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**Characteristics of Treatment Provided For
Amphetamine Use in NSW, 2002-03**

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PROVIDED FOR AMPHETAMINE USE IN NSW,
2002-03**

**Rebecca McKetin, Erin Kelly, Devon Indig and Jennifer
McLaren**

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Executive summary

Background

Almost one in ten Australians have tried ‘amphetamines’ in their life time, making amphetamines the second most commonly used illicit drug in Australia after cannabis (AIHW, 2002a). In the year 2000-01 the Australian Minimum Data Set for Alcohol and Other Drug Treatment Services (MDS-AODTS) recorded 6,979 treatment episodes where amphetamines were the primary drug of concern (AIHW, 2002b). This makes amphetamines the fourth most common drug for which people receive treatment after opioids, alcohol and cannabis, accounting for 9% of all episodes recorded through the Australian MDS-AODTS. More important, amphetamines were by far the major psychostimulant drug for which people received treatment, accounting for 96% of treatment episodes where psychostimulants were the main drug of concern (Jenner & McKetin, 2004). Despite the number of people receiving treatment for the use of amphetamines in Australia, there is only limited information available on the characteristics of those who receive treatment or the type of treatment services provided to this population. Most currently available information on amphetamine treatment in Australia is based on out-of-treatment samples of drug users from metropolitan regions (Hando & Hall, 1994; Hando, Topp & Hall, 1997; John, Kwiatkowski & Booth, 2001; Klee & Morris, 1994; Wright, Klee & Reid, 1999; Vincent, Shoobridge, Ask, Allsop & Ali, 1999; Baker, Boggs & Lewin, 2001a).

The purpose of the current study was to provide current information on the nature of treatment demand for amphetamine use in NSW, Australia. Data on drug treatment collected through the NSW MDS-AODTS was used to characterize clients for whom amphetamines were the primary drug of concern, to identify the types of treatment services they received, and to examine geographic trends in the level of treatment demand for amphetamines within NSW.

Method

Data on closed drug treatment episodes where ‘amphetamines’ were the client’s principal drug of concern were extracted from the NSW MDS-AODTS for the 2002-03 financial year. Characteristics of treatment (i.e., type of service provided, reason for ceasing treatment and duration of treatment) were calculated based on treatment episodes (N =

4,337) whereas client characteristics (i.e., demographics and drugs of concern) and the rates of treatment presentation by geographic region were calculated from data on unique clients presenting within individual treatment agencies rather than treatment episodes (N = 3,696). Definitions of all client, drug and treatment data items were those used by the NSW MDS-AODTS (New South Wales Department of Health, 2002). Geographic divisions used were *metropolitan* (Central Sydney, Northern Sydney, Western Sydney, and South Eastern Sydney Area Health Services), *regional* (Hunter, Illawarra, Central Coast, South Western Sydney and Wentworth Area Health Services) and *rural* (Far West, Greater Murray, Macquarie, Mid North Coast, Mid Western, New England, Northern Rivers and Southern Area Health Services). All statistical analyses were conducted using Intercooled STATA Version 8.

Findings

The majority of treatment presentations for amphetamines (72%) occurred outside the Sydney metropolitan region. Treatment presentations for the use of amphetamines were highest in the regional area of NSW bounding Sydney. This was true both in terms of the absolute number of treatment presentations and when calculated as a population rate. This geographic area accounted for 49% of all treatment presentations for the use of amphetamines in NSW.

The majority of clients receiving treatment for the use of amphetamines were English speaking, Australian born, injecting drug users of low socio-demographic standing. They had extremely low levels of employment (14%) and a high reliance on government benefits including pensions. Treatment clients were unlikely to live in a privately owned home, with the majority living in rental accommodation (55%). Over one in ten lived in temporary accommodation (e.g., shelters or refuges) or were homeless.

Counselling was the most common service provided to people receiving treatment for the use of amphetamines (35% of episodes), followed by residential rehabilitation (14%) and in-patient detoxification (13%). Less than half of all treatment episodes were completed (44%) and one third of the treatment episodes were terminated for reasons related to non-compliance. Non-compliance was particularly high for residential rehabilitation. Poor retention in residential rehabilitation may be related to the

characteristics of clients entering this form of treatment as well as the actual nature of the treatment being provided.

