a crossroads. He is "over rehabs" after repeat attempts, but still wants to address AOD issues, and long-term housing needs. He has been in contact with numerous housing and welfare services, and is on a waiting list, but still requires further assistance. He has been proactive by contacting various telephone counselling and referral services. Jim is currently seeing a counsellor at an AOD service, but thinks he should visit his GP for referral to "some free psychology sessions" via a mental

health plan. Ultimately, he wants ongoing psychological counselling and support to address past and current relationships, though his financial situation has prevented this. Due to his drinking, multiple ambulance attendances, emergency room admissions and arrests have occurred. Jim admits to being a "disturbance to the neighbourhood" which puts his current accommodation at risk. Jim recognises the gravity of his situation, and that he has "come to a point… where he has got crisis going on in my life… not just accommodation, but also to do with my addiction…"

Jim has limited informal support. His main support source is his mother, though the relationship is complicated by a restraining order due to an outburst in her presence, and the fact that "she gets a lot of anxiety" caused by his circumstances. Although he can blackout and behave inappropriately, his mother remains supportive. Jim has attempted to expand his informal support base, and has recently been attending church and has had some informal mentoring from a pastor. He has a close friend from whom he receives support, but has tended to alienate himself from most friends due to his problems with alcohol: "no one wants to know me when I've been drinking..."

Psychological issues have been one of the main difficulties Jim has encountered in seeking treatment.. Services have previously had difficulty in getting in contact with Jim due to numerous periods where he has been off the grid: lost phones, address changes etc. Despite having a case manager that he describes as "a nice lady", she often appears disengaged with his situation and so he feels he is doing "more work for myself than sometimes what she's doing". Again, this tends to occur when he is most in need of assistance. Jim reports that a housing worker has been somewhat helpful and recently linked in with a tenancy advocate to assist him concerning his likely eviction. Jim's main priorities going forward are obtaining counselling, staying clean and sober and having stable accommodation. He would also like to gain some employment, even if this is voluntary. He faces immediate concerns, however, including an impending eviction, which is limiting overall progress.

#### Significant other support as recovery capital

Family was viewed as a significant source of support for participants; however some associated this form of support with guilt feelings as much as gratitude. A small number of participants had a supportive partner and a few others sought support from extended family members as opposed to immediate family.

I've had a lot of support from my family which has been good in some aspects. Like I can't believe how supportive they've been because [unclear] dealing with the law last year, the car accident. Yeah, my family basically knew I'd taken drugs, but they came in and I've had financial support and emotional support and I didn't actually ask them for it and I didn't expect them to, considering because I was on drugs at the time (Interviewee 38).

Connections with friends were also important, yet these relationships were often closely managed as a way to avoid placing any burden on the relationship. In most cases, participants identified one or more close friends. Some participants had also made the decision to distance themselves from their drinking or drug using friends. This often left participants feeling lonely and socially isolated, especially participants who had little or no contact with family.

So I didn't actually have any real close circle of friends anymore. The only close circle of friends that I developed were to do with drugs. So at the moment the only people I know

really if I go through my phonebook is people to do with drugs. Yeah so there's no support network there (Interviewee 26).

Mutual help groups such as AA were the main support source for a small number, and these participants attended AA groups during their PIT. As one participant explained 'it [AA] helps you to have a way of living beyond any rehabilitation period'. Several participants had experienced AA or NA either prior to or after PIT, but chose not to return.

Involvement in a community or non-AOD specific support group, church or club provided some participants with support and social connections, while at the same time it created an opportunity for participants to make a positive contribution and help others. These connections also provided participants with a sense of belonging.

I spend a bit of time at the soup kitchen, helping out there – cooking and handing out groceries and stuff. We do – also I'm a Rotarian...[Interviewer: In what way, if at all, are these informal supports helpful to you?] Oh they just keep me involved socially. Not isolated, keep me doing stuff. It's fairly satisfying activities in the – trying to help people out (Interviewee 39).

#### Treatment barriers

Factors identified by participants as impeding access to treatment services tended to focus on their ability to get to services; affordability of services (especially where multiple/concurrent service supports are required); staff attitudes; attitudes of non-AOD service staff; and the capacity of services.

Ability to access services is influenced by a number of factors. For some participants, the ability to attend an appointment at a service is impeded by their access to transportation, with some relying on family to transport them and others relying on public transport (if they can afford it). Appointment and scheduled meeting times were a challenge for some. This was due to treatment services being available only during the business day, when they needed to be at work or engaged in study. One participant suggested that at least one 'late night' opening would improve their ability to access services. For others, frustrations surrounded the need for a referral to see a psychologist/psychiatrist or the inability to access counsellors routinely on the phone outside of counselling sessions and session times. This was balanced with frustrations surrounding access to practitioners with long waiting times. At least one participant described the impact of mental health issues on their ability to access AOD services.

[Interviewer: What things, if any, made it difficult or hard for you to access any of these services?] Sometimes getting out of the house, but that would be - yeah, that's just a personal problem. Yeah, sometimes if I was having anxiety attacks, just actually getting there (Interviewee 38).

Transport and scheduling issues relating to counselling services could be addressed with the increased use of telephone or online counselling.

But being able to access those things, because \$5 to get around town to get to these services is a lot of money when you haven't got any, as you know... .I think that comes back to being able to have access at home for those that are really sick, that are really struggling to get - I mean to where I am now, to where I was back then, getting out of the house was just really hard. It was a tough chore. [Interviewer: So home access to really get over that transport hurdle?] Yeah. I think so and maybe telephone, a lot more telephone contact maybe from the services rather than having to go in (Interviewee 41).

# Affordability of services

Some participants expressed frustration with the cost of services, either the value-formoney, or at their inability to access services because of their cost. A common complaint from participants was about the disjuncture between length of funding and time required to recover from substance use disorders. This was particularly evident in relation to posttreatment counselling support.

Well you had to pay for it, even with psychologists with the counselling I followed it up and it was virtually a fulltime job, mate. It really was, just to get to see a psychologist for free. Then when I - into my second sessions he goes, oh you know you only get five sessions for free and then you've got to pay. It was sort of like I just said I'm not working. I haven't got \$220 to pay you every week. It was like, well why continue because he said, you need longterm counselling. But the government won't pay for it... When you're a recovering alcoholic and you've got no job and you've lost your career and everything else that goes with it, you haven't got \$220 to pay a psychologist every week. So that's not his fault, it's the government's fault (Interviewee 40).

# Negative staff attitudes and behaviours

The most commonly reported barrier to treatment involved perceived negative staff attitudes and behaviours. A key complaint surrounded a lack of clarity and communication of rules and regulations within treatment services, particularly residential services. Participants cited examples of a lack of information being provided prior to entry into the service and described situations where information provided prior to entry was directly contradicted upon entry.

The staff were pretty verbally abusive towards my children on the first day they got there and they were just running around and being kids pretty much. I'm like this is a place that I waited six months to go to because it was meant to be for children and their mothers. When they were getting told off for being kids, I just felt that it was wrong (Interviewee 26).

Several expressed concern about the assumptions staff made about them, and suggested that clinical judgements may have been made based on these assumptions rather than facts.

Honestly, they judge you a bit too much. They look at - people that use drugs aren't like people in society obviously. They're not exactly functional, right, else they'd be - have a job or whatever or trying to look for work. But they look at you like you shouldn't - what are you doing here you should be out like - you shouldn't even be here you piece of 'shit' more or less, you should be doing the right thing. That's the feeling you get from them. Besides that, their services are helpful but the way they treat - well I don't know if it's treat - the way they talk to you maybe isn't - doesn't sound nice (Interviewee 27).

For one participant, a desire to retain a sense of privacy impacted on their sense of self and mental health:

It only became hard for myself as an individual when I had to tell so many different people my life story. That actually started affecting me a little bit because I didn't want so many people having different judgements on me. I just wanted the one person kind of thing (Interviewee 28).

A small number of participants expressed concern about the possible impact disclosure of their substance use would have on their ability to access non-AOD services, like Centrelink and primary health care.

Between leaving [AOD service K] is where it all stopped virtually, the support which is probably what most people need. It was just red tape from there, it was go see a GP and you needed a medical plan. At one stage I rocked up to an appointment and they didn't have my medical plan so they wouldn't see me unless I paid \$220, and yeah. It's just red tape virtually... I mean [AOD service K], I'm not blaming them at all. When I left they emailed a - I mean it's probably half my GP's fault. They emailed all my stuff back to him and he was meant to organise everything and yeah, he failed. In dealing with him and the psychology and whatever else and yeah, like I said I showed up there and they wouldn't see me because he hadn't sent them my medical plan. Because they won't see anyone without proof of a medical - sorry mental health plan is what I'm trying to say. Yeah, sorry. Not medical, mental health plan. So then I had to leave that day and then - yeah, it was all just too hard, mate. When you're recovering from any substance, sometimes you just say fuck it and go get a hit or go buy a carton of piss [laughs], which is virtually what I'd done (Interviewee 40).

#### Limited capacity of services

A number of participants identified service capacity issues as critical barriers to accessing both AOD treatment services and non-AOD services (post AOD treatment). Some of the issues were related to the capacity of services within a given catchment area, and the limited ability of services to offer treatment places to people living outside of their zone.

They didn't have a lot of outreach services and being someone with anxiety and agoraphobia not being able to get to those services made it very difficult for me. I wasn't getting the proper treatment and - yeah... When I was living back in [regional city] I ended up moving out to a smaller suburb away from [regional city] and there was - the majority of the services wouldn't come out there because they said I was out of their catchment zone and they didn't offer that outreach service to that area. There were no services in that area that could have helped me, which made my mental health issues worse, which led me more to binge drinking and smoking and that (Interviewee 26).

The prioritisation processes for AOD services mean some people can be on waiting lists for a long time before they receive any treatment or support. Good communication practice around this, however, ensures that services manage participant expectations quite well.

They get 20 phone calls a day or whatever and they've only got a certain amount of beds. They obviously rate you on your seriousness and if you're on drugs or whatever, and if you're only an alcoholic there it was like you were a lower rung. [They had guys] on meth and ice for five years, they're definitely going to get put in ahead of you. That's what it was like is you get put up - that's what it felt like is, oh yeah in a couple of weeks you should be in. Then you ring them Tuesday between nine and 10 and then, oh sorry we've had a few more urgent admissions and you're back on the waiting list sort of thing (Interviewee 10).

It never used to, yeah, and then I'll be honest with you, about six months ago I rang up [AOD service A] and asked if I can get some counselling to help get myself drug free and all that stuff and I'm not good in groups to be honest. They said no we can't help you there's only like group sessions for the moment. You have to go on like a six month waiting list. I thought well - I go, 'no, it's alright, don't worry about it'. It put me straight off. I didn't want to wait six months to get help. I wanted more or less help there and then to get off of it. It's not every other time, this is only once though. Every other time it's been pretty good (Interviewee 37).

For several participants, housing is a critical post-treatment need. However, as participants identified the waiting list prioritisation process for housing services means an extended wait for most.

I honestly believe that apart from being very supportive and offering counselling, which they do as well, I think they're really good. But they're also very - I mean one of things they say to you at the end of this interview, which all sounds very promising and hopeful, is that they don't have any accommodation. So for a single person like me, you're on the bottom of the list for housing (Interviewee 41).

Yeah, but they couldn't get me a house or anything like that. You've got to apply and there's just a massive waiting list in [regional area], massive, massive, massive like three year waiting list, four year waiting list (Interviewee 22).

#### Areas for improvement

#### More one-to-one counselling

Several participants expressed dissatisfaction with the lack of one-to-one counselling available during residential care. Whilst recognising the benefits of group counselling such as learning from peers and sharing experiences, they felt that their personal needs were not sufficiently met in this format. Often they had anticipated that individual counselling would be part of the treatment and those that did receive some felt more counselling would have been beneficial.

#### Identify and be trained to manage multiple needs

Some participants expressed concern that their multiple issues were not adequately understood or managed by treatment staff, and that staff packaged this as a concern in terms of the impact the client's behaviour may have on others. Participants suggested an improved understanding of why people misuse substances, of mental health problems, and the interconnectedness of mental health and drug and alcohol use is required, and clinicians who are trained in mental health and AOD.

#### Adopt a holistic approach to recovery

The need to adopt a holistic approach to treatment and recovery is important. Whilst few participants discussed this explicitly, some identified that care pathways need to include a

holistic approach, ensuring that AOD treatment occurs simultaneously with support in addressing their other needs, for example, mental health. One participant felt that this would facilitate increased quality and sustainability of recovery.

#### Improve inter-agency communication about participant care plans and history

Central to the notion of a holistic approach to care and recovery is that of clear communication and links between the various areas of assistance the participant may need. Some participants felt that the process of referral was sound; however, in reality, agencies did not communicate well enough (or at all) about participant needs, experiences and treatment effectiveness. Frustration was expressed at the lack of a central database/system that shared client information to facilitate greater understanding of an individual's personal and treatment history.

Yes, they do talk, if you let them talk to each about what's happening with you. But yeah, maybe there needs to be a care plan or a case management thing so that when this person comes in they go, we've tried this, try this, maybe we can go here (Interviewee 9).

So that is, a crisis happens, it's like, okay, so this is - maybe this is what she's done before, she's gone to [AOD service E], she's detoxed, she's been off alcohol for so many months. This crisis has happened again, how can we help her this time? This worked, and that didn't work (Interviewee 41).

#### Improve communication with clients about their planned care

In keeping with this perceived lack of communication across agencies, some participants felt that there was a lack of transparency and communication with clients about their planned care, especially where that care involved multiple agencies, departments or clinicians.

Yes, as a client I would like to learn an overall picture, all these different departments doing their best. I would actually like to learn an overall, whereas at the moment it's like this person's got that and that person's got that, blah, blah, blah. It's all segmented (Interviewee 17).

# 4 Patient Pathways Priority 2a: Data linkage

# 4.1 Introduction

This chapter focuses on the Victorian data linkage component of the Patient Pathways Project, which involved linking Victorian alcohol and drug treatment service data, emergency department presentations data and hospital admitted episodes data across three years.

The aim of the data linkage component was to provide evidence on people's engagement with medical and clinical services prior to and following engagement with specialist AOD treatment, and to obtain a better understanding of service utilisation by clients prior to, during and following AOD treatment engagement. The objectives are threefold.

- 1. To describe client characteristics, the proportion of clients that presented at hospital emergency departments, and the proportion of clients that become hospital inpatients.
- 2. To compare the health service utilisation by variables such as severity of problem, patient demographics, and AOD specialist service use.
- 3. To compare the health service utilisation between two jurisdictions in Australia.

The third objective was not achievable as WA data could not be accessed. An alternative was considered using Queensland data, however timely access was not possible. As an alternative to presenting data for an additional jurisdiction, analyses have been undertaken examining characteristics and patterns of ED and hospital utilisation for four subpopulations with risk factors for elevated rates of harm – (i) AOD clients engaging in polydrug use on entry into treatment, (ii) AOD clients who had recently engaged in injecting drug use on entry into treatment, (iii) AOD clients who were homeless on entry into treatment and (iv) forensic clients. These results provide important information regarding outcomes and service utilisation for high risk populations, and are provided in the linkage supplementary report.

# 4.2 Method

The use of administrative datasets provides cost-effective population level data for analysis of health, disease, treatment and service utilisation. Extending this use to record or data linkage in health research improves data utility. While Victorian AOD treatment, ED and hospitalisation datasets are available, data linkage has not been used to date to explore health service utilisation by Victorian AOD treatment clients. Data are presented examining patterns and characteristics of ED presentations and hospital admissions across three years – the year prior to AOD treatment engagement (2009/10), the year of AOD treatment engagement (2011/12) – in order to determine change following treatment for AOD clients at a whole-of-population level.

# Data sources

Three data sources are used:

- Victorian Alcohol and Drug Information System (ADIS),
- Victorian Emergency Minimum Dataset (VEMD), and
- Victorian Admitted Episodes Dataset (VAED).

#### Victorian Alcohol and Drug Information System (ADIS)

The Victorian Department of Health funds community-based agencies to provide specialist alcohol and drug treatment services across the state. The collection of client information is a mandatory requirement, and data is collated in ADIS. The ADIS database is a register of client-level data from government-funded, specialist AOD treatment services in Victoria. In this report, we present data from ADIS clients with a course of treatment start date between 1 July 2010 and 30 June 2011 (index year). A course of treatment is defined as the period of contact within defined dates of commencement and cessation between a client and a treatment provider or team of providers. Consequently any one client may have undertaken multiple courses of treatment in a given year, or across multiple years.

#### Victorian Emergency Minimum Dataset (VEMD)

VEMD contains demographic, administrative and clinical data detailing all presentations to Victorian public hospitals with a 24-hour Emergency Department (ED). VEMD data were included from 01 July 2009 through to 30 June 2012. The VEMD contains a range of information regarding each presentation. This includes three fields for International Classification of Disease-10 (ICD-10) diagnoses and a series of data items relating to injury surveillance. There are around 1.4 million VEMD presentations per annum for all diagnoses.

#### Victorian Admitted Episodes Dataset (VAED)

Hospitalisations were obtained from the Victorian Admitted Episodes Dataset (VAED), a database maintained by the Victorian DH. VAED records all acute hospital statistical separations (i.e. inpatient treatment episodes) in Victoria, and includes information on causes of admission (ICD-10 coding), age and sex. Statistical separations include admissions to different parts of the hospital (e.g. ICU discharge to general ward admissions). Separations are used as a proxy measure for hospitalisations. The term 'acute hospitals' refers to public, private and denominational hospitals, acute rehabilitation and extended care (sub-acute) facilities, day procedure centres and designated acute psychiatric units in public hospitals. Residential care (nursing homes), hostels, supported residential services and state managed psychiatric institutions are not included in the VAED. VAED data was included from 01 July 2009 through to 30 June 2012. There are around 2.1 million VAED separations per annum.

# Measures

The datasets included client's encrypted identifier, demographics (e.g. gender, age groups, country of birth, and indigenous status), socioeconomic variables (e.g. employment status, living arrangement), AOD treatment variables (e.g. treatment type, primary drug of concern), admission, and diagnostic variables for ED and hospital admissions (e.g. ICD-10 code for principal diagnosis) (see Appendix 3.1 for detailed information of measures used in the report.)

# Data Linkage Manipulation and Analysis

#### Data linkage

The linkage of the three selected datasets (ADIS, VEMD, and VAED) involved a series of processes designed to maximise the number of cases linked, but minimise the risk of incorrectly linked unrelated cases across the service settings included.

The Victorian Data Linkages (VDL) at Department of Health (DH) linked all three datasets (of which the DH is the data custodians). Linkage involved a probabilistic and deterministic

matching, in a two-step process at VDL. First, the VEMD and VAED datasets underwent data cleaning via probabilistic matching, where multiple ED presentations or hospitalisations were identified for a single client. Second, deterministic matching was used to link ADIS to VEMD and VAED.

A statistical linkage key (SLK) was created based on aspects of family name, given name, date of birth and gender, with actual names and dates of birth omitted. VDL provided ADIS, VAED and VEMD records data files and SLK files separately to Turning Point via an online secure data exchange facility. VDL provided datasets were linked by Turning Point staff in two stages:

- Records datasets were linked with SLK files. The ADIS dataset was linked with the ADIS SLK file using ADIS outlet ID and ADIS episode ID. The VAED dataset was linked with the VAED SLK file using VAED ID. The VEMD dataset was linked with the VEMD SLK file using VEMD ID
- 2. The ADIS dataset was linked with VAED and VEMD separately using SLK

#### Data cleaning

The research team at Turning Point undertook extensive data cleaning and preparation of ADIS, VEMD, and VAED datasets.

All data files received from VDL were first cleaned for missing values and mis-coding (e.g. treatment start date was after treatment termination day). Then all data files were checked whether the record IDs were all unique identifiers (ADIS outlet ID, ADIS episode ID, VAED ID and VEMD ID). Records with duplicate record IDs were removed to ensure correct links of record data files with SLK files. After record data files were linked to SLK files, we were able to identify multiple records from one client.

Data were then checked for un-matched gender and age group codes for individual clients, to reduce possible mismatched cases introduced by probabilistic matching. Consistent age and gender for patients were first checked in the ADIS dataset, including different genders, jump of client's age groups in three years (e.g. client's age group changed from 5-9 years old in 09/10 to 15-19 years old in 10/11) or client's age in a year was older than the year after. Client records with mismatched age and gender were deleted in ADIS. The ADIS dataset was then linked with both VAED and VEMD using the SLK, and was used as a reference dataset for cleaning mismatched records in VAED and VEMD data (inconsistent gender and age group from multiple records of the same client). Patient characteristics, treatment types and drug use variables in ADIS dataset were also re-grouped to reduce reporting groups contain numbers less than five (see Appendix 3.1).

#### Data analysis

STATA 12 was used to conduct descriptive analysis. Chi square tests and associated p values were used to measure independence between variables. A categorical variable was created for each AOD client indicating whether the client had no ED presentation, presentation in a given year only (09/10, 10/11, 11/12) or in multiple years. Client sociodemographic, treatment type and drug using characteristics were compared against the created variable to indicate possible client subpopulations engaging with higher emergency services use. Number and percentage of AOD clients with ED presentations, median frequency of ED visits, median length of stay in ED in each of three years were also described by client sociodemographic, treatment type and drug using characteristics. The same method is adopted for hospital admissions.

Each ED presentation /hospital admission was categorized to alcohol-related acute conditions, other drugs-related acute conditions, alcohol-related chronic conditions and non-AOD-related conditions according to the ICD-10 code for principal diagnosis (see Table 4.1). ED presentations with injury causes and hospital admissions with injury ICD-10 codes in other primary diagnoses (see Table 4.1) were categorized as injuries. Numbers and proportions of AOD client alcohol-related acute, other drugs-related acute, injuries alcohol-related, or chronic conditions and non-AOD-related ED presentations and hospital admissions in a given year were compared among clients with different treatment characteristics and primary drug of concern.

Disease categories	ICD-10
Alcohol-related acute conditions	Mental and behavioural disorders due to use of alcohol [F10], toxic effect of alcohol [T51.0, T51.1, T51.8, T51.9]
Other drugs-related acute	Mental and behavioural disorders due to use of other drugs
conditions	[F11-F19], toxic effect of other drugs [T36-T50]
Alcohol-related chronic conditions	Breast cancer [C50], colon cancer [C18], larynx cancer [C32], Liver cancer [C22], oesophagus cancer [C15], oral cavity and pharynx cancer [C00-C14], rectum cancer [C19-21], alcohol cardiomyopathy [I42.6], cardiac arrhythmias [I47-I49], haemorrhagic stroke [I60-I62, I69.0, I69.1, I69.2], hypertensive disease [I10-I15], ischaemic heart disease [I20-I25], ischaemic stroke[I63-I67, I69.3], alcoholic gastritis [K29.2], liver Cirrhosis [K70, K73-K74], pancreatitis [K85, K86.0, K86.1], HIV [B20-B24], lower respiratory infections [J10-J22], tuberculosis [A15-A19,
Injuries	Transport accidents [V01-V99], falls[W00-W19], drowning [W65-W74], fires [X00-X09], poisonings [X40-X49,Y10-Y14,Y16- Y19], Self-inflected injuries [X60-X64, X66-X84, Y87.0], violence [X85-Y09,Y87.1], other unintentional injuries [W20-W64, W75- W99, X10-X39, X50-X59, Y40-Y86, Y88, and Y89], other intentional injury [Y35], other injures with unknown intent [Y20- Y34] (ICD-10 code for injuries is not included in VEMD data and injuries were extracted from injury cause)
Non-AOD-related conditions	Other ICD-10 codes not listed above

Table 4.1 Definition of	of disease categories	for emergency	department and h	ospital diagnoses
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# 4.3 Results

# Client characterstics and emergency department presentations

Table 4.2 shows the sociodemographic characteristics of AOD clients in 2010/11 (index year) and their ED engagement from 2009/10 to 2011/12. There were 25,229 AOD clients who started treatment in the index year. Over two-thirds (68%) were male, with the highest proportion of clients within the 25 to 34 year age group (29%). The majority of AOD clients were unemployed, living with family and residing in a private residence. Only half of the cohort resided in metropolitan Melbourne. While a minority of clients were either Aboriginal and/or Torres Strait Islander (7%), this is a higher proportion than the population distribution in Victoria.

More than half (52%) of the AOD clients did not present to ED over the three years. However, almost one-quarter (23%) presented on multiple occasions over the three years. These patterns varied across sociodemographic groups. Of note, 26% of females had multiple ED presentations, while 22% of males presented to ED on multiple occasions. The unemployed had higher proportions of multiple ED presentations than the employed. Those living alone had higher proportions of multiple ED presentations than those living with family or others. Being homeless was associated with higher proportions of multiple ED presentations, as was living in metropolitan Melbourne compared with the remainder of the state.

Table 4.3 shows these same sociodemographic characteristics by ED presentation, and indicates changes pre- and post-treatment. In general, the proportions of pre-AOD treatment ED presentations (2009/10) were higher than the proportions of post-AOD treatment ED presentations (2011/12); this is true with respect to gender, age groups (with the exception of clients under 15 years), country of birth, Indigenous status, employment type (except 'other'), living status, accommodation status (except for 'in custody'), homeless status and region. Comparatively greater reductions in ED presentations were shown for AOD clients who were homeless than those with a home as well as for those with unstable accommodation than those living in a private residence.

	Number of AO	D clients				
	No ED (%)	ED 09/10	ED 10/11	ED 11/12	ED in multiple	р
		only (%)	only (%)	only (%)	years (%)	
Total (n=25229)	13228 (52.4%)	2348 (9.3%)	1958 (7.8%)	1867 (7.4%)	5828 (23.1%)	
Gender						
Male (n=17198; 68.2%)	9163 (53.3%)	1662 (9.7%)	1362 (7.9%)	1293 (7.5%)	3718 (21.6%)	
Female (n=7982; 31.6%)	4016 (50.3%)	686 (8.6%)	596 (7.5%)	574 (7.2%)	2110 (26.4%)	<0.001
Age group						
0-14 (n=340; 1.3%)	202 (59.4%)	16 (4.7%)	29 (8.5%)	25 (7.4%)	68 (20.0%)	
15-24 (n=6654; 26.4%)	3485 (52.4%)	636 (9.6%)	504 (7.6%)	498 (7.5%)	1531 (23.0%)	
25-34 (n=7334; 29.1%)	3835 (52.3%)	691 (9.4%)	555 (7.6%)	534 (7.3%)	1719 (23.4%)	
35-44 (n=6220; 24.7%)	3276 (52.7%)	588 (9.5%)	477 (7.7%)	448 (7.2%)	1431 (23.0%)	
45-54 (n=3202; 12.7%)	1628 (50.8%)	300 (9.4%)	268 (8.4%)	249 (7.8%)	757 (23.6%)	
55-64 (n=1102; 4.4%)	580 (52.6%)	90 (8.2%)	98 (8.9%)	88 (8.0%)	246 (22.3%)	
65+ (n=377; 1.5%)	222 (58.9%)	27 (7.2%)	27 (7.2%)	25 (6.6%)	76 (20.2%)	0.183
Country of birth						
Australia (n=21501; 85.2%)	11149 (51.9%)	2010 (9.3%)	1656 (7.7%)	1565 (7.3%)	5121 (23.8%)	
Other (n=3728; 14.8%)	2079 (55.8%)	338 (9.1%)	302 (8.1%)	302 (8.1%)	707 (19.0%)	<0.001
Indigenous status						
Aboriginal and/or TSI origin (n=1832; 7.3%)	955 (52.1%)	164 (9.0%)	131 (7.2%)	126 (6.9%)	456 (24.9%)	
Neither Aboriginal nor TSI origin (n=20927; 82.9%)	10930 (52.2%)	1969 (9.4%)	1638 (7.8%)	1521 (7.3%)	4869 (23.3%)	
Unknown (n=2470; 9.8%)	1343 (54.4%)	215 (8.7%)	189 (7.7%)	220 (8.9%)	503 (20.4%)	0.002
Employment						
Employed (n=6239; 24.7%)	3576 (57.3%)	560 (9.0%)	496 (7.9%)	472 (7.6%)	1135 (18.2%)	
Unemployed (n=13587; 53.9%)	6728 (49.5%)	1315 (9.7%)	1050 (7.7%)	959 (7.1%)	3535 (26.0%)	
Other (n=4297; 17.0%)	2299 (53.5%)	371 (8.6%)	329 (7.7%)	358 (8.3%)	940 (21.9%)	
Unknown (n=1106; 4.4%)	625 (56.5%)	102 (9.2%)	83 (7.5%)	78 (7.1%)	218 (19.7%)	<0.001
Living status						

## Table 4.2 Sociodemographic characteristics by ED presentations, 2009/10 to 2011/12, among those who were AOD clients in 2010/11

	Number of AOD clients					
	No ED (%)	ED 09/10	ED 10/11	ED 11/12	ED in multiple	р
		only (%)	only (%)	only (%)	years (%)	
Lives alone (n=4434; 17.6%)	2173 (49.0%)	411 (9.3%)	359 (8.1%)	325 (7.3%)	1166 (26.3%)	
Lives with family (n=13486; 53.5%)	7323 (54.3%)	1223 (9.1%)	1063 (7.9%)	973 (7.2%)	2904 (21.5%)	
Lives with others (n=5455; 21.6%)	2722 (49.9%)	547 (10.0%)	397 (7.3%)	411 (7.5%)	1378 (25.3%)	
Unknown (n=1854; 7.3%)	1010 (54.5%)	167 (9.0%)	139 (7.5%)	158 (8.5%)	380 (20.5%)	<0.001
Accommodation status						
Private residence (n=18325; 72.6%)	9758 (53.2%)	1667 (9.1%)	1428 (7.8%)	1342 (7.3%)	4130 (22.5%)	
Unstable (n=2456; 9.7%)	1104 (45.0%)	241 (9.8%)	198 (8.1%)	159 (6.5%)	754 (30.7%)	
In custody (n=1253; 5.0%)	671 (53.6%)	138 (11.0%)	79 (6.3%)	135 (10.8%)	230 (18.4%)	
Other (n=1148; 4.6%)	550 (47.9%)	113 (9.8%)	86 (7.5%)	95 (8.3%)	304 (26.5%)	
Unknown (n=2047; 8.1%)	1145 (55.9%)	189 (9.2%)	167 (8.2%)	136 (6.6%)	410 (20.0%)	<0.001
Homeless status						
Homeless (n=1186; 4.7%)	523 (44.1%)	105 (8.9%)	97 (8.2%)	71 (6.0%)	390 (32.9%)	
Not homeless (n=23118; 91.6%)	12173 (52.7%)	2161 (9.3%)	1785 (7.7%)	1734 (7.5%)	5265 (22.8%)	
Unknown (n=925; 3.7%)	532 (57.5%)	82 (8.9%)	76 (8.2%)	62 (6.7%)	173 (18.7%)	<0.001
Region						
Metropolitan Melbourne (n=12346; 48.9%)	6024 (48.8%)	1203 (9.7%)	1074 (8.7%)	928 (7.5%)	3117 (25.2%)	
Rest of Victoria (n=7875; 31.2%)	4556 (57.9%)	633 (8.0%)	513 (6.5%)	506 (6.4%)	1667 (21.2%)	
Interstate (n=438; 1.7%)	228 (52.1%)	39 (8.9%)	38 (8.7%)	37 (8.4%)	96 (21.9%)	
Unknown (n=4570; 18.1%)	2420 (53.0%)	473 (10.4%)	333 (7.3%)	396 (8.7%)	948 (20.7%)	<0.001

	Number of A	OD clients	
	ED 09/10	ED 10/11	ED 11/12
	(%)	(%)	(%)
Total (n=25229)	6890	6742	6356
	(27.3%)	(26.7%)	(25.2%)
Gender			
Male (n=17198; 68.2%)	4514	4390	4142
	(26.2%)	(25.5%)	(24.1%)
Female (n=7982; 31.6%)	2376	2352	2214
	(29.8%)	(29.5%)	(27.7%)
Age group			
0-14 (n=340; 1.3%)	62 (18.2%)	81 (23.8%)	83 (24.4%)
15-24 (n=6654: 26.4%)	1822	1743	1693
	(27.4%)	(26.2%)	(25.4%)
25-34 (n=7334: 29.1%)	2031	1957	1840
	(27.7%)	(26.7%)	(25.1%)
35-44 (n=6220: 24.7%)	1699	1652	1542
	(27.3%)	(26.6%)	(24.8%)
45-54 (n=3202; 12.7%)	898 (28.0%)	903 (28.2%)	835 (26.1%)
55-64 (n=1102; 4.4%)	286 (26.0%)	313 (28.4%)	283 (25.7%)
65+ (n=377: 1.5%)	92 (24.4%)	93 (24.7%)	80 (21.2%)
Country of birth			
Australia (n=21501: 85.2%)	6005	5871	5523
	(27.9%)	(27.3%)	(25.7%)
Other (n=3728: 14.8%)	885 (23.7%)	871 (23.4%)	833 (22.3%)
Indigenous status		0,1 (2011)0)	000 (121070)
Aboriginal and/or TSI origin (n=1832: 7.3%)	544 (29 7%)	499 (27 2%)	486 (26 5%)
Neither Aboriginal nor TSI origin $(n=20927)$	57/3	56/5	527/
	(27 1%)	(27.0%)	(25.2%)
(n-2470, 9.8%)	603 (24 4%)	508 (24 2%)	596 (24 1%)
Employment	003 (24.470)	598 (24.278)	550 (24.178)
	1404	1402	1222
Employed (n=6239; 24.7%)	1404	1402	1332 (21.2%)
$1 = 12587 \cdot 52.0\%$	(22.5%)	(22.5%)	(21.5%)
011employed (11–15587, 55.9%)	4151	2900 (20.4%)	2002 (27 10/)
$O_{thor}(n - 4207, 17.0\%)$	(50.4%)	(29.4%)	(27.1%)
Other (n=4297; 17.0%)	1080	1091	1101
110(n-1106, 4.49)	(25.1%)	(25.4%)	(25.0%)
	213 (24.9%)	201 (23.0%)	240 (21.7%)
Living status	4050	1007	
LIVES alone (n=4434; 17.6%)	1350	136/	1220
	(30.4%)	(30.8%)	(27.5%)
Lives with family (n=13486; 53.5%)	3458	341/	3211
	(25.6%)	(25.3%)	(23.8%)
Lives with others (n=5455; 21.6%)	1622	1521	1463

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	Number of A	OD clients	
	ED 09/10	ED 10/11	ED 11/12
	(%)	(%)	(%)
	(29.7%)	(27.9%)	(26.8%)
Unknown (n=1854; 7.3%)	460 (24.8%)	437 (23.6%)	462 (24.9%)
Accommodation status			
Private residence (n=18325; 72.6%)	4874	4822	4502
	(26.6%)	(26.3%)	(24.6%)
Unstable (n=2456; 9.7%)	863 (35.1%)	842 (34.3%)	738 (30.0%)
In custody (n=1253; 5.0%)	307 (24.5%)	249 (19.9%)	331 (26.4%)
Other (n=1148; 4.6%)	348 (30.3%)	330 (28.7%)	337 (29.4%)
Unknown (n=2047; 8.1%)	498 (24.3%)	499 (24.4%)	448 (21.9%)
Homeless status			
Homeless (n=1186; 4.7%)	431 (36.3%)	438 (36.9%)	367 (30.9%)
Not homeless (n=23118; 91.6%)	6243	6089	5797
	(27.0%)	(26.3%)	(25.1%)
Unknown (n=925; 3.7%)	216 (23.4%)	215 (23.2%)	192 (20.8%)
Region			
Metropolitan Melbourne (n=12346; 48.9%)	3632	3656	3319
	(29.4%)	(29.6%)	(26.9%)
Rest of Victoria (n=7875; 31.2%)	1932	1891	1801
	(24.5%)	(24.0%)	(22.9%)
Interstate (n=438; 1.7%)	120 (27.4%)	115 (26.3%)	102 (23.3%)
Unknown (n=4570; 18.1%)	1206	1080	1134
	(26.4%)	(23.6%)	(24.8%)

Table 4.4 displays the service type and treatment characteristics of AOD clients by the pattern of their ED engagement from 2009/10 to 2011/12. In terms of service type, AOD clients most commonly received counselling (47%), followed by brokerage (15%) and other withdrawal services (10%). Overall, 74% completed their course of treatment.