The prevalence of injecting among people seeking treatment for amphetamine use was comparable to that seen among clients seeking treatment for heroin use (Copeland & Indig, 2004), however, only 11% of amphetamine treatment clients nominated heroin as a secondary drug of concern. In contrast, almost half (44%) of treatment episodes for amphetamines involved a client who had concurrent concern about their cannabis use.

Conclusion

Treatment for the use of amphetamines disproportionately affects regional and rural NSW, with almost three-quarters of amphetamine treatment presentations occurring outside metropolitan Sydney. Further research needs to focus on patterns of amphetamine use and related treatment provision in these regional and rural areas. Data from the MDS-AODTS also suggest that people seeking treatment for amphetamine use look different to those interviewed through previous surveys of amphetamine users within metropolitan NSW. Specifically, amphetamine users presenting for treatment often had concurrent cannabis problems, whereas only a small proportion presented with concurrent opioid problems. There were also several idiosyncratic features of the population seeking treatment for amphetamine use, notably extremely high levels of unemployment and an over-representation of Australian born English speaking drug users. Further research would be necessary to determine to what extent these idiosyncrasies reflect the characteristics of people who have problematic amphetamine use, or barriers to accessing treatment among amphetamine users who are employed or from non-English speaking backgrounds.

1 INTRODUCTION

Almost one in ten Australians have tried ‘amphetamines’ in their life time, making amphetamines the second most commonly used illicit drug in Australia after cannabis (AIHW, 2002a). The category of ‘amphetamines’ includes the illicit drugs of amphetamine and methamphetamine that are both sold under the street names ‘speed’, ‘base’, ‘ice’, ‘crystal’, ‘shabu’ and ‘meth’ (Topp, Degenhardt, Kaye & Darke, 2002). Although most Australians who take amphetamines do so infrequently, 12% of current users take the drug either weekly or daily (AIHW, 2002a). It is these more frequent users of amphetamine who are likely to experience symptoms of dependence, health-related problems and to come into contact with treatment services (Darke, Cohen, Ross, Hando & Hall, 1994; Hando & Hall, 1994; Topp & Mattick, 1997). In the year 2000-01 the Australian Minimum Data Set for Alcohol and Other Drug Treatment Services (MDS-AODTS) recorded 6,979 treatment episodes where amphetamines were the primary drug of concern (AIHW, 2002b). This makes amphetamines the fourth most common drug for which people receive treatment after opioids, alcohol and cannabis, accounting for 9% of all episodes recorded through the Australian MDS-AODTS. More important, amphetamines were by far the major psychostimulant drug for which people received treatment, accounting for 96% of treatment episodes where psychostimulants were the main drug of concern (Jenner & McKetin, 2004). Despite the number of people receiving treatment for use of amphetamines in Australia, there is no information available on what type of treatment is provided to these clients nor their characteristics. Previous analysis of the MDS-AODTS has provided broad information on treatment episodes across all drug types, but has not explored the nature of amphetamine treatment provision in detail (Copeland & Indig, 2004).

Knowledge about treatment provided for amphetamine and methamphetamine use in Australia, and indeed internationally, is based primarily on out-of-treatment samples of drug users. These studies found amphetamine and methamphetamine users tend to seek help from a variety of services, and that those who sought help tended to be more dependent, more likely to inject and have poorer psychosocial functioning than their non-treatment counterparts (Baker, Boggs & Lewin, 2001a; Hando & Hall, 1994; Hando, Topp & Hall, 1997; Klee & Morris, 1994; Wright, Klee & Reid, 1999; John, Kwiatkowski & Booth, 2001; Vincent, Shoobridge, Ask, Allsop & Ali, 1999). While these studies

provide valuable information about treatment seeking among amphetamine and methamphetamine users in the community, they cannot provide information on the actual characteristics of users presenting to services and nor can they provide information on the type of treatment services provided.

Information on the characteristics of those receiving treatment within the community and the type of treatment they receive is often provided by large scale treatment outcome studies. Unfortunately, the major treatment outcome studies currently underway, such as the National Treatment Outcome Research Study in the United Kingdom (Gossop, Marsden, Stewart & Rolfe, 2000), the Drug Abuse Treatment Outcome Study in the United States of America (Hubbard, Craddock, Flynn, Anderson & Etheridge, 1997), and the Australian Treatment Outcome Study (Darke, Ross, Teeson & Lynskey, 2003), do not provide substantive information on the characteristics of people seeking treatment for amphetamines, or the modality of treatment provided to these clients, because of the low number of amphetamine treatment admissions within these cohorts.