There was some variability in patterns of ED utilisation across service types, with one-third of residential withdrawal clients, and over one-quarter of specialist pharmacotherapy clients presenting to emergency departments on multiple occasions over the three years presented.

Table 4.5 shows service type and treatment characteristics for AOD clients by ED presentation by year to show whether there was a change in ED utilisation pre- and post-treatment. Proportions of pre-AOD treatment ED presentations (2009/10) were higher than the proportions post-AOD treatment (2011/12) for all service types, pharmacotherapy treatment types and treatment termination status reasons.

	Number of AOI	O clients				
	No ED (%)	ED 09/10 only	ED 10/11 only	ED 11/12 only	ED in multiple years	р
		(%)	(%)	(%)	(%)	
Total (n=25229)	13228 (52.4%)	2348 (9.3%)	1958 (7.8%)	1867 (7.4%)	5828 (23.1%)	
Treatment type						
Counselling (n=11919; 47.2%)	6376 (53.5%)	1089 (9.1%)	930 (7.8%)	828 (6.9%)	2696 (22.6%)	
Residential withdrawal (n=1962; 7.8%)	848 (43.2%)	169 (8.6%)	159 (8.1%)	141 (7.2%)	645 (32.9%)	
Other withdrawal (n=2582; 10.2%)	1419 (55.0%)	215 (8.3%)	218 (8.4%)	162 (6.3%)	568 (22.0%)	
Outreach (n=2368; 9.4%)	1205 (50.9%)	230 (9.7%)	192 (8.1%)	193 (8.2%)	548 (23.1%)	
Brokerage (n=3904; 15.5%)	2066 (52.9%)	422 (10.8%)	269 (6.9%)	350 (9.0%)	797 (20.4%)	
Aboriginal services (n=733; 2.9%)	415 (56.6%)	60 (8.2%)	40 (5.5%)	49 (6.7%)	169 (23.1%)	
Specialist pharmacotherapy (n=401; 1.6%)	166 (41.4%)	47 (11.7%)	37 (9.2%)	45 (11.2%)	106 (26.4%)	
Residential rehabilitation (n=176; 0.7%)	91 (51.7%)	18 (10.2%)	17 (9.7%)	11 (6.3%)	39 (22.2%)	
Supported accommodation (n=269; 1.1%)	129 (48.0%)	30 (11.2%)	19 (7.1%)	25 (9.3%)	66 (24.5%)	
Post withdrawal linkage (n=256; 1.0%)	158 (61.7%)	20 (7.8%)	16 (6.3%)	16 (6.3%)	46 (18.0%)	
Other/unknown (n=659; 2.6%)	355 (53.9%)	48 (7.3%)	61 (9.3%)	47 (7.1%)	148 (22.5%)	<0.001
Pharmacotherapy treatment						
Methadone (n=2166; 8.6%)	1068 (49.3%)	227 (10.5%)	180 (8.3%)	156 (7.2%)	535 (24.7%)	
Buprenorphine (n=711; 2.8%)	341 (48.0%)	75 (10.5%)	46 (6.5%)	72 (10.1%)	177 (24.9%)	
Naltrexone (n=327; 1.3%)	174 (53.2%)	25 (7.6%)	20 (6.1%)	15 (4.6%)	93 (28.4%)	
Other (n=1240; 4.9%)	640 (51.6%)	118 (9.5%)	102 (8.2%)	80 (6.5%)	300 (24.2%)	
None (n=20785; 82.4%)	11005 (52.9%)	1903 (9.2%)	1610 (7.7%)	1544 (7.4%)	4723 (22.7%)	0.001
Treatment termination status						
Completed treatment (n=18690; 74.1%)	9873 (52.8%)	1757 (9.4%)	1454 (7.8%)	1430 (7.7%)	4176 (22.3%)	
Not completed (n=6262; 24.8%)	3214 (51.3%)	558 (8.9%)	483 (7.7%)	420 (6.7%)	1587 (25.3%)	
Unknown (n=277; 1.1%)	141 (50.9%)	33 (11.9%)	21 (7.6%)	17 (6.1%)	65 (23.5%)	< 0.001

## Table 4.4 Treatment type and treatment characteristics by ED presentation, 2009/10 to 2011/12

	Number of AOD clients			
	ED 09/10 (%)	ED 10/11 (%)	ED 11/12 (%)	
Total (n=25229)	6890 (27.3%)	6742 (26.7%)	6356 (25.2%)	
Treatment type				
Counselling (n=11919; 47.2%)	3158 (26.5%)	3172 (26.6%)	2878 (24.1%)	
Residential withdrawal (n=1962; 7.8%)	685 (34.9%)	705 (35.9%)	644 (32.8%)	
Other withdrawal (n=2582; 10.2%)	655 (25.4%)	686 (26.6%)	609 (23.6%)	
Outreach (n=2368; 9.4%)	658 (27.8%)	637 (26.9%)	614 (25.9%)	
Brokerage (n=3904; 15.5%)	1038 (26.6%)	887 (22.7%)	967 (24.8%)	
Aboriginal services (n=733; 2.9%)	195 (26.6%)	176 (24.0%)	188 (25.6%)	
Specialist pharmacotherapy (n=401; 1.6%)	137 (34.2%)	122 (30.4%)	130 (32.4%)	
Residential rehabilitation (n=176; 0.7%)	49 (27.8%)	42 (23.9%)	40 (22.7%)	
Supported accommodation (n=269; 1.1%)	83 (30.9%)	74 (27.5%)	82 (30.5%)	
Post withdrawal linkage (n=256; 1.0%)	62 (24.2%)	54 (21.1%)	53 (20.7%)	
Other/unknown (n=659; 2.6%)	170 (25.8%)	187 (28.4%)	151 (22.9%)	
Pharmacotherapy treatment				
Methadone (n=2166; 8.6%)	660 (30.5%)	603 (27.8%)	568 (26.2%)	
Buprenorphine (n=711; 2.8%)	211 (29.7%)	194 (27.3%)	201 (28.3%)	
Naltrexone (n=327; 1.3%)	105 (32.1%)	101 (30.9%)	85 (26.0%)	
Other (n=1240; 4.9%)	359 (29.0%)	351 (28.3%)	303 (24.4%)	
None (n=20785; 82.4%)	5555 (26.7%)	5493 (26.4%)	5199 (25.0%)	
Treatment termination status				
Completed treatment (n=18690; 74.1%)	5000 (26.8%)	4855 (26.0%)	4639 (24.8%)	
Not completed (n=6262; 24.8%)	1805 (28.8%)	1817 (29.0%)	1652 (26.4%)	
Unknown (n=277; 1.1%)	85 (30.7%)	70 (25.3%)	65 (23.5%)	

Table 4.5 Treatment type and treatment characteristics by ED presentations in 2009/10, 2010/11and 2011/12

Table 4.6 shows that alcohol was most commonly the primary drug of concern (47%), followed by cannabis (22%) and heroin & other opioids (15%). The majority of clients did not attend an ED across the three years presented. Between 20% and 25% of all primary drug of concern groupings had multiple ED presentations, with multiple ED presentations least common among clients with amphetamines and other stimulants as the primary drug of concern.

The most common method of drug use was ingestion (49%), followed by smoking (20%). Injection as route of administration had a slightly higher prevalence of multiple ED presentations compared with smoking and inhaling. Those reporting no injecting drug use history accounted for over half of AOD clients. Any injecting drug use history had more ED activity, with the exception of ED presentations in 2011/12 only. Although differences were relatively small, over half (53.8%) of those who had never injected did not present to ED in the three years, and those who had not injected in the past 12 months (51%) did not present to ED in any year. However, over a quarter of those who reported injecting in the previous year (26%) had multiple ED presentations (Table 4.6).

Polydrug use was common, being recorded for 43% of AOD clients. There was little difference across ED presentations compared with those reporting no polydrug use. Those

with polydrug use had a slightly lower proportion of ED presentations prior to treatment and higher proportion for multiple ED presentations, however the relationship was not statistically significant (Table 4.6).

Table 4.7 shows these same drug characteristics for AOD clients by ED presentation across the three years – the year prior to treatment, year of treatment, and the year post-treatment. In general, the proportions of pre-AOD treatment ED presentations (2009/10) were higher than the proportions of post-AOD treatment ED presentations (2011/12) with the exception of clients with amphetamines and other stimulants as the primary drug of concern (no change), and inhalation as a method of use (no change).

	Number of AOD clients					
	No ED (%)	ED 09/10	ED 10/11	ED 11/12	ED in multiple	р
		only (%)	only (%)	only (%)	years (%)	
Total (n=25229)	13228 (52.4%)	2348 (9.3%)	1958 (7.8%)	1867 (7.4%)	5828 (23.1%)	
Primary drug of concern						
Alcohol (n=11912; 47.2%)	6269 (52.6%)	1068 (9.0%)	887 (7.4%)	866 (7.3%)	2822 (23.7%)	
Cannabis (n=5663; 22.4%)	2998 (52.9%)	542 (9.6%)	418 (7.4%)	417 (7.4%)	1288 (22.7%)	
Heroin & other opioids (n=3863; 15.3%)	1924 (49.8%)	390 (10.1%)	329 (8.5%)	295 (7.6%)	925 (23.9%)	
Amphetamine & other stimulants (n=2198; 8.7%)	1154 (52.5%)	223 (10.1%)	196 (8.9%)	190 (8.6%)	435 (19.8%)	
Benzodiazepines & other tranquillisers (n=522; 2.1%)	291 (55.7%)	37 (7.1%)	43 (8.2%)	30 (5.7%)	121 (23.2%)	
Other (n=730; 2.9%)	403 (55.2%)	59 (8.1%)	55 (7.5%)	48 (6.6%)	165 (22.6%)	
Unknown (n=341; 1.4%)	189 (55.4%)	29 (8.5%)	30 (8.8%)	21 (6.2%)	72 (21.1%)	0.001
Method of use						
Ingest (n=12461; 49.4%)	6559 (52.6%)	1123 (9.0%)	946 (7.6%)	898 (7.2%)	2935 (23.6%)	
Smoke (n=5103; 20.2%)	2728 (53.5%)	493 (9.7%)	393 (7.7%)	386 (7.6%)	1103 (21.6%)	
Inject (n=3632; 14.4%)	1793 (49.4%)	380 (10.5%)	317 (8.7%)	264 (7.3%)	878 (24.2%)	
Sniff/inhale (n=1340; 5.3%)	718 (53.6%)	110 (8.2%)	99 (7.4%)	116 (8.7%)	297 (22.2%)	
Other/unknown (n=2693; 10.7%)	1430 (53.1%)	242 (9.0%)	203 (7.5%)	203 (7.5%)	615 (22.8%)	0.004
Poly-drug use						
Yes (n=10899; 43.2%)	5604 (51.4%)	1024 (9.4%)	833 (7.6%)	824 (7.6%)	2614 (24.0%)	
No (n=9939; 39.4%)	5291 (53.2%)	926 (9.3%)	794 (8.0%)	711 (7.2%)	2217 (22.3%)	
Unknown (n=4391; 17.4%)	2333 (53.1%)	398 (9.1%)	331 (7.5%)	332 (7.6%)	997 (22.7%)	0.101
Injecting drug use history						
Never injected (n=12767; 50.6%)	6870 (53.8%)	1174 (9.2%)	980 (7.7%)	982 (7.7%)	2761 (21.6%)	
Within past 12 months (n=5135; 20.4%)	2471 (48.1%)	513 (10.0%)	429 (8.4%)	378 (7.4%)	1344 (26.2%)	
Over 12 months ago (n=2664; 10.6%)	1355 (50.9%)	264 (9.9%)	207 (7.8%)	206 (7.7%)	632 (23.7%)	
Unknown (n=4663; 18.5%)	2532 (54.3%)	397 (8.5%)	342 (7.3%)	301 (6.5%)	1091 (23.4%)	<0.001

## Table 4.6 Drug use characteristics by ED presentations, 2009/10 to 2011/12

	Number of AOD clients			
	ED 09/10	ED 10/11	ED 11/12	
	(%)	(%)	(%)	
Total (n=25229)	6890	6742	6356	
	(27.3%)	(26.7%)	(25.2%)	
Primary drug of concern				
Alcohol (n=11912; 47.2%)	3288	3222	3066	
	(27.6%)	(27.0%)	(25.7%)	
Cannabis (n=5663; 22.4%)	1533	1461	1397	
	(27.1%)	(25.8%)	(24.7%)	
Heroin & other opioids (n=3863; 15.3%)	1131	1077	996 (25.8%)	
	(29.3%)	(27.9%)		
Amphetamine & other stimulants (n=2198; 8.7%)	536 (24.4%)	548 (24.9%)	528 (24.0%)	
Benzodiazepines & other tranquillisers (n=522;	130 (24.9%)	147 (28.2%)	119 (22.8%)	
2.1%)				
Other (n=730; 2.9%)	193 (26.4%)	194 (26.6%)	175 (24.0%)	
Unknown (n=341; 1.4%)	79 (23.2%)	93 (27.3%)	75 (22.0%)	
Method of use				
Ingest (n=12461; 49.4%)	3432	3386	3175	
	(27.5%)	(27.2%)	(25.5%)	
Smoke (n=5103; 20.2%)	1330	1299	1239	
	(26.1%)	(25.5%)	(24.3%)	
Inject (n=3632; 14.4%)	1079	1016	933 (25.7%)	
	(29.7%)	(28.0%)		
Sniff/inhale (n=1340; 5.3%)	338 (25.2%)	341 (25.4%)	336 (25.1%)	
Other/unknown (n=2693; 10.7%)	711 (26.4%)	700 (26.0%)	673 (25.0%)	
Poly-drug use			i	
Yes (n=10899; 43.2%)	3071	2968	2853	
	(28.2%)	(27.2%)	(26.2%)	
No (n=9939; 39.4%)	2662	2640	2398	
	(26.8%)	(26.6%)	(24.1%)	
Unknown (n=4391; 17.4%)	1157	1134	1105	
	(26.3%)	(25.8%)	(25.2%)	
Injecting drug use history				
Never injected (n=12767; 50.6%)	3309	3256	3100	
	(25.9%)	(25.5%)	(24.3%)	
Within past 12 months (n=5135; 20.4%)	1588	1516	1409	
	(30.9%)	(29.5%)	(27.4%)	
Over 12 months ago (n=2664; 10.6%)	743 (27.9%)	728 (27.3%)	710 (26.7%)	
Unknown (n=4663; 18.5%)	1250	1242	1137	
	(26.8%)	(26.6%)	(24.4%)	

# Table 4.7 Drug use characteristics by ED presentations in 2009/10, 2010/11 and 2011/12

Table 4.8 shows the overall median number of ED presentations and length of ED stay for AOD clients by year. There was no change over time, with one presentation pre- and post-

treatment. Refer to Table 3.1 to Table 3.7 in the Appendix 3.2 for supplementary tables for breakdowns for client characteristics, service type and drug characteristics.

, , ,			
	ED 09/10 (N=6890)	ED 10/11 (N=6742)	ED 11/12 (N=6356)
Median number of ED presentations (interquartile range)	1 (1,3)	2 (1,3)	1 (1,3)
Median hours of ED stay (interquartile range)	3.2 (2.0, 5.2)	3.4 (2.0, 5.5)	3.4 (2.1, 5.3)

Table 4.8 Median number of ED presentations and median hours of ED stay for 2010/11 AODclients, 2009/10 to 2011/12

Table 4.9 shows the proportions of AOD clients diagnosed in the ED with an acute alcoholrelated presentation by treatment characteristic and primary drug of concern. Overall, there was a decrease in the proportion of clients who presented to ED with an acute alcoholrelated condition between the year prior to AOD treatment and the year following AOD treatment. While there was a decrease in acute alcohol-related ED presentations for clients who had completed their AOD treatment episode at the time of treatment termination, there was no reduction in such presentations for clients whose AOD treatment was not successfully completed at termination of treatment.

Table 4.9 ED presentations for alcohol-related acute conditions by AOD treatment type, primary
drug of concern and treatment termination status, 2009/10, 2010/11 and 2011/12

	Alcohol-related acute conditions		
	ED 09/10	ED 10/11	ED 11/12
	(%)	(%)	(%)
Total (n=25229)	518 (2.1%)	604 (2.4%)	470 (1.9%)
Treatment type			
Counselling (n=11919; 47.2%)	213 (1.8%)	244 (2.0%)	200 (1.7%)
Residential withdrawal (n=1962; 7.8%)	116 (5.9%)	143 (7.3%)	95 (4.8%)
Other withdrawal (n=2582; 10.2%)	47 (1.8%)	80 (3.1%)	64 (2.5%)
Outreach (n=2368; 9.4%)	39 (1.6%)	38 (1.6%)	23 (1.0%)
Brokerage (n=3904; 15.5%)	53 (1.4%)	44 (1.1%)	42 (1.1%)
Aboriginal services (n=733; 2.9%)	9 (1.2%)	14 (1.9%)	8 (1.1%)
Specialist pharmacotherapy (n=401; 1.6%)	N<5	5 (1.2%)	N<5
Residential rehabilitation (n=176; 0.7%)	5 (2.8%)	N<5	6 (3.4%)
Supported accommodation (n=269; 1.1%)	6 (2.2%)	8 (3.0%)	6 (2.2%)
Post withdrawal linkage (n=256; 1.0%)	9 (3.5%)	10 (3.9%)	9 (3.5%)
Other/unknown (n=659; 2.6%)	18 (2.7%)	16 (2.4%)	13 (2.0%)
Treatment termination status			
Completed treatment (n=18690; 74.1%)	374 (2.0%)	444 (2.4%)	334 (1.8%)
Not completed (n=6262; 24.8%)	134 (2.1%)	158 (2.5%)	132 (2.1%)
Unknown (n=277; 1.1%)	10 (3.6%)	N<5	N<5
Primary drug of concern			
Alcohol (n=11912; 47.2%)	412 (3.5%)	502 (4.2%)	392 (3.3%)
Cannabis (n=5663; 22.4%)	53 (0.9%)	51 (0.9%)	35 (0.6%)
Heroin & other opioids (n=3863; 15.3%)	24 (0.6%)	24 (0.6%)	20 (0.5%)

	Alcohol-related acute conditions			
	ED 09/10 ED 10/11 ED 11/12			
	(%)	(%)	(%)	
Amphetamine & other stimulants (n=2198; 8.7%)	18 (0.8%)	10 (0.5%)	9 (0.4%)	
Benzodiazepines & other tranquillisers (n=522;	N<5	9 (1.7%)	6 (1.1%)	
2.1%)				
Other (n=730; 2.9%)	N<5	N<5	6 (0.8%)	
Unknown (n=341; 1.4%)	N<5	5 (1.5%)	N<5	

Overall, there was a decrease in the proportion of other drug-related acute presentations to ED for AOD clients in the year following treatment engagement when compared with ED presentations in the year preceding treatment engagement (Table 4.10). Decreases in proportions of other drug-related acute ED presentations were evident for all treatment types except non-residential withdrawal, and for all drugs of concern on entry into AOD treatment except for cannabis (where there was no change), and amphetamines and other stimulants (which showed an increase in other drug-related acute presentations in the year following treatment).

Table 4.10 ED presentations for other drug-related acute conditions by AOD treatment type,
primary drug of concern and treatment termination status, 2009/10, 2010/11 and 2011/12

	Other drug-related acute conditions			
	ED 09/10	ED 10/11	ED 11/12	
	(%)	(%)	(%)	
Total (n=25229)	602 (2.4%)	672 (2.7%)	504 (2.0%)	
Treatment type				
Counselling (n=11919; 47.2%)	261 (2.2%)	297 (2.5%)	225 (1.9%)	
Residential withdrawal (n=1962; 7.8%)	78 (4.0%)	98 (5.0%)	67 (3.4%)	
Other withdrawal (n=2582; 10.2%)	46 (1.8%)	72 (2.8%)	53 (2.1%)	
Outreach (n=2368; 9.4%)	54 (2.3%)	64 (2.7%)	45 (1.9%)	
Brokerage (n=3904; 15.5%)	103 (2.6%)	76 (1.9%)	69 (1.8%)	
Aboriginal services (n=733; 2.9%)	9 (1.2%)	12 (1.6%)	7 (1.0%)	
Specialist pharmacotherapy (n=401; 1.6%)	17 (4.2%)	19 (4.7%)	16 (4.0%)	
Residential rehabilitation (n=176; 0.7%)	N<5	N<5	N<5	
Supported accommodation (n=269; 1.1%)	9 (3.3%)	8 (3.0%)	8 (3.0%)	
Post withdrawal linkage (n=256; 1.0%)	6 (2.3%)	10 (3.9%)	N<5	
Other/unknown (n=659; 2.6%)	17 (2.6%)	14 (2.1%)	7 (1.1%)	
Treatment termination status				
Completed treatment (n=18690; 74.1%)	404 (2.2%)	434 (2.3%)	354 (1.9%)	
Not completed (n=6262; 24.8%)	192 (3.1%)	231 (3.7%)	148 (2.4%)	
Unknown (n=277; 1.1%)	6 (2.2%)	7 (2.5%)	N<5	
Primary drug of concern				
Alcohol (n=11912; 47.2%)	246 (2.1%)	248 (2.1%)	198 (1.7%)	
Cannabis (n=5663; 22.4%)	97 (1.7%)	121 (2.1%)	95 (1.7%)	
Heroin & other opioids (n=3863; 15.3%)	149 (3.9%)	173 (4.5%)	116 (3.0%)	
Amphetamine & other stimulants (n=2198; 8.7%)	48 (2.2%)	65 (3.0%)	58 (2.6%)	
Benzodiazepines & other tranquillisers (n=522;	28 (5.4%)	32 (6.1%)	23 (4.4%)	

	Other drug-related acute conditions			
	ED 09/10 ED 10/11 ED 11 (%) (%) (%)			
2.1%)				
Other (n=730; 2.9%)	21 (2.9%)	21 (2.9%)	10 (1.4%)	
Unknown (n=341; 1.4%)	13 (3.8%)	12 (3.5%)	N<5	

Table 4.11 shows the proportion of AOD clients diagnosed in the ED with an alcohol-related chronic condition across the three years by AOD treatment characteristics and primary drug of concern on entry into AOD treatment. Overall, there was stability in proportions of clients presenting with alcohol-related chronic conditions over the three years presented. This is likely a reflection of patterns of morbidity associated with alcohol-related chronic conditions, with need for acute treatment of recurring symptoms even after reduction or cessation of alcohol consumption.

# Table 4.11 ED presentations for alcohol-related chronic conditions by AOD treatment type, primary drug of concern and treatment termination status, 2009/10, 2010/11 and 2011/12

	Alcohol related chronic conditions			
	ED 09/10	ED 10/11	ED 11/12	
	(%)	(%)	(%)	
Total (n=25229)	463 (1.8%)	492 (2.0%)	442 (1.8%)	
Treatment type				
Counselling (n=11919; 47.2%)	216 (1.8%)	224 (1.9%)	211 (1.8%)	
Residential withdrawal (n=1962; 7.8%)	68 (3.5%)	78 (4.0%)	53 (2.7%)	
Other withdrawal (n=2582; 10.2%)	52 (2.0%)	65 (2.5%)	62 (2.4%)	
Outreach (n=2368; 9.4%)	21 (0.9%)	30 (1.3%)	16 (0.7%)	
Brokerage (n=3904; 15.5%)	48 (1.2%)	49 (1.3%)	54 (1.4%)	
Aboriginal services (n=733; 2.9%)	27 (3.7%)	17 (2.3%)	16 (2.2%)	
Specialist pharmacotherapy (n=401; 1.6%)	7 (1.7%)	8 (2.0%)	6 (1.5%)	
Residential rehabilitation (n=176; 0.7%)	N<5	N<5	N<5	
Supported accommodation (n=269; 1.1%)	N<5	5 (1.9%)	5 (1.9%)	
Post withdrawal linkage (n=256; 1.0%)	8 (3.1%)	5 (2.0%)	N<5	
Other/unknown (n=659; 2.6%)	8 (1.2%)	10 (1.5%)	13 (2.0%)	
Treatment termination status				
Completed treatment (n=18690; 74.1%)	325 (1.7%)	347 (1.9%)	315 (1.7%)	
Not completed (n=6262; 24.8%)	131 (2.1%)	136 (2.2%)	122 (1.9%)	
Unknown (n=277; 1.1%)	7 (2.5%)	9 (3.2%)	5 (1.8%)	
Primary drug of concern				
Alcohol (n=11912; 47.2%)	274 (2.3%)	302 (2.5%)	270 (2.3%)	
Cannabis (n=5663; 22.4%)	74 (1.3%)	68 (1.2%)	70 (1.2%)	
Heroin & other opioids (n=3863; 15.3%)	64 (1.7%)	70 (1.8%)	51 (1.3%)	
Amphetamine & other stimulants (n=2198; 8.7%)	21 (1.0%)	19 (0.9%)	23 (1.0%)	
Benzodiazepines & other tranquillisers (n=522;	N<5	9 (1.7%)	12 (2.3%)	
2.170	21 (2.00/)	10 (2 20/)	14 (1 00/)	
Utner (n=730; 2.9%)	21 (2.9%)	16 (2.2%)	14 (1.9%)	
Unknown (n=341; 1.4%)	5 (1.5%)	8 (2.3%)	N<5	
Following AOD treatment, there was a decrease in the proportion of clients presenting to ED with an injury (Table 4.12). Across all treatment types, primary drugs of concern, and treatment termination status categories, there were reductions in proportions of AOD clients diagnosed in the ED with injuries between the year preceding AOD treatment and the year following AOD treatment engagement.

Table 4.12 ED presentations for injuries by AOD treatment type, primary drug of concern andtreatment termination status, 2009/10, 2010/11 and 2011/12

	Injuries		
	ED 09/10	ED 10/11	ED 11/12
	(%)	(%)	(%)
Total (n=25229)	2924	2717	2507
	(11.6%)	(10.8%)	(9.9%)
Treatment type			
Counselling (n=11919; 47.2%)	1302	1213	1123
	(10.9%)	(10.2%)	(9.4%)
Residential withdrawal (n=1962; 7.8%)	259 (13.2%)	278 (14.2%)	245
			(12.5%)
Other withdrawal (n=2582; 10.2%)	248 (9.6%)	250 (9.7%)	211 (8.2%)
Outreach (n=2368; 9.4%)	325 (13.7%)	292 (12.3%)	268
			(11.3%)
Brokerage (n=3904; 15.5%)	503 (12.9%)	438 (11.2%)	424
			(10.9%)
Aboriginal services (n=733; 2.9%)	89 (12.1%)	83 (11.3%)	77 (10.5%)
Specialist pharmacotherapy (n=401; 1.6%)	46 (11.5%)	41 (10.2%)	42 (10.5%)
Residential rehabilitation (n=176; 0.7%)	27 (15.3%)	15 (8.5%)	18 (10.2%)
Supported accommodation (n=269; 1.1%)	30 (11.2%)	19 (7.1%)	25 (9.3%)
Post withdrawal linkage (n=256; 1.0%)	25 (9.8%)	22 (8.6%)	24 (9.4%)
Other/unknown (n=659; 2.6%)	70 (10.6%)	66 (10.0%)	50 (7.6%)
Treatment termination status			
Completed treatment (n=18690; 74.1%)	2149	1986	1819
	(11.5%)	(10.6%)	(9.7%)
Not completed (n=6262; 24.8%)	740 (11.8%)	709 (11.3%)	660
			(10.5%)
Unknown (n=277; 1.1%)	35 (12.6%)	22 (7.9%)	28 (10.1%)
Primary drug of concern			
Alcohol (n=11912; 47.2%)	1441	1369	1187
	(12.1%)	(11.5%)	(10.0%)
Cannabis (n=5663; 22.4%)	685 (12.1%)	619 (10.9%)	593
			(10.5%)
Heroin & other opioids (n=3863; 15.3%)	413 (10.7%)	360 (9.3%)	342 (8.9%)
Amphetamine & other stimulants (n=2198; 8.7%)	238 (10.8%)	224 (10.2%)	239
			(10.9%)
Benzodiazepines & other tranquillisers (n=522;	48 (9.2%)	40 (7.7%)	36 (6.9%)
2.1%)			
Other (n=730; 2.9%)	73 (10.0%)	73 (10.0%)	72 (9.9%)

	Injuries ED 09/10	njuries D 09/10 ED 10/11	
	(%)	(%)	(%)
Unknown (n=341; 1.4%)	26 (7.6%)	32 (9.4%)	38 (11.1%)

ED presentations for non-AOD-related conditions are shown in Table 4.13 for the AOD client cohort. There was a small reduction in the proportion of clients presenting with non-AOD-related conditions in the year following AOD treatment, and this reduction was evident for most treatment types. While decreases in presentations were evident across most primary drugs of concern, there was no change in the proportion of clients with non-AOD-related presentation to ED where the primary drug of concern was benzodiazepines and other tranquilizers. For clients with a primary drug of concern of amphetamines and other stimulants on entry into AOD treatment, there was an increase in ED presentations with non-AOD-related diagnoses in the year following AOD treatment when compared with the year prior to AOD treatment.

Table 4.13 ED presentations for non-AOD-related conditions by AOD treatment type, primary drugof concern and treatment termination status, 2009/10, 2010/11 and 2011/12

	Non-AOD-related conditions			
	ED 09/10	ED 10/11	ED 11/12	
T-1-1/- 25220)	(%)	(%)	(%)	
lotal (n=25229)	4828	4923	4642	
	(19.1%)	(19.5%)	(18.4%)	
Treatment type				
Counselling (n=11919; 47.2%)	2209	2344	2092	
	(18.5%)	(19.7%)	(17.6%)	
Residential withdrawal (n=1962; 7.8%)	502 (25.6%)	526 (26.8%)	482	
			(24.6%)	
Other withdrawal (n=2582; 10.2%)	481 (18.6%)	523 (20.3%)	473	
	. ,	. ,	(18.3%)	
Outreach (n=2368; 9.4%)	426 (18.0%)	433 (18.3%)	433	
	, , ,	, ,	(18.3%)	
Brokerage (n=3904; 15.5%)	698 (17.9%)	584 (15.0%)	678	
			(17.4%)	
Aboriginal services (n=733; 2.9%)	132 (18.0%)	134 (18.3%)	131	
			(17.9%)	
Specialist pharmacotherapy (n=401; 1.6%)	114 (28.4%)	103 (25.7%)	109	
			(27.2%)	
Residential rehabilitation (n=176; 0.7%)	31 (17.6%)	29 (16.5%)	27 (15.3%)	
Supported accommodation (n=269; 1.1%)	60 (22.3%)	60 (22.3%)	65 (24.2%)	
Post withdrawal linkage (n=256; 1.0%)	47 (18.4%)	41 (16.0%)	43 (16.8%)	
Other/unknown (n=659; 2.6%)	128 (19.4%)	146 (22.2%)	109	
			(16.5%)	
Treatment termination status				
Completed treatment (n=18690; 74.1%)	3487	3520	3364	
	(18.7%)	(18.8%)	(18.0%)	
Not completed (n=6262; 24.8%)	1283	1350	1233	

	Non-AOD-related conditions			
	ED 09/10	ED 10/11	ED 11/12	
	(%)	(%)	(%)	
	(20.5%)	(21.6%)	(19.7%)	
Unknown (n=277; 1.1%)	58 (20.9%)	53 (19.1%)	45 (16.2%)	
Primary drug of concern				
Alcohol (n=11912; 47.2%)	2280	2277	2238	
	(19.1%)	(19.1%)	(18.8%)	
Cannabis (n=5663; 22.4%)	1061	1071	1007	
	(18.7%)	(18.9%)	(17.8%)	
Heroin & other opioids (n=3863; 15.3%)	853 (22.1%)	836 (21.6%)	758	
			(19.6%)	
Amphetamine & other stimulants (n=2198; 8.7%)	338 (15.4%)	397 (18.1%)	356	
			(16.2%)	
Benzodiazepines & other tranquillisers (n=522;	97 (18.6%)	125 (23.9%)	99 (19.0%)	
2.1%)				
Other (n=730; 2.9%)	142 (19.5%)	151 (20.7%)	133	
			(18.2%)	
Unknown (n=341; 1.4%)	57 (16.7%)	66 (19.4%)	51 (15.0%)	

Client characterstics and hospitalisaitons

Table 4.14 shows sociodemographic characteristics of AOD clients in 2010-2011 (index year) and hospitalisations from 2009/10 to 2011/12. Approximately two-thirds (68%) were male, with the highest proportion of clients aged 25-34 years (29%). A minority of clients were either Aboriginal and/or Torres Strait Islander (7%) although this was above the state population proportion. The majority were unemployed, living with family, in private residence and just under half were from metropolitan Melbourne.