There is a small body of research on the characteristics of methamphetamine users engaged in modality specific treatment programs in the United States of America (Brecht, von Mayrhauser & Anglin, 2000; Copeland & Sorensen, 2001; Rawson, Huber, Brethen, Obert, Gulati, Shoptaw & Ling, 2000; Reiber, Galloway, Cohen, Hsu, & Lord, 2000). This literature provides information on the demographics and drug use patterns of methamphetamine users engaged in treatment. High levels of unemployment were found among those in treatment; polydrug use was dominated by cannabis and alcohol use; while route of administration was found to vary by the geographic locality of the study.

Comparable information on the characteristics of amphetamine users who are likely to enter treatment in Australia can be gleaned from treatment trials. To-date, two such clinical trials have been published (Baker, Boggs & Lewin, 2001b; Shearer, Wodak, Mattick, van Beek, Lewis, Hall & Dolan, 2001), from which around two-thirds of participants were male, aged around 30 years, and were mostly injecting drug users with a long history of amphetamine use (10-11 years). These treatment trials provide a general idea of the type of people likely to attend amphetamine treatment; however, they do not

provide specific information on the type of treatment modalities provided at a community level for amphetamine use problems.

The best information currently available on the characteristics of clients receiving treatment for use of amphetamines in Australia, as well as the type of treatment they receive, is through the MDS-AODTS (Copeland & Indig, 2004). These data are representative of all closed treatment episodes in publicly funded drug and alcohol services where 'amphetamines' are the primary drug of concern. Treatment data collection systems like the MDS-AODTS are usually used to monitor broad trends in treatment demand, such as trends in the number or proportion of people seeking treatment for different drug types. Rarely are treatment data collection systems exploited to better understand the characteristics of those receiving treatment for specific drug types (Stauffacher, 2002). Nor is their potential utilized to understand the geographic disparities in treatment presentation for particular drugs.

The aim of the current study is to exploit the NSW MDS-AODTS to learn about the nature of treatment demand for amphetamine use and in doing this provide information that can support the development of treatment services for amphetamine use in Australia. Specifically, the data from the NSW MDS-AODTS will be used to characterize the nature of clients for whom amphetamines are the primary drug of concern, to understand the types of treatment services they receive, and to examine geographic trends in amphetamine treatment provision within NSW.

2 METHOD

2.1 The New South Wales Minimum Data Set for Alcohol and Other Drug Treatment Services

Data used in the current study was obtained from the New South Wales Minimum Data Set for Alcohol and Other Drug Treatment Services (NSW MDS-AODTS) for the year 2002/03. The NSW MDS-AODTS includes data from all clients who receive one or more services from participating alcohol or other drug treatment services. Participating agencies include all publicly funded (at State and/or Commonwealth level) government and non-government agencies that provide one or more specialist treatment services to people with alcohol and/or other drug problems. It also includes generalist agencies with dedicated drug and alcohol treatment staff, in particular, community health services. Agencies excluded from the NSW MDS-AODTS during the data collection period were: (1) acute care and psychiatric hospitals; (2) agencies that primarily provided accommodation or overnight stays (e.g., halfway houses, sobering up shelters); (3) agencies that provided services primarily concerned with a preventative or an educational emphasis such as needle and syringe programs, and (4) provision of methadone/buprenorphine dosage or prescription by an agency. Data are reported for each closed treatment episode, where an episode is defined as “a period of contact with a defined date of commencement and cessation between a patient/client and a provider or team of providers that occurs in one setting and in which there is no major change in the main treatment type or principal drug of concern, and there has not been a non-planned absence of contact for greater than three months” (New South Wales Department of Health, 2002). The NSW MDS-AODTS includes 34 separate data items covering the core areas of (1) agency details and locality, (2) client social and demographic characteristics, (3) drug-related information for the client, and (4) treatment delivery characteristics. A summary of relevant data definitions and categorization of these data definitions in the current study is provided below. Detailed information on data definitions used in the NSW MDS-AODTS can be found elsewhere (New South Wales Department of Health, 2002).

2.2 Data definitions and classifications

The current study included data from all closed treatment episodes in the NSW MDS-AODTS where the treatment episode ceased between July 01 2002 and June 30 2003 inclusive, where the client was receiving help for their own drug use rather than a secondary person, and where the 'principal drug of concern' was from the generic class of amphetamines (i.e., amphetamine, dexamphetamine, methamphetamine and amphetamines not elsewhere classified; Australian Bureau of Statistics, 2000). A total of 4,337 treatment episodes were included in the current analysis. 'Amphetamines' were noted as an 'other drug of concern' in a further 3,795 treatment episodes, however these were not included in the current analysis.