Almost two thirds of male clients and more than half of female clients were not admitted to hospital in any of the three years (64% of males and 52% of females). Almost one-quarter of females (23%) had multiple admissions, while only 14% of males were admitted on multiple occasions. The likelihood of hospital admission increased with age, as did multiple admissions. People who were under 35 years, employed, living with family, and from metropolitan Melbourne were least likely to be hospitalised across the three years of interest.

In general, the proportions of pre-AOD treatment hospital admissions (2009/10) were higher than the proportions following AOD treatment engagement (2011/12). This pattern was evident for gender, age groups (with the exception of clients under 15 years and between 55-64 years), country of birth, Indigenous status, employment type, living status, accommodation status (except for those in custody), homeless status and region (Table 4.15).

	InterviewerNumber of AOD clients					
	No Admission	Admission	Admission	Admission	Admission in	р
	(%)	09/10 only	10/11 only	11/12 only	multiple years	
		(%)	(%)	(%)	(%)	
Total (n=25229)	15119 (59.9%)	2167 (8.6%)	1929 (7.6%)	1801 (7.1%)	4213 (16.7%)	
Gender						
Male (n=17198; 68.2%)	10950 (63.7%)	1445 (8.4%)	1264 (7.3%)	1147 (6.7%)	2392 (13.9%)	
Female (n=7982; 31.6%)	4120 (51.6%)	722 (9.0%)	665 (8.3%)	654 (8.2%)	1821 (22.8%)	<0.001
Age group						
0-14 (n=340; 1.3%)	248 (72.9%)	22 (6.5%)	31 (9.1%)	22 (6.5%)	17 (5.0%)	
15-24 (n=6654; 26.4%)	4298 (64.6%)	561 (8.4%)	447 (6.7%)	487 (7.3%)	861 (12.9%)	
25-34 (n=7334; 29.1%)	4525 (61.7%)	623 (8.5%)	547 (7.5%)	524 (7.1%)	1115 (15.2%)	
35-44 (n=6220; 24.7%)	3568 (57.4%)	590 (9.5%)	512 (8.2%)	415 (6.7%)	1135 (18.2%)	
45-54 (n=3202; 12.7%)	1754 (54.8%)	262 (8.2%)	292 (9.1%)	237 (7.4%)	657 (20.5%)	
55-64 (n=1102; 4.4%)	548 (49.7%)	83 (7.5%)	81 (7.4%)	89 (8.1%)	301 (27.3%)	
65+ (n=377; 1.5%)	178 (47.2%)	26 (6.9%)	19 (5.0%)	27 (7.2%)	127 (33.7%)	<0.001
Country of birth						
Australia (n=21501; 85.2%)	12772 (59.4%)	1880 (8.7%)	1649 (7.7%)	1552 (7.2%)	3648 (17.0%)	
Other (n=3728; 14.8%)	2347 (63.0%)	287 (7.7%)	280 (7.5%)	249 (6.7%)	565 (15.2%)	0.001
Indigenous status						
Aboriginal and/or TSI origin (n=1832; 7.3%)	1135 (62.0%)	141 (7.7%)	123 (6.7%)	119 (6.5%)	314 (17.1%)	
Neither Aboriginal nor TSI origin (n=20927; 82.9%)	12400 (59.3%)	1842 (8.8%)	1625 (7.8%)	1524 (7.3%)	3536 (16.9%)	
Unknown (n=2470; 9.8%)	1584 (64.1%)	184 (7.4%)	181 (7.3%)	158 (6.4%)	363 (14.7%)	<0.001
Employment						
Employed (n=6239; 24.7%)	3951 (63.3%)	546 (8.8%)	490 (7.9%)	443 (7.1%)	809 (13.0%)	
Unemployed (n=13587; 53.9%)	7832 (57.6%)	1186 (8.7%)	1060 (7.8%)	942 (6.9%)	2567 (18.9%)	
Other (n=4297; 17.0%)	2621 (61.0%)	347 (8.1%)	312 (7.3%)	343 (8.0%)	674 (15.7%)	
Unknown (n=1106; 4.4%)	715 (64.6%)	88 (8.0%)	67 (6.1%)	73 (6.6%)	163 (14.7%)	<0.001

### Table 4.14 Sociodemographic characteristics by hospital admission, 2009/10 to 2011/12

	InterviewerNumber of AOD clients					
	No Admission	Admission	Admission	Admission	Admission in	р
	(%)	09/10 only	10/11 only	11/12 only	multiple years	
		(%)	(%)	(%)	(%)	
Living status						
Lives alone (n=4434; 17.6%)	2465 (55.6%)	400 (9.0%)	356 (8.0%)	271 (6.1%)	942 (21.2%)	
Lives with family (n=13486; 53.5%)	8247 (61.2%)	1149 (8.5%)	1045 (7.7%)	988 (7.3%)	2057 (15.3%)	
Lives with others (n=5455; 21.6%)	3240 (59.4%)	455 (8.3%)	408 (7.5%)	391 (7.2%)	961 (17.6%)	
Unknown (n=1854; 7.3%)	1167 (62.9%)	163 (8.8%)	120 (6.5%)	151 (8.1%)	253 (13.6%)	<0.001
Accommodation status						
Private residence (n=18325; 72.6%)	10987 (60.0%)	1579 (8.6%)	1442 (7.9%)	1307 (7.1%)	3010 (16.4%)	
Unstable (n=2456; 9.7%)	1363 (55.5%)	209 (8.5%)	187 (7.6%)	140 (5.7%)	557 (22.7%)	
In custody (n=1253; 5.0%)	801 (63.9%)	109 (8.7%)	81 (6.5%)	112 (8.9%)	150 (12.0%)	
Other (n=1148; 4.6%)	642 (55.9%)	102 (8.9%)	78 (6.8%)	89 (7.8%)	237 (20.6%)	
Unknown (n=2047; 8.1%)	1326 (64.8%)	168 (8.2%)	141 (6.9%)	153 (7.5%)	259 (12.7%)	<0.001
Homeless status						
Homeless (n=1186; 4.7%)	632 (53.3%)	104 (8.8%)	91 (7.7%)	78 (6.6%)	281 (23.7%)	
Not homeless (n=23118; 91.6%)	13886 (60.1%)	2006 (8.7%)	1770 (7.7%)	1654 (7.2%)	3802 (16.4%)	
Unknown (n=925; 3.7%)	601 (65.0%)	57 (6.2%)	68 (7.4%)	69 (7.5%)	130 (14.1%)	<0.001
Region						
Metropolitan Melbourne (n=12346; 48.9%)	6952 (56.3%)	1069 (8.7%)	1033 (8.4%)	905 (7.3%)	2387 (19.3%)	
Rest of Victoria (n=7875; 31.2%)	5036 (63.9%)	612 (7.8%)	549 (7.0%)	507 (6.4%)	1171 (14.9%)	
Interstate (n=438; 1.7%)	280 (63.9%)	41 (9.4%)	33 (7.5%)	33 (7.5%)	51 (11.6%)	
Unknown (n=4570; 18.1%)	2851 (62.4%)	445 (9.7%)	314 (6.9%)	356 (7.8%)	604 (13.2%)	< 0.001

	Number of AOD clients			
	Admission	Admission	Admission	
	09/10 (%)	10/11 (%)	11/12 (%)	
Total (n=25229)	5367	5301	4983	
	(21.3%)	(21.0%)	(19.8%)	
Gender				
Male (n=17198; 68.2%)	3227	3200	2926	
	(18.8%)	(18.6%)	(17.0%)	
Female (n=7982; 31.6%)	2140	2101	2057	
	(26.8%)	(26.3%)	(25.8%)	
Age group				
0-14 (n=340; 1.3%)	33 (9.7%)	44 (12.9%)	35 (10.3%)	
15-24 (n=6654; 26.4%)	1174	1123	1120	
	(17.6%)	(16.9%)	(16.8%)	
25-34 (n=7334; 29.1%)	1475	1441	1367	
	(20.1%)	(19.6%)	(18.6%)	
35-44 (n=6220; 24.7%)	1486	1403	1279	
	(23.9%)	(22.6%)	(20.6%)	
45-54 (n=3202; 12.7%)	761 (23.8%)	836 (26.1%)	732 (22.9%)	
55-64 (n=1102; 4.4%)	313 (28.4%)	328 (29.8%)	329 (29.9%)	
65+ (n=377; 1.5%)	125 (33.2%)	126 (33.4%)	121 (32.1%)	
Country of birth				
Australia (n=21501; 85.2%)	4651	4561	4309	
	(21.6%)	(21.2%)	(20.0%)	
Other (n=3728; 14.8%)	716 (19.2%)	740 (19.8%)	674 (18.1%)	
Indigenous status				
Aboriginal and/or TSI origin (n=1832; 7.3%)	377 (20.6%)	372 (20.3%)	358 (19.5%)	
Neither Aboriginal nor TSI origin (n=20927;	4526	4464	4186	
82.9%)	(21.6%)	(21.3%)	(20.0%)	
Unknown (n=2470; 9.8%)	464 (18.8%)	465 (18.8%)	439 (17.8%)	
Employment				
Employed (n=6239: 24.7%)	1137	1117	1049	
	(18.2%)	(17.9%)	(16.8%)	
Unemployed (n=13587; 53.9%)	3151	3143	2891	
	(23.2%)	(23.1%)	(21.3%)	
Other (n=4297; 17.0%)	869 (20.2%)	848 (19.7%)	845 (19.7%)	
Unknown (n=1106; 4.4%)	210 (19.0%)	193 (17.5%)	198 (17.9%)	
Living status	<u> </u>	. ,	, , , , , , , , , , , , , , , , , , ,	
Lives alone (n=4434: 17.6%)	1136	1127	988 (22.3%)	
	(25.6%)	(25.4%)		
Lives with family (n=13486: 53.5%)	2692	2681	2537	
	(20.0%)	(19.9%)	(18.8%)	
Lives with others (n=5455: 21.6%)	1185	1173	1116	
	(21.7%)	(21.5%)	(20.5%)	

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	Number of AOD clients				
	Admission	Admission	Admission		
	09/10 (%)	10/11 (%)	11/12 (%)		
Unknown (n=1854; 7.3%)	354 (19.1%)	320 (17.3%)	342 (18.4%)		
Accommodation status					
Private residence (n=18325; 72.6%)	3863	3860	3575		
	(21.1%)	(21.1%)	(19.5%)		
Unstable (n=2456; 9.7%)	641 (26.1%)	644 (26.2%)	565 (23.0%)		
In custody (n=1253; 5.0%)	221 (17.6%)	193 (15.4%)	228 (18.2%)		
Other (n=1148; 4.6%)	283 (24.7%)	263 (22.9%)	263 (22.9%)		
Unknown (n=2047; 8.1%)	359 (17.5%)	341 (16.7%)	352 (17.2%)		
Homeless status					
Homeless (n=1186; 4.7%)	317 (26.7%)	331 (27.9%)	291 (24.5%)		
Not homeless (n=23118; 91.6%)	4897	4803	4520		
	(21.2%)	(20.8%)	(19.6%)		
Unknown (n=925; 3.7%)	153 (16.5%)	167 (18.1%)	172 (18.6%)		
Region					
Metropolitan Melbourne (n=12346; 48.9%)	2897	2975	2694		
	(23.5%)	(24.1%)	(21.8%)		
Rest of Victoria (n=7875; 31.2%)	1498	1481	1409		
	(19.0%)	(18.8%)	(17.9%)		
Interstate (n=438; 1.7%)	78 (17.8%)	70 (16.0%)	71 (16.2%)		
Unknown (n=4570; 18.1%)	894 (19.6%)	775 (17.0%)	809 (17.7%)		

Table 4.16 displays the service type and treatment characteristics of AOD clients by the pattern of hospitalisation from 2009/10 to 2011/12. In terms of service type, most AOD clients received counselling (47%), followed by brokerage (16%) and other withdrawal services (10%). Overall, 74% had completed treatment when their treatment episode was terminated.

There was some variability in patterns of hospital utilisation across service types, with over one-quarter of residential withdrawal clients, and just over ten per cent of outreach (14%) and brokerage (13%) clients presenting to hospital on multiple occasions over the three years presented.

Table 4.17 shows service type and treatment characteristics for AOD clients by hospitalisation by year to show whether there was a change in hospital utilisation pre- and post-treatment. Proportions of pre-AOD treatment hospital admissions (2009/10) were higher than the proportions post-AOD treatment (2011/12) for all service types (with the exceptions of outreach and Aboriginal services), pharmacotherapy treatment types and treatment termination status reasons.

	Number of AO	O clients				
	No Admission	Admission	Admission	Admission	Admission in	р
	(%)	09/10 only (%)	10/11 only (%)	11/12 only (%)	multiple years (%)	
Total (n=25229)	15119 (59.9%)	2167 (8.6%)	1929 (7.6%)	1801 (7.1%)	4213 (16.7%)	
Treatment type						
Counselling (n=11919; 47.2%)	7185 (60.3%)	1015 (8.5%)	940 (7.9%)	822 (6.9%)	1957 (16.4%)	
Residential withdrawal (n=1962; 7.8%)	997 (50.8%)	172 (8.8%)	150 (7.6%)	139 (7.1%)	504 (25.7%)	
Other withdrawal (n=2582; 10.2%)	1495 (57.9%)	216 (8.4%)	217 (8.4%)	157 (6.1%)	497 (19.2%)	
Outreach (n=2368; 9.4%)	1486 (62.8%)	198 (8.4%)	167 (7.1%)	195 (8.2%)	322 (13.6%)	
Brokerage (n=3904; 15.5%)	2443 (62.6%)	381 (9.8%)	272 (7.0%)	314 (8.0%)	494 (12.7%)	
Aboriginal services (n=733; 2.9%)	499 (68.1%)	41 (5.6%)	41 (5.6%)	41 (5.6%)	111 (15.1%)	
Specialist pharmacotherapy (n=401; 1.6%)	208 (51.9%)	35 (8.7%)	36 (9.0%)	30 (7.5%)	92 (22.9%)	
Residential rehabilitation (n=176; 0.7%)	103 (58.5%)	12 (6.8%)	15 (8.5%)	13 (7.4%)	33 (18.8%)	
Supported accommodation (n=269; 1.1%)	139 (51.7%)	36 (13.4%)	20 (7.4%)	27 (10.0%)	47 (17.5%)	
Post withdrawal linkage (n=256; 1.0%)	171 (66.8%)	10 (3.9%)	13 (5.1%)	12 (4.7%)	50 (19.5%)	
Other/unknown (n=659; 2.6%)	393 (59.6%)	51 (7.7%)	58 (8.8%)	51 (7.7%)	106 (16.1%)	<0.001
Pharmacotherapy treatment						
Methadone (n=2166; 8.6%)	1207 (55.7%)	205 (9.5%)	194 (9.0%)	180 (8.3%)	380 (17.5%)	
Buprenorphine (n=711; 2.8%)	433 (60.9%)	55 (7.7%)	52 (7.3%)	47 (6.6%)	124 (17.4%)	
Naltrexone (n=327; 1.3%)	166 (50.8%)	30 (9.2%)	27 (8.3%)	24 (7.3%)	80 (24.5%)	
Other (n=1240; 4.9%)	680 (54.8%)	106 (8.5%)	113 (9.1%)	77 (6.2%)	264 (21.3%)	
None (n=20785; 82.4%)	12633 (60.8%)	1771 (8.5%)	1543 (7.4%)	1473 (7.1%)	3365 (16.2%)	<0.001
Treatment termination status						
Completed treatment (n=18690; 74.1%)	11304 (60.5%)	1613 (8.6%)	1434 (7.7%)	1355 (7.2%)	2984 (16.0%)	
Not completed (n=6262; 24.8%)	3651 (58.3%)	529 (8.4%)	471 (7.5%)	428 (6.8%)	1183 (18.9%)	
Unknown (n=277; 1.1%)	164 (59.2%)	25 (9.0%)	24 (8.7%)	18 (6.5%)	46 (16.6%)	< 0.001

# Table 4.16 Treatment type and treatment characteristics by admissions, 2009/10 to 2011/12

Table 4.17 Treatment type and treatment characteristics by admissions in 2009/10, 2010/11 and	l
2011/12	

	Number of AOD clients				
	Admission	Admission	Admission		
	09/10 (%)	10/11 (%)	11/12 (%)		
Total (n=25229)	5367 (21.3%)	5301 (21.0%)	4983 (19.8%)		
Treatment type					
Counselling (n=11919; 47.2%)	2514 (21.1%)	2510 (21.1%)	2284 (19.2%)		
Residential withdrawal (n=1962; 7.8%)	560 (28.5%)	569 (29.0%)	535 (27.3%)		
Other withdrawal (n=2582; 10.2%)	587 (22.7%)	628 (24.3%)	537 (20.8%)		
Outreach (n=2368; 9.4%)	425 (17.9%)	418 (17.7%)	435 (18.4%)		
Brokerage (n=3904; 15.5%)	755 (19.3%)	645 (16.5%)	679 (17.4%)		
Aboriginal services (n=733; 2.9%)	114 (15.6%)	134 (18.3%)	130 (17.7%)		
Specialist pharmacotherapy (n=401; 1.6%)	113 (28.2%)	104 (25.9%)	105 (26.2%)		
Residential rehabilitation (n=176; 0.7%)	42 (23.9%)	37 (21.0%)	34 (19.3%)		
Supported accommodation (n=269; 1.1%)	73 (27.1%)	59 (21.9%)	63 (23.4%)		
Post withdrawal linkage (n=256; 1.0%)	49 (19.1%)	53 (20.7%)	49 (19.1%)		
Other/unknown (n=659; 2.6%)	135 (20.5%)	144 (21.9%)	132 (20.0%)		
Pharmacotherapy treatment					
Methadone (n=2166; 8.6%)	496 (22.9%)	495 (22.9%)	456 (21.1%)		
Buprenorphine (n=711; 2.8%)	143 (20.1%)	150 (21.1%)	142 (20.0%)		
Naltrexone (n=327; 1.3%)	97 (29.7%)	96 (29.4%)	85 (26.0%)		
Other (n=1240; 4.9%)	317 (25.6%)	322 (26.0%)	287 (23.1%)		
None (n=20785; 82.4%)	4314 (20.8%)	4238 (20.4%)	4013 (19.3%)		
Treatment termination status					
Completed treatment (n=18690; 74.1%)	3869 (20.7%)	3808 (20.4%)	3609 (19.3%)		
Not completed (n=6262; 24.8%)	1438 (23.0%)	1436 (22.9%)	1320 (21.1%)		
Unknown (n=277; 1.1%)	60 (21.7%)	57 (20.6%)	54 (19.5%)		

Table 4.18 shows that alcohol was most commonly the primary drug of concern (47%), followed by cannabis (22%) and heroin & other opioids (15%). The majority of clients were not hospitalised across the three years presented. A higher proportion of clients with amphetamines or other stimulants as a primary drug of concern had hospitalisations over the three-year period, in contrast to a lower proportion of clients with benzodiazepines and other tranquilisers as a primary drug of concern. Between 12% and 21% of all primary drug of concern groupings had multiple hospitalisations, with multiple hospital admissions most common among clients with benzodiazepines and other tranquilisers, alcohol or heroin and other opioids as the primary drug of concern.

The most common method of drug use was ingestion (49%), followed by smoking (20%). Those whose route of administration was ingestion had a higher prevalence of multiple hospitalisations compared with an injecting route of administration. Those reporting no injecting drug use history accounted for over half of AOD clients. Clients with any injecting drug use history had more hospitalisation activity. Although differences were relatively small, a greater proportion (60.8%) of those who had never injected were not hospitalised in the three years compared with those who had injected within the past 12 months (57%) or greater than 12 months preceding AOD treatment engagement (58%). However, clients who had injected in the past 12 months demonstrated the highest proportion of multiple hospitalisations across the three years (18%) (Table 4.18).

Polydrug use was common, being recorded for 43% of AOD clients. There was little difference across hospital admissions compared with those with no reported polydrug use. Clients with reported polydrug use had a slightly higher proportion of hospitalisations prior to treatment and lower proportion for multiple hospital admissions (Table 4.18).

Table 4.19 shows these same drug characteristics for AOD clients by hospitalisation across the three years – the year prior to treatment, year of treatment, and the year post-treatment. Proportions of pre-AOD treatment hospital admissions (2009/10) were higher than the proportions of post-AOD treatment hospital admissions (2011/12).

	Number of AOD clients					
	No Admission	Admission	Admission	Admission	Admission in	р
	(%)	09/10 only	10/11 only	11/12 only	multiple years	
		(%)	(%)	(%)	(%)	
Total (n=25229)	15119 (59.9%)	2167 (8.6%)	1929 (7.6%)	1801 (7.1%)	4213 (16.7%)	
Primary drug of concern						
Alcohol (n=11912; 47.2%)	7004 (58.8%)	1003 (8.4%)	896 (7.5%)	825 (6.9%)	2184 (18.3%)	
Cannabis (n=5663; 22.4%)	3563 (62.9%)	487 (8.6%)	380 (6.7%)	397 (7.0%)	836 (14.8%)	
Heroin & other opioids (n=3863; 15.3%)	2231 (57.8%)	353 (9.1%)	328 (8.5%)	302 (7.8%)	649 (16.8%)	
Amphetamine & other stimulants (n=2198; 8.7%)	1388 (63.1%)	192 (8.7%)	181 (8.2%)	166 (7.6%)	271 (12.3%)	
Benzodiazepines & other tranquillisers (n=522; 2.1%)	292 (55.9%)	41 (7.9%)	46 (8.8%)	35 (6.7%)	108 (20.7%)	
Other (n=730; 2.9%)	440 (60.3%)	57 (7.8%)	67 (9.2%)	54 (7.4%)	112 (15.3%)	
Unknown (n=341; 1.4%)	201 (58.9%)	34 (10.0%)	31 (9.1%)	22 (6.5%)	53 (15.5%)	<0.001
Method of use						
Ingest (n=12461; 49.4%)	7307 (58.6%)	1045 (8.4%)	969 (7.8%)	857 (6.9%)	2283 (18.3%)	
Smoke (n=5103; 20.2%)	3235 (63.4%)	438 (8.6%)	343 (6.7%)	365 (7.2%)	722 (14.1%)	
Inject (n=3632; 14.4%)	2118 (58.3%)	319 (8.8%)	310 (8.5%)	278 (7.7%)	607 (16.7%)	
Sniff/inhale (n=1340; 5.3%)	837 (62.5%)	131 (9.8%)	102 (7.6%)	99 (7.4%)	171 (12.8%)	
Other/unknown (n=2693; 10.7%)	1622 (60.2%)	234 (8.7%)	205 (7.6%)	202 (7.5%)	430 (16.0%)	<0.001
Polydrug use						
Yes (n=10899; 43.2%)	6579 (60.4%)	971 (8.9%)	848 (7.8%)	773 (7.1%)	1728 (15.9%)	
No (n=9939; 39.4%)	5857 (58.9%)	828 (8.3%)	760 (7.6%)	706 (7.1%)	1788 (18.0%)	
Unknown (n=4391; 17.4%)	2683 (61.1%)	368 (8.4%)	321 (7.3%)	322 (7.3%)	697 (15.9%)	0.004
Injecting drug use history						
Never injected (n=12767; 50.6%)	7765 (60.8%)	1094 (8.6%)	948 (7.4%)	898 (7.0%)	2062 (16.2%)	
Within past 12 months (n=5135; 20.4%)	2934 (57.1%)	472 (9.2%)	437 (8.5%)	368 (7.2%)	924 (18.0%)	
Over 12 months ago (n=2664; 10.6%)	1548 (58.1%)	251 (9.4%)	197 (7.4%)	212 (8.0%)	456 (17.1%)	
Unknown (n=4663; 18.5%)	2872 (61.6%)	350 (7.5%)	347 (7.4%)	323 (6.9%)	771 (16.5%)	< 0.001

### Table 4.18 Drug use characteristics by hospital admission, 2009/10 to 2011/12

	Number of AOD clients		
	Admission	Admission	Admission
	09/10 (%)	10/11 (%)	11/12 (%)
Total (n=25229)	5367	5301	4983
	(21.3%)	(21.0%)	(19.8%)
Primary drug of concern			
Alcohol (n=11912; 47.2%)	2678	2687	2480
	(22.5%)	(22.6%)	(20.8%)
Cannabis (n=5663; 22.4%)	1108	1029	1016
	(19.6%)	(18.2%)	(17.9%)
Heroin & other opioids (n=3863; 15.3%)	849 (22.0%)	827 (21.4%)	796 (20.6%)
Amphetamine & other stimulants (n=2198; 8.7%)	392 (17.8%)	387 (17.6%)	370 (16.8%)
Benzodiazepines & other tranquillisers (n=522; 2.1%)	123 (23.6%)	135 (25.9%)	120 (23.0%)
Other (n=730; 2.9%)	144 (19.7%)	165 (22.6%)	134 (18.4%)
Unknown (n=341; 1.4%)	73 (21.4%)	71 (20.8%)	67 (19.6%)
Method of use			
Ingest (n=12461; 49.4%)	2802	2829	2601
	(22.5%)	(22.7%)	(20.9%)
Smoke (n=5103; 20.2%)	972 (19.0%)	918 (18.0%)	897 (17.6%)
Inject (n=3632; 14.4%)	780 (21.5%)	778 (21.4%)	730 (20.1%)
Sniff/inhale (n=1340; 5.3%)	258 (19.3%)	234 (17.5%)	226 (16.9%)
Other/unknown (n=2693; 10.7%)	555 (20.6%)	542 (20.1%)	529 (19.6%)
Polydrug use			
Yes (n=10899; 43.2%)	2293	2192	2072
	(21.0%)	(20.1%)	(19.0%)
No (n=9939; 39.4%)	2209	2235	2052
	(22.2%)	(22.5%)	(20.6%)
Unknown (n=4391; 17.4%)	865 (19.7%)	874 (19.9%)	859 (19.6%)
Injecting drug use history			
Never injected (n=12767; 50.6%)	2659	2621	2437
	(20.8%)	(20.5%)	(19.1%)
Within past 12 months (n=5135; 20.4%)	1175	1153	1065
	(22.9%)	(22.5%)	(20.7%)
Over 12 months ago (n=2664; 10.6%)	600 (22.5%)	574 (21.5%)	554 (20.8%)
Unknown (n=4663; 18.5%)	933 (20.0%)	953 (20.4%)	927 (19.9%)

Table 4.19 Drug use characteristics by hospital admission, 2009/10, 2010/11 and 2011/12

The median number of admissions and median length of stay for AOD clients with treatment engagement in 2010/11 remained stable across each of the study years (Table 4.20). Refer to the Appendices 3.2 for supplementary tables for breakdowns for client characteristics, service type and drug characteristics by hospital admissions.

### Table 4.20 Median number of hospital admissions and length of stay

	Admission 09/10 (N=5367)	Admission 10/11 (N=5301)	Admission 11/12 (N=4983)
Median number of admissions (interquartile range)	1 (1,2)	1 (1,2)	1 (1,2)
Median days of stay (interguartile range)	1.0 (1.0, 2.5)	1.0 (1.0, 3.0)	1.0 (1.0, 3.0)

Table 4.21 shows the proportions of AOD clients diagnosed during a hospital admission with an alcohol-related acute condition by treatment characteristic and primary drug of concern. Overall, there was a decrease in the proportion of clients admitted to hospital with an alcohol-related acute condition between the year prior to AOD treatment and the year following AOD treatment. Comparing service types, the largest reductions in alcohol-related acute condition admissions were observed for residential rehabilitation and supported accommodation. While there were reductions in alcohol-related acute hospitalisations for clients who had both successfully and not successfully completed their AOD treatment episode at the time of treatment termination, the reduction was greater amongst clients who had completed treatment.

Table 4.21 Admissions for alcohol-related acute conditions by AOD treatment type, primary drug
of concern and treatment termination status, 2009/10, 2010/11 and 2011/12

	Alcohol-related acute conditions		
	Admission	Admission Admission A	
	09/10 (%)	10/11 (%)	11/12 (%)
Total (n=25229)	425 (1.7%)	546 (2.2%)	404 (1.6%)
Treatment type			
Counselling (n=11919; 47.2%)	168 (1.4%)	221 (1.9%)	161 (1.4%)
Residential withdrawal (n=1962; 7.8%)	91 (4.6%)	113 (5.8%)	82 (4.2%)
Other withdrawal (n=2582; 10.2%)	60 (2.3%)	110 (4.3%)	68 (2.6%)
Outreach (n=2368; 9.4%)	16 (0.7%)	22 (0.9%)	25 (1.1%)
Brokerage (n=3904; 15.5%)	41 (1.1%)	33 (0.8%)	29 (0.7%)
Aboriginal services (n=733; 2.9%)	6 (0.8%)	11 (1.5%)	12 (1.6%)
Specialist pharmacotherapy (n=401; 1.6%)	N<5	N<5	N<5
Residential rehabilitation (n=176; 0.7%)	11 (6.3%)	7 (4.0%)	5 (2.8%)
Supported accommodation (n=269; 1.1%)	10 (3.7%)	5 (1.9%)	N<5
Post withdrawal linkage (n=256; 1.0%)	N<5	10 (3.9%)	6 (2.3%)
Other/unknown (n=659; 2.6%)	16 (2.4%)	12 (1.8%)	8 (1.2%)
Treatment termination status			
Completed treatment (n=18690; 74.1%)	293 (1.6%)	391 (2.1%)	280 (1.5%)
Not completed (n=6262; 24.8%)	128 (2.0%)	151 (2.4%)	120 (1.9%)
Unknown (n=277; 1.1%)	N<5	N<5	N<5
Primary drug of concern			
Alcohol (n=11912; 47.2%)	357 (3.0%)	475 (4.0%)	343 (2.9%)
Cannabis (n=5663; 22.4%)	30 (0.5%)	34 (0.6%)	26 (0.5%)
Heroin & other opioids (n=3863; 15.3%)	20 (0.5%)	12 (0.3%)	16 (0.4%)
Amphetamine & other stimulants (n=2198; 8.7%)	9 (0.4%)	10 (0.5%)	10 (0.5%)

	Alcohol-related acute conditions			
	Admission Admission Ac 09/10 (%) 10/11 (%) 11			
Benzodiazepines & other tranquillisers (n=522; 2.1%)	5 (1.0%)	6 (1.1%)	6 (1.1%)	
Other (n=730; 2.9%)	N<5	N<5	N<5	
Unknown (n=341; 1.4%)	N<5	5 (1.5%)	N<5	

Overall, there was a decrease in the proportion of other drug-related acute admissions for AOD clients in the year following treatment engagement when compared with admissions in the year preceding treatment engagement (Table 4.22). Decreases in proportions of other drug-related acute admissions were evident for all treatment types, except outreach and other withdrawal services, and for all primary drugs of concern, except cannabis and amphetamines and other stimulants.

# Table 4.22 Admissions for other drug-related acute conditions by AOD treatment type, primary drug of concern and treatment termination status, 2009/10, 2010/11 and 2011/12

	Other drug-related acute conditions		
	Admission	Admission	Admission
	09/10 (%)	10/11 (%)	11/12 (%)
Total (n=25229)	446 (1.8%)	601 (2.4%)	408 (1.6%)
Treatment type			
Counselling (n=11919; 47.2%)	197 (1.7%)	280 (2.3%)	191 (1.6%)
Residential withdrawal (n=1962; 7.8%)	56 (2.9%)	75 (3.8%)	46 (2.3%)
Other withdrawal (n=2582; 10.2%)	34 (1.3%)	78 (3.0%)	41 (1.6%)
Outreach (n=2368; 9.4%)	36 (1.5%)	51 (2.2%)	45 (1.9%)
Brokerage (n=3904; 15.5%)	71 (1.8%)	64 (1.6%)	49 (1.3%)
Aboriginal services (n=733; 2.9%)	6 (0.8%)	12 (1.6%)	5 (0.7%)
Specialist pharmacotherapy (n=401; 1.6%)	16 (4.0%)	10 (2.5%)	10 (2.5%)
Residential rehabilitation (n=176; 0.7%)	6 (3.4%)	N<5	N<5
Supported accommodation (n=269; 1.1%)	9 (3.3%)	N<5	N<5
Post withdrawal linkage (n=256; 1.0%)	N<5	11 (4.3%)	9 (3.5%)
Other/unknown (n=659; 2.6%)	11 (1.7%)	12 (1.8%)	5 (0.8%)
Treatment termination status			
Completed treatment (n=18690; 74.1%)	304 (1.6%)	395 (2.1%)	280 (1.5%)
Not completed (n=6262; 24.8%)	138 (2.2%)	200 (3.2%)	126 (2.0%)
Unknown (n=277; 1.1%)	N<5	6 (2.2%)	N<5
Primary drug of concern			
Alcohol (n=11912; 47.2%)	169 (1.4%)	214 (1.8%)	157 (1.3%)
Cannabis (n=5663; 22.4%)	71 (1.3%)	124 (2.2%)	81 (1.4%)
Heroin & other opioids (n=3863; 15.3%)	125 (3.2%)	131 (3.4%)	96 (2.5%)
Amphetamine & other stimulants (n=2198; 8.7%)	38 (1.7%)	60 (2.7%)	42 (1.9%)
Benzodiazepines & other tranquillisers (n=522; 2.1%)	20 (3.8%)	41 (7.9%)	18 (3.4%)
Other (n=730; 2.9%)	15 (2.1%)	24 (3.3%)	10 (1.4%)
Unknown (n=341; 1.4%)	8 (2.3%)	7 (2.1%)	N<5

Table 4.23 shows the proportion of AOD clients diagnosed in hospital with an alcoholrelated chronic condition across the three years by AOD treatment characteristics and primary drug of concern on entry into AOD treatment. Overall, there was stability in proportions of clients admitted with alcohol-related chronic conditions over the three years presented. This is likely a reflection of patterns of morbidity associated with alcohol-related chronic conditions, with need for treatment of recurring symptoms even after reduction or cessation of alcohol consumption.