The principal drug of concern was defined as the drug that led the client to seek treatment, as reported by the client themselves. The client may also nominate other drugs of concern. Drugs of concern reported by clients are not a measure of drug use per se, and therefore may not reflect the totality of polydrug use in which a client has engaged. A client may also receive concurrent treatment episodes for different principal drugs of concern: these other episodes of care are not represented in the current study. All drug categories were defined according to the Australian Bureau of Statistics Standard Classification of Drugs of Concern (Australian Bureau of Statistics, 2000). Route of administration referred to the the client's usual method of administering the principal drug of concern as stated by the client.

The client's living arrangement was defined according to the people with whom the client was living immediately prior to the treatment episode, and was categorised as (i) living alone (Alone), (ii) living with either parent(s) or other relative(s) but not including a spouse or partner (Parents or other relatives), (iii) living with a spouse or partner but without dependent children (Spouse/partner), (iv) living with friends (Friends), (v) living alone or with a spouse or partner together with dependent children (Dependent children), and (vi) living in an extended family without a spouse or partner but with any combination of friends, parents, relatives and dependent children or living in an institutional arrangement (Other).

Geographic regions were defined according to NSW Area Health Service divisions and categorized into metropolitan (Central Sydney, Northern Sydney, Western Sydney, and

South Eastern Sydney Area Health Services), regional (Hunter, Illawarra, Central Coast, South Western Sydney and Wentworth Area Health Services) and rural (Far West, Greater Murray, Macquarie, Mid North Coast, Mid Western, New England, Northern Rivers and Southern Area Health Services). Rates per population were calculated using the Australian Bureau of Statistics (ABS) estimated residential population aged between 10 and 59 years in Area Health Services as of 30 June 2003 (New South Wales Department of Health, 2001).

Definitions of treatment provided are those used by the NSW MDS-AODTS (New South Wales Department of Health, 2002). Counselling included any method of individual or group counselling directed towards the therapeutic goals of alcohol and other drug treatment, and excluded counselling activity that was part of a rehabilitation program. Residential rehabilitation referred to an intensive treatment program that integrates a range of services and therapeutic activities that may include behavioural treatment approaches, recreational activities, social and community living skills, group work and relapse prevention. Rehabilitation treatment can provide a high level of support (i.e., up to 24 hours a day) and tended toward a medium to long-term duration. Outpatient consultation included management of dependence along with other diagnostic conditions among hospital patients. The categories of 'support' and 'case management only', 'information and education only', and 'assessment only' applied only when no other treatment was provided to the person during the treatment episode. No definition of withdrawal management is provided in the NSW MDS-AODTS data definition dictionary. Note that clients who received an 'assessment only' within one episode may be transferred to another treatment service which would be recorded as a separate treatment episode.

Reasons for ceasing each treatment episode were categorized as: (i) having completed treatment (Completed); (ii) having been transferred or referred to another service (Referred); (iii) having left treatment without notice or against advice, or having left involuntarily due to non-compliance (Non-compliance); or (iv) having another reason for ceasing the treatment episode, including change of residence to a different area, sanction by drug court or court diversion, imprisonment or release from prison, death, ceasing to participate at expiation, or other reasons not indicated (Other reason).

2.3 Analysis

Characteristics of treatment (i.e., type of service provided and reason for cessation of treatment) were calculated based on all treatment episodes (N = 4,337). Client characteristics (i.e., demographics and drugs of concern) and the rates of treatment presentation by geographic region were calculated from data on unique clients presenting within individual treatment agencies rather than treatment episodes (N = 3,696). Individual clients were identified using an alphanumeric personal identifier collected through the NSW MDS-AODTS, which was allocated within each agency. Clients who presented at different agencies within the one-year period would generally receive a different unique identifier at each agency they attended and would therefore be counted as a separate client for each agency presentation. A small proportion of treatment episodes included in the current analyses had had missing data on the following variables: age (n = 184), sex (n = 6), country of birth (n = 31), preferred language (n = 11), income status (n = 123), living arrangements (n = 184), usual accommodation (n = 250), route of administration (n = 126), other drugs of concern (n = 6), and reason for ceasing treatment (n = 40).