	Alcohol related chronic conditions		
	Admission	Admission	Admission
	09/10 (%)	10/11 (%)	11/12 (%)
Total (n=25229)	334	359	329
	(1.3%)	(1.4%)	(1.3%)
Treatment type			
Counselling (n=11919; 47.2%)	139	165	148
	(1.2%)	(1.4%)	(1.2%)
Residential withdrawal (n=1962; 7.8%)	46 (2.3%)	52 (2.7%)	45 (2.3%)
Other withdrawal (n=2582; 10.2%)	55 (2.1%)	59 (2.3%)	46 (1.8%)
Outreach (n=2368; 9.4%)	13 (0.5%)	12 (0.5%)	14 (0.6%)
Brokerage (n=3904; 15.5%)	37 (0.9%)	33 (0.8%)	41 (1.1%)
Aboriginal services (n=733; 2.9%)	18 (2.5%)	16 (2.2%)	10 (1.4%)
Specialist pharmacotherapy (n=401; 1.6%)	8 (2.0%)	11 (2.7%)	7 (1.7%)
Residential rehabilitation (n=176; 0.7%)	N<5	N<5	N<5
Supported accommodation (n=269; 1.1%)	6 (2.2%)	N<5	N<5
Post withdrawal linkage (n=256; 1.0%)	6 (2.3%)	5 (2.0%)	5 (2.0%)
Other/unknown (n=659; 2.6%)	5 (0.8%)	N<5	7 (1.1%)
Treatment termination status			
Completed treatment (n=18690; 74.1%)	232	261	234
	(1.2%)	(1.4%)	(1.3%)
Not completed (n=6262; 24.8%)	99 (1.6%)	95 (1.5%)	91 (1.5%)
Unknown (n=277; 1.1%)	N<5	N<5	N<5
Primary drug of concern			
Alcohol (n=11912; 47.2%)	219	236	223
	(1.8%)	(2.0%)	(1.9%)
Cannabis (n=5663; 22.4%)	47 (0.8%)	38 (0.7%)	46 (0.8%)
Heroin & other opioids (n=3863; 15.3%)	38 (1.0%)	44 (1.1%)	36 (0.9%)
Amphetamine & other stimulants (n=2198; 8.7%)	10 (0.5%)	16 (0.7%)	8 (0.4%)
Benzodiazepines & other tranquillisers (n=522; 2.1%)	N<5	9 (1.7%)	N<5
Other (n=730; 2.9%)	14 (1.9%)	15 (2.1%)	10 (1.4%)
Unknown (n=341; 1.4%)	N<5	N<5	N<5

Table 4.23 Admissions for alcohol-related chronic conditions by AOD treatment type, primary drug
of concern and treatment termination status, 2009/10, 2010/11 and 2011/12

Following AOD treatment, there was a decrease in the proportion of clients admitted to hospital with an injury (Table 4.24). There were reductions in proportions of AOD clients diagnosed in hospital with injuries between the year preceding and the year following AOD

treatment engagement across all treatment types (residential withdrawal, other withdrawal and Aboriginal services) and primary drugs of concern (except amphetamine and other stimulants and benzodiazepines and other tranquilisers).

Table 4.24 Admissions for injuries by AOD treatment type, primary drug of concern and treatmen
termination status, 2009/10, 2010/11 and 2011/12

	Injuries		
	Admission	Admission	Admission
	09/10 (%)	10/11 (%)	11/12 (%)
Total (n=25229)	1297	1300	1238
	(5.1%)	(5.2%)	(4.9%)
Treatment type			
Counselling (n=11919; 47.2%)	560	595	533
	(4.7%)	(5.0%)	(4.5%)
Residential withdrawal (n=1962; 7.8%)	135	143	152
	(6.9%)	(7.3%)	(7.7%)
Other withdrawal (n=2582; 10.2%)	124	133	131
	(4.8%)	(5.2%)	(5.1%)
Outreach (n=2368; 9.4%)	141	124	111
	(6.0%)	(5.2%)	(4.7%)
Brokerage (n=3904; 15.5%)	208	180	207
	(5.3%)	(4.6%)	(5.3%)
Aboriginal services (n=733; 2.9%)	30 (4.1%)	36 (4.9%)	37 (5.0%)
Specialist pharmacotherapy (n=401; 1.6%)	29 (7.2%)	24 (6.0%)	25 (6.2%)
Residential rehabilitation (n=176; 0.7%)	12 (6.8%)	10 (5.7%)	5 (2.8%)
Supported accommodation (n=269; 1.1%)	9 (3.3%)	10 (3.7%)	12 (4.5%)
Post withdrawal linkage (n=256; 1.0%)	16 (6.3%)	14 (5.5%)	9 (3.5%)
Other/unknown (n=659; 2.6%)	33 (5.0%)	31 (4.7%)	16 (2.4%)
Treatment termination status			
Completed treatment (n=18690; 74.1%)	928	938	904
	(5.0%)	(5.0%)	(4.8%)
Not completed (n=6262; 24.8%)	355	354	326
	(5.7%)	(5.7%)	(5.2%)
Unknown (n=277; 1.1%)	14 (5.1%)	8 (2.9%)	8 (2.9%)
Primary drug of concern			
Alcohol (n=11912; 47.2%)	667	699	631
	(5.6%)	(5.9%)	(5.3%)
Cannabis (n=5663; 22.4%)	271	248	241
	(4.8%)	(4.4%)	(4.3%)
Heroin & other opioids (n=3863; 15.3%)	203	198	193
	(5.3%)	(5.1%)	(5.0%)
Amphetamine & other stimulants (n=2198; 8.7%)	96 (4.4%)	81 (3.7%)	99 (4.5%)
Benzodiazepines & other tranquillisers (n=522; 2.1%)	21 (4.0%)	32 (6.1%)	25 (4.8%)
Other (n=730; 2.9%)	27 (3.7%)	33 (4.5%)	29 (4.0%)
Unknown (n=341; 1.4%)	12 (3.5%)	9 (2.6%)	20 (5.9%)

Hospitalisations for non-AOD-related conditions are shown in Table 4.25 for the AOD client cohort. There was a reduction in the proportion of clients admitted with non-AOD-related conditions in the year following AOD treatment. While this reduction was evident for most treatment types, an increase was observed in outreach, Aboriginal, post withdrawal and other/unknown services. Also, while decreases in admissions were evident for clients presenting to AOD services across most primary drugs of concern, there was no change in the proportion of non-AOD-related hospitalisation where the primary drug of concern was benzodiazepines and other tranquilizers. Non-AOD-related condition admissions declined from the year preceding treatment to the year following treatment engagement regardless of treatment termination status.

	Non AOD valated conditions		
	Non-AOD-relat		
	Admission	Admission	Admission
	09/10 (%)	10/11 (%)	11/12 (%)
Total (n=25229)	4110 (16.3%)	3992	3931
		(15.8%)	(15.6%)
Treatment type			
Counselling (n=11919; 47.2%)	1968 (16.5%)	1921	1843
		(16.1%)	(15.5%)
Residential withdrawal (n=1962; 7.8%)	425 (21.7%)	418 (21.3%)	411
			(20.9%)
Other withdrawal (n=2582; 10.2%)	466 (18.0%)	473 (18.3%)	416
			(16.1%)
Outreach (n=2368; 9.4%)	303 (12.8%)	288 (12.2%)	336
			(14.2%)
Brokerage (n=3904; 15.5%)	536 (13.7%)	469 (12.0%)	495
			(12.7%)
Aboriginal services (n=733; 2.9%)	84 (11.5%)	96 (13.1%)	104
			(14.2%)
Specialist pharmacotherapy (n=401; 1.6%)	94 (23.4%)	91 (22.7%)	90 (22.4%)
Residential rehabilitation (n=176; 0.7%)	31 (17.6%)	30 (17.0%)	26 (14.8%)
Supported accommodation (n=269; 1.1%)	56 (20.8%)	51 (19.0%)	51 (19.0%)
Post withdrawal linkage (n=256; 1.0%)	39 (15.2%)	35 (13.7%)	40 (15.6%)
Other/unknown (n=659; 2.6%)	108 (16.4%)	120 (18.2%)	119
			(18.1%)
Treatment termination status			
Completed treatment (n=18690; 74.1%)	2962 (15.8%)	2855	2838
		(15.3%)	(15.2%)
Not completed (n=6262; 24.8%)	1103 (17.6%)	1089	1048
		(17.4%)	(16.7%)
Unknown (n=277; 1.1%)	45 (16.2%)	48 (17.3%)	45 (16.2%)
Primary drug of concern			
Alcohol (n=11912; 47.2%)	2036 (17.1%)	1981	1947
		(16.6%)	(16.3%)

 Table 4.25 Admissions for non-AOD-related conditions by AOD treatment type, primary drug of concern and treatment termination status, 2009/10, 2010/11 and 2011/12

	Non-AOD-related conditions		
	Admission 09/10 (%)	Admission 10/11 (%)	Admission 11/12 (%)
Cannabis (n=5663; 22.4%)	853 (15.1%)	787 (13.9%)	799 (14.1%)
Heroin & other opioids (n=3863; 15.3%)	652 (16.9%)	655 (17.0%)	637 (16.5%)
Amphetamine & other stimulants (n=2198; 8.7%)	294 (13.4%)	284 (12.9%)	283 (12.9%)
Benzodiazepines & other tranquillisers (n=522; 2.1%)	94 (18.0%)	101 (19.3%)	98 (18.8%)
Other (n=730; 2.9%)	124 (17.0%)	122 (16.7%)	111 (15.2%)
Unknown (n=341; 1.4%)	57 (16.7%)	62 (18.2%)	56 (16.4%)

#### Summary

Overall, decreases in acute service utilisation across emergency department and hospital inpatient settings were evident in the year following treatment engagement. These reductions were found across most client demographic characteristics, treatment types and drug use characteristics. ED presentations and hospital admissions with an acute alcoholrelated or other drug-related diagnosis decreased in the year following treatment engagement, as did presentations and admissions for a non-AOD-related condition, indicating improvements in both general health and also the experience of acute drugrelated harm such as severe intoxication or overdose. Injury presentations and admissions also decreased following treatment engagement, with larger reductions evident for clients who had been engaged in residential rehabilitation in their index year of treatment. There was stability in ED presentations and hospital admissions in the year prior to and the year following treatment engagement for alcohol-related chronic conditions, which reflects the long-term impacts (both morbidity and mortality) of heavy alcohol consumption even following treatment and reduction or cessation in alcohol use (Lloyd et al, 2013; Matthews et al, 2013; Heilbronn et al, in press). It is important to note that many clients were still actively engaged in treatment in the year following the index year, and the full effects of treatment may not have been captured in such a short time between service engagement and outcome. Further exploration of client trajectories within and across treatment, health and other system is necessary at a population level to enable identification of transitions and outcomes of AOD treatment engagement within and across client populations.

# **5** Discussion and recommendations

This multi-method project incorporated four major phases of work (a systems description, cohort study, detailed qualitative interviews and data linkage) with the aim of detailing the AOD system, its clients and their experiences, pathways and outcomes. Indeed, the Patient Pathways cohort, recruited from a wide diversity of treatment services across two states, is the largest AOD treatment outcomes study completed in Australia, with a follow-up rate of around 70%. The study is unique in terms of including a broad range of primary drugs of concern that present to the AOD treatment system, thereby allowing direct comparisons between users of both alcohol and illicit drugs, including diverted pharmaceuticals.

At treatment intake, the cohort reported severe substance use problems as well as substantial complexity in terms of their life situation – with high rates of homelessness, unemployment, acute health problems, including poor psychological health as well as a low quality of life and community engagement. As such, it is not surprising that the sample reported high levels of multiple service involvement, both at treatment intake and at one-year follow-up. The sample predominantly consisted of participants with chronic substance dependence and significant life complexity. Indeed, for the majority of the sample, PIT at recruitment was not their first experience of the specialist AOD treatment system, and the majority had lengthy addiction and treatment careers. As such, it is important to acknowledge this context when considering the positive changes identified at the 12 month follow-up across multiple domains.

At follow-up, there were marked improvements in substance use and wellbeing across the cohort as well as reductions in acute health care use, which was also a finding of the data linkage component. Where treatment success is defined as either achieving abstinence or a reduction in substance using days greater than 50% in the last month, 55% of the sample achieved this milestone. Furthermore, if the higher threshold of abstinence from their PDOC is used, this was achieved by 37% of the overall sample who were successfully followed-up. Whilst these treatment outcomes are likely to be inflated by the bias in follow-up (i.e. that those lost to follow are likely to have had poorer outcomes), this inherent limitation is common to all outcome studies relying on participant self-reported outcome data. Nonetheless, rates of abstinence from PDOC remained higher than comparable treatment studies internationally, which may reflect the short follow-up window, with 14% of the sample having achieved continuous abstinence from their PDOC in the year before followup. This rate is consistent with findings from the MATES study of methamphetamine dependent users, which also reported a complete abstinence rate of 14% at one year (McKetin et al, 2012). In addition, 16% of the sample reported abstinence from all drugs in the past month, suggesting around one in six study participants who were followed up had been abstinent for at least one month. Taking a conservative estimate and assuming all participants lost to follow-up (excluding those deceased or incarcerated) were still using their PDOC, the overall past month abstinence rate from their PDOC was 27%, with a treatment success rate of 39%.

There were also significant gains in quality of life at the follow-up assessment, suggesting that engagement with specialist AOD services has an impact on wellbeing that extends beyond behavioural changes in problematic substance use. In terms of health systems, there was a significant reduction in acute health service utilisation, although the overall

figure was still high, with more than half of the sample reporting an acute health episode in the year following initial treatment engagement.

The main predictors of achieving abstinence at follow-up were completion of the index treatment (i.e. PIT), having an index treatment that included residential rehabilitation (or engaging in rehabilitation in the year before or after the PIT) and participating in mutual aid groups in the year after index treatment. Additionally, there was a dose effect for mutual aid engagement with greater frequency of meeting attendance associated with higher rates of abstinence – for every ten meetings attended there was an 8% increase in the likelihood of abstinence, which supports the finding of Kaskutas (2009). Our study findings are consistent with international literature that emphasises the importance of treatment retention and completion (Simpson and Sells, 1990; Gossop et al., 2001), continuity of care (Chi et al., 2011) and the benefits of mutual aid engagement either as a stand-alone form of aftercare or as an adjunctive therapy (Kelly et al, 2013).

The finding that participants who had residential rehabilitation treatment achieved better outcomes is particularly noteworthy given their greater social disadvantage/adversity at baseline, with significantly greater rates of imprisonment, attendance at a community-based offender program, being held in a lock-up or watch-house, remanded in custody and having legal problems in the year before study entry relative to those with acute withdrawal or outpatient services as their PIT. The issue of long waiting times was raised in the qualitative interviews and so the potential to increase the number of residential rehabilitation places warrants consideration. Whilst they are significantly more costly, in the current study at least, they were associated with better outcomes for a population more heavily involved in the criminal justice/legal system and hence likely to generate further costs to society in terms of recidivism, repeated incarceration and high social dysfunction with ongoing substance dependence.

There are key lessons here for Australian treatment services around effective engagement and the building of therapeutic alliances to promote sufficient treatment retention to allow the impact of treatment to be experienced (Simpson, 2004), and to ensure that, in response to a chronic and relapsing condition (O'Brien and McLellan, 1995), there are adequate linkages and pathways from specialist formal settings of treatment to community-based recovery-focussed organisations. It is important that continued support includes approaches that are responsive to the client with the aim of supporting them to complete treatment as well as engaging in ongoing aftercare. Previous research has identified scepticism among AOD specialist workers on the benefits of mutual aid (Day et al, 2010; Gaston-Lopez et al, 2010), and therefore providing workforce training that overcomes worker resistance is critical to ensuring effective pathways to ongoing community support. Indeed, active linkage to peer support has been identified as an effective pathway by international research (Timko et al., 2006; Manning et al., 2012, Kaskutas et al, 2009), and is considered an important component of an integrated treatment system (White, 2009).

The current findings also provide a strong Australian evidence base demonstrating the effectiveness of residential rehabilitation programs in reducing substance use, and are consistent with a growing international literature that is supportive of this treatment modality (e.g. Vanderplasschen et al., 2014). Both MATES and ATOS demonstrated preferential outcomes among clients who had engaged with rehabilitation (McKetin et al., 2012; Teesson et al., 2008). In the UK NTORS outcome study, where residential services were grouped together (inpatient withdrawal as well as residential rehabilitation), around

half of the residential clients maintained abstinence from their primary substance over the subsequent follow-up periods of the study spanning up to five years. There is a strong argument from the Pathways study that for complex clients, rehabilitation will play a significant role in their treatment and is the modality most likely to help them achieve abstinence and improved wellbeing. This is consistent with both the model of service – clients will go to residential services knowing that they are generally abstinence-oriented – and that, in developmental terms, a period of residential stay can be a sufficient 'turning point' in a developmental trajectory (Best, 2014). However given the higher cost of residential rehabilitation, it is important to identify alternative cost-effective models of care and integration within the community.

What the current study did not successfully demonstrate was that integrated treatment across different service types – such as engagement in housing, employment services and other community support services translates into better outcomes. However, this finding that should be treated with caution as our ability to map the nature, timing and duration of integrated treatment was limited and restricted to the year following their PIT. It is possible that the benefit of engagement in community health and welfare services will influence substance use outcomes in subsequent years, as is supported by US data which demonstrates the effectiveness of a continuing care model (involving GP visits, ongoing AOD specialist treatment and support from psychiatric services where needed) on substance use outcomes at nine years follow-up (Chi & Weisner, 2008).

It is important to note that there were differences in outcomes by PDOC, with participants with alcohol problems showing markedly poorer outcomes. It is likely that characteristics associated with alcohol-dependent individuals presenting to treatment, such as them being older and experiencing alcohol-related cognitive impairments (Stavro et al., 2013), as well as the pervasive nature of alcohol and its greater social acceptability relative to illicit drugs, pose particular challenges for this group. Individuals in this group were also significantly higher users of acute services – a finding supported by the data linkage component of the project, which also showed greater health service utilisation among individuals with alcohol problems. In spite of this effect, participants with a primary alcohol concern did show a more robust benefit from receiving an 'optimal care pathway' that involved completion of the index treatment, continuity of care, adequate engagement with community services and engagement in mutual aid groups. Although the overall gain for participants with alcohol problems was less consistent than for those with primary drug concerns, those who received an optimal pathway of care demonstrated significantly greater improvements in terms of abstinence rates than those who did not. The findings suggest that individuals with primary alcohol concerns require intensive treatment packages to support their treatment journeys and recovery pathways.

The data demonstrated positive outcomes for participants whose primary drug of concern was meth/amphetamine (mainly methamphetamine). At the follow-up interview, more than one quarter of participants who cited meth/amphetamine as their PDOC reported no use of the drug since the index treatment. This rate is markedly higher than the 14% reported by McKetin and colleagues in 2012, though it was reported that rehabilitation treatment was associated with elevated rates of abstinence, consistent with the findings of the Pathways study. Given the increasing rates of meth/amphetamine use in Australia, and the public concern around individual and community harms associated with use of this class of drugs, it is encouraging that there are consistently positive findings for meth/amphetamine users,

both in terms of abstinence and reduced use. The Australian Crime Commission (2014) reports that as a result of its relative accessibility, affordability and destructive side-effects, methamphetamine (ice) use is considered a national concern. This suggests the need to assertively promote treatment engagement for this population with stronger marketing around the effectiveness of treatment to the general population.

There is also some evidence from both the qualitative and quantitative phases of the project that one of the key components of an effective treatment model is efficient coordination of service integration. While completion of treatment and continuity of care were indicated as key factors in predicting positive outcomes, the qualitative data suggests that this may be linked to ongoing care coordination (in particular in the periods after completion of acute interventions) underpinned by a strong and ongoing therapeutic alliance. The cohort in the current study were involved in a diverse, and at times, bewildering array of services across the range of helping professions, and our qualitative findings indicate that participants wanted greater support in navigating the system. This is not a counselling role but a coordination one in which the client's needs are monitored by a care coordinator whose role is to identity and support the client to engage effectively and in a timely manner with the most appropriate services.

Although the linkage component of the study was conducted in only one state (Victoria), it remains a key strength of the overall study design as it links individual experience and self-report to both objective markers of harm and to the benefits of treatment for a much larger and diverse treatment population – including all clients engaging in AOD treatment over the course of a year. Indeed, consistent with the cohort data, the linkage component identified significant decreases in service utilisation across emergency department (ED) and hospital inpatient settings in the year following treatment engagement. These reductions in acute service use were found across most participant demographic characteristics, treatment types and drug use characteristics, though were most evident among those who had received long-term residential treatment as their PIT.

Among the four subpopulations of AOD clients presenting with risk factors of polydrug use on entry to AOD treatment, recent injecting drug use history, homeless status on entry into treatment, and forensic status on entry into treatment, overall reductions in ED and hospital utilisation were found following treatment engagement. This finding suggests that the effects of treatment on improving health and wellbeing, and reducing health system costs are sustained for patients presenting at higher risk of potential harm than the general AOD treatment population. It is important to acknowledge that there were varying levels of reduction of ED and hospital utilisation within these groups when specific treatment, drug use and sociodemographic characteristics were examined, which offers opportunities for consideration of targeted approaches to identify and respond to risk for specific groups within these higher risk populations (refer to data linkage supplementary report for results for the subpopulation analyses).

ED presentations and hospital admissions with an acute alcohol-related or other drugrelated diagnosis decreased in the year following treatment engagement, as did presentations and admissions for a non-AOD-related condition, indicating improvements in both general health and also the experience of acute drug-related harm, such as severe intoxication or overdose. Injury presentations and admissions also decreased following treatment engagement, with larger reductions evident for clients who had been engaged in residential rehabilitation in their index year of treatment. There was stability in ED presentations and hospital admissions in the year prior to and the year following treatment engagement for alcohol-related chronic conditions, which reflects the long-term impacts (both morbidity and mortality) of heavy alcohol consumption even following treatment and reduction or cessation in alcohol use (Lloyd et al., 2013; Matthews et al., 2013; Heilbronn et al., in press).

It is important to note that many clients were still actively engaged in treatment in the year following the index year, and the full effects of treatment may not have been captured in such a short time between service engagement and the measurement of outcome. Further exploration of client trajectories within and across treatment, health and other systems is necessary at a population level to enable identification of the transitions and outcomes of AOD treatment engagement within and across differing client populations. Below we recommend further waves of data collection to test the longevity of benefits reported here, and there are clear opportunities to supplement and enhance direct patient assessment across multiple waves and through linkage of health and community service system data.

There are a number of important limitations that must be considered when interpreting the findings of the Pathways study. The overarching positive finding that AOD treatment is effective must be interpreted with caution given the absence of a no-treatment control group. Whilst the Victorian sample of pathways participants were broadly representative of the Victorian treatment population in terms of gender and age and PDOC, they were not representative of the treatment modality due to an over-sampling of residential services and an under-sampling of community outpatients. Table 2.1 shows the breakdown of treatment type by jurisdiction on the year prior to recruitment. Inpatient withdrawal accounted for 44% of the pathways cohort and yet only 20% of all Victorian and 8% of all WA treatment episodes. Residential rehabilitation accounted for 29% of the pathways cohort and yet only 3% of all Victorian data and 6% of all WA treatment episodes. Outpatient counselling accounted for only 27% of the pathways cohort, but 51% of all Victorian and 63% of all WA treatment episodes. As such, those in residential treatment were over-represented in the current sample, because of their greater accessibility and availability for successful recruitment and completion of baseline interviews. Outpatient counselling clients who agreed to participate and actually attended the interview appointment may also represent a more stable end of the spectrum and hence the findings may not be equally representative of the broader treatment-seeking population within each of the modalities.

The participant retention rate of just under 70% is acceptable but we have no linkage data for the those who could not be followed up, and consequently, the positive response to treatment engagement may be inflated since it is based only on participants willing to be re-interviewed. A major study limitation is the missed opportunity of consenting participants at intake for linkage of their service utilisation data across systems which would have significantly strengthened the study findings and enabled service engagement pathways to be explored for participants who could not be followed up, as well as providing detailed information on objective indicators of harm. It was also not possible to test the participant-level findings against system-level factors of treatment processes and pathways.

A further limitation is that the design and method of the follow-up did not enable us to thoroughly examine sequences of service engagement – either prior to baseline or between baseline and follow-up, and so our ability to report on optimal pathways is somewhat limited. Furthermore, the reliability/accuracy of self-reported data on AOD, community

health and welfare and acute medical service use over the course of a one-year period is not known and may have been susceptible to recall bias, particularly in the qualitative interviews where clients were asked to recall their experience over the past two years. Despite intentional sampling of both treatment successes and failures for the qualitative interviews, more than two-thirds of those interviewed reported treatment successes and hence their data could portray a more positive experience of treatment. The question of how to best measure integrated pathways remains outstanding, and will be an important one for future projects of this kind. The high levels of multi-agency engagement in this cohort at both baseline and follow-up would suggest the importance of mapping intensity and sequencing of multi-agency engagement, and there is additional work to be done in this area. One final limitation to highlight was that a standardised measure of mental disorder or symptomatology was not included in the interview assessment battery. Whilst the WHO-QOL psychological domain served as a proxy measure of poor psychological health, it would have been useful given the high prevalence of co-morbid psychiatric conditions among treatment seeking AOD clients (Teesson, Slade, & Mills, 2009) to have understood which conditions (e.g., personality disorder, PTSD, major depression etc) were associated with poorer outcomes within the different treatment pathways. The fact that the presence of unmet need in terms of psychological health (meaning an abnormal QoL and not attending mental health services post-PIT) had little influence on outcome may be due to its (poor) measurement using this tool.

Despite these limitations, the Pathways study constitutes the largest client outcome study undertaken in Australia with a respectable follow-up rate. Further, the inclusion of a diverse range of treatment-seeking individuals, across different treatment types and drugs of concern, provides valuable new information that addresses a significant evidence gap within the Australian context. For these reasons, there are significant implications for policy and practice. As argued previously by Babor et al. (2010, p. 248), "Policymakers who focus only on decisions about individual service programmes will usually find that they have limited impact on the outcomes they wish to produce. In contrast, policymakers who think and act at a systems level, and do so in light of the emerging evidence based on the nature and impact of systems, have a much greater likelihood of making a significant contribution to ameliorating drug problems at both the individual and population level."

Conclusions: The Patient Pathways program of research has been innovative in its adoption of a multi-method approach – a systems approach to mapping the structures and processes of specialist AOD treatment and delivery at a jurisdictional level; a cohort study involving recruitment and follow-up of 800 alcohol and drug users in treatment, and supplemented by in-depth qualitative interviews of a sub-sample; and analysis of treatment effectiveness using linked ED presentations and hospital admissions for all individuals engaged in specialist treatment in Victoria over three years. The qualitative and quantitative cohort data and the linkage analysis provide a consistently positive message about treatment effectiveness that demonstrate clear gains in wellbeing, as well as reductions in substance use and acute health service utilisation. This is particularly likely to occur if rehabilitation occurs at some point in the window of analysis, the index treatment is completed, and the individual goes on to engage in mutual aid in the community. The results are particularly encouraging for primary users of amphetamine type stimulants. However, the picture is not universally positive – around half of the sample showed either no or small reductions in their substance use despite ongoing involvement with specialist AOD and other forms of professional help services. Improvements in employment and housing were limited and there was considerable ongoing utilisation of acute health services. These problems are particularly prevalent among participants with primary alcohol problems – who benefit most from optimal care pathways. Further testing of this and equivalent samples are required, both to test the durability of the positive effects reported and to allow us to refine and develop the underlying conceptual framework.

# 5.1 Recommendations

### Recommendations for promoting treatment and supporting best practice

Promote the importance and benefit of accessing AOD treatment and strengthen pathways into treatment. Findings from the client survey, qualitative and linkage data illustrate that engagement with AOD treatment significantly reduces problematic substance use, improves quality of life, and reduces utilisation of acute health services. These findings are critically important for promoting clinician and client confidence. Such evidence is also important for inspiring greater optimism about the value of treatment and recovery7 prognoses for affected families and communities, as well as key linked professions and services, such as housing, justice and mental health.

- Promote workforce models that enhance rates of treatment completion. Given that treatment completion was a robust predictor of client outcomes, emphasis should be placed on promoting ways of building and maintaining the therapeutic alliance. This should include encouraging active client participation in care planning and review, and embedding supervision and quality assurance processes that support effective client engagement and retention in treatment.
- 2. Consider structural changes to service delivery that enhance treatment completion and address barriers to help-seeking (e.g., services offered outside business hours, telephone support, etc.). Such approaches would address common barriers to treatment identified in the qualitative interviews.

#### Recommendations for continuity of care

3. Promote continuity of care. Clients frequently present with complex and severe problems, and with previous experience of the treatment system. However, most funding systems currently focus on discrete, activity-based episodes of care, with little investment in structures to support continuity of care across treatment modalities and over time. In the light of the recently completed Review of the AOD Treatment Service Sector, it is timely to consider funding models that promote continuity and service integration. Funding models should accommodate and promote treatment journeys that involve multiple treatment modalities and greater linkage to follow-up care.

<sup>&</sup>lt;sup>7</sup> The term recovery as used in this report is based on work conducted by the UK Drug Policy Commission, which defined recovery as 'voluntarily sustained control over substance use which maximises health and wellbeing, and participation in rights, roles and participation in society'. Controlled use in this context 'means' comfortable and sustained freedom from compulsion to use'. For some this may mean abstinence, for others it may mean abstinence supported by prescribed medication and for others consistently moderate use of some substances (UKDPC, 2008, pp. 5-6).

4. Encourage services to engage in assertive follow-up of clients. Supported by the qualitative data, assertive follow-up of clients following treatment promotes continuity and re-engagement with the treatment system when needed. Examples could include introducing a routine telephone follow-up call 4-8 weeks after completing a treatment episode.

#### Recommendation for accessibility of long-term residential care

5. Increase availability of rehabilitation places and reduce the waiting list for long-term residential care. Given the evidence from both the client survey and linkage data that better outcomes are achieved among those receiving long-term residential care, it is crucial that funders and specialist service providers recognise the critical role that rehabilitative services play in a comprehensive specialist treatment system, particularly for individuals who have greater levels of complexity. The qualitative findings indicate that long waiting times for access to residential treatment are a key barrier to treatment engagement. It is imperative that such unmet needs are addressed, and that the benefits of residential rehabilitation are promoted among clinicians and clients.

### Recommendation for care coordination

6. Support care coordination. Linked to the issue of continuity of care, and identified as a key theme in the qualitative interviews, was limited availability of care coordination. Our findings highlight the importance of supporting complex clients effectively transition through the AOD treatment system and engage with relevant health and welfare services when needed, so as to enhance treatment retention and completion. While this role could be performed within agencies, there are opportunities to explore low-cost options such as telephone and online support, provided in every jurisdiction, to assist in both coordinating care and providing a vehicle for long-term engagement and follow-up.

## Recommendation for promotion of aftercare and mutual aid/peer support

7. Specialist AOD services should develop and promote interventions and pathways to aftercare such as supportive community groups, including but not restricted to mutual aid groups. This could include assertive linkage to peer support groups, such as 12-step and SMART Recovery, using readily available and evidenced-based models that improve engagement with mutual aid (such as the MAAEZ model developed by Kaskutas and colleagues in the US). Being free and widely available (including online meetings), such support groups can be cost-effective models of aftercare, at least for some clients. Previous research has shown that such approaches require workforce training to support staff to make these initial connections and to develop relationships with mutual aid groups.

#### Recommendations for treatment intensity and pathways tailored to client characteristics

8. Improve continuity of care and optimal care pathways for alcohol-dependent clients. Clients with a primary alcohol problem were less likely to have good outcomes across all arms of the study, yet benefited the most from having optimal care pathways. This suggests more intense treatment is likely to be required for these clients, but also that achieving change is more challenging in a context of high alcohol availability and acceptability. As much as possible, clients should be encouraged to continue engaging in on-going AOD treatment after completion of a treatment episode, make use of appropriate community services and receive on-going support and aftercare (e.g., mutual aid attendance). Efforts to enhance retention and early re-engagement for those who drop out of treatment are likely to improve outcomes with this population, and should be piloted. Investment in public health/community based approaches to reduce consumption and availability also warrant continued investigation so as to support individuals adversely affected by alcohol to reduce their drinking, as well as reducing and preventing alcohol-related problems across the community.

9. Develop mechanisms for the assertive engagement of individuals with problematic meth/amphetamine use into treatment. The positive treatment outcomes achieved in this population, combined with the significant community harms accrued by those not in treatment suggests that this group should be actively engaged in treatment. This should include enhancing pathways to treatment through promoting referrals from agencies where these clients typically present (e.g. mental health, primary care and criminal justice services).

#### Recommendations for future research

- 10. Extend the use of linkage data, as piloted in Chapter 4. As the 'Tracking Residential Addiction Clients for Effectiveness Research (TRACER)' study in the UK has shown, gaining client consent for ongoing linkage work allows the mapping of long-term outcomes while requiring only limited resources, and is an important adjunct to treatment outcome research. Such data are essential for sophisticated outcome monitoring, system planning and mapping of health care and welfare service utilisation to clinical outcomes.
- 11. Add a health economics dimension to such linkage studies. The linkage data offer an ideal platform for a health economics analysis of the savings associated with treatment engagement and completion by treatment type. The linkage data presented here demonstrate significant benefits in reduced acute health care utilisation, and it would be a key next step to assess its economic impact using both linkage and self-reported outcome data.
- 12. Explore longer-term outcomes and pathways following AOD treatment. Given international research highlighting the broader benefits of treatment over time (up to 9 years), it is important that a further wave of follow-up is conducted to effectively measure the full impact of treatment pathways and map trajectories of recovery. Such work is particularly relevant here given that the majority of clients were still engaged with treatment services at the one year follow-up, and the full benefits of treatment engagement are unlikely to have been fully realised.
- 13. Ongoing investment in treatment systems research. The present study highlights the importance of treatment systems research that considers the effectiveness of the AOD service sector itself, as well as being an integral component of a broader health and welfare system. Such studies are needed to complement the already well-established tradition of controlled studies of particular treatment modalities, which by design tell us little about the influence of context (e.g., setting, funding, workforce) and implementation challenges. Further investment in treatment system research is essential for informing the design of the Australian AOD sector, and

identifying the strengths and weaknesses of particular models of care. One opportunity that exists, but is as yet unexplored, is comparing the existing jurisdictional differences in the configuration of the AOD treatment system to inform the most effective system design at a national level. Further research is also needed on how best to support the broader health and welfare system in enhancing client outcomes and reducing societal costs.

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