All statistical analysis were conducted using Intercooled STATA Version 8 (Stata Corporation, 2003).

3 RESULTS

3.1 Demographics

The median age of clients receiving treatment for amphetamines was 28 years (range 13.5 – 57.7 years) with 69% of clients aged between 20 and 34 years (Table 1). Two-thirds of treatment clients were male (67%). The main source of income among clients was temporary government benefits (e.g., unemployment benefits, 56%) and pensions (e.g., aged or disability pensions, 22%). Smaller proportions were receiving income from either full-time employment (10%) or part-time employment (4%), while 4% stated they had no source of income (Table 1).

The majority of clients were Australian born (94%) and nominated English as their preferred language (99%). Clients from rural areas within NSW were more likely to be

Australian born (Metropolitan 91%, Regional 93%, and Rural 97%; $\chi^2_{df=2} = 30.8, p = 0.000$).

Table 1. Socio-demographic characteristics of treatment clients with amphetamine as their principal drug of concern

Demographic	Per cent of clients
Age (median years)	28
Sex (male)	67
Main source of income	
Employment	14
Temporary government benefits	56
Pension	22
Other	8
Australian born	94
English preferred language	99
Living arrangement	
Alone	22
Parents or other relatives	33
Dependent children	15
Spouse/partner	11
Friends	10
Accommodation	
Rental	55
Privately owned	25
Temporary accommodation ^a	6
Institutions ^b	4
Homeless or no usual residence	7
Other	4

^a Shelters, refuges, boarding houses, hostels and supported accommodation services

^b Psychiatric hospitals, alcohol and other drug treatment residences, detention centres, prisons

3.2 Living arrangements

Amphetamine treatment clients lived in a variety of arrangements, although most lived with parents or other relatives (33%) or lived alone (22%). Smaller proportions lived with their spouse or partner (11%) or friends (10%). Fifteen per cent lived with dependent children, either alone or together with their partner. Most resided in rented accommodation (55%) while 25% lived in a privately owned dwelling. Seven per cent were homeless or had no usual residence, and a further six per cent lived in temporary accommodation such as hostels, boarding houses, refuges or shelters (Table 1).

3.3 Drugs of concern

Amphetamine was necessarily the principal drug of concern for all clients in the current sample. Injection was the most common route for administration of amphetamine (84%) with the remaining clients swallowing the drug (9%) or taking it intranasally (i.e., snorting the drug, 4%). Only 3% of the clients nominated smoking as their usual route of administration. Nearly two-thirds of clients (65%) nominated an other drug of concern in addition to amphetamines. The most common other drug of concern was cannabis, which was nominated by 44% of clients. Alcohol was the next most common other drug of concern, noted by 20% of clients, while 11% of clients indicated heroin as a secondary drug of concern. Other stimulants, sedatives and opioid drugs were also noted as other drugs of concern, although these were far less common (Table 2).

Table 2. Drug use among treatment clients with amphetamine as their principal drug of concern

Drug use characteristics	Per cent of clients
Route of administration	
Injecting	84
Swallowing	9
Intranasal	4
Smoking/chasing	3
Other drugs of concern	
Cannabis	44
Alcohol	20
Heroin	11
Nicotine	10
Benzodiazepines	5
Ecstasy	4
Cocaine	3
Other drugs	<3
Any secondary drug of concern	65

3.4 Modalities of treatment provided

Counselling was by far the main form of treatment provided to clients presenting with amphetamines as their primary drug of concern (35% of closed episodes, Table 3). Residential rehabilitation was the second most common form of treatment provided (14%), followed by inpatient withdrawal management (13%). Smaller numbers of treatment episodes involved other service modalities (e.g., outpatient consultation, provision of information and education outside the context of other treatment services). A substantial proportion of episodes involved assessment only (21%).

Table 3: Treatment services provided for the use of amphetamines

Type of service received	Per cent of episodes
Counselling	35
Residential rehabilitation	14
Inpatient withdrawal management	13
Outpatient withdrawal management	4
Outpatient consultation	3
Day rehabilitation	1
Assessment only ^a	21
Support and case management only ^a	6
Information and education only ^a	2
Other	< 1
Total	100

^a Provided outside the context of other treatment services

3.5 Duration of treatment episodes

The median duration of a counselling treatment episode was 38 days, and there was no difference in the duration of completed treatment episodes and those terminated due to non-compliance (39 vs. 40 days, $\chi^2_{df=1} = 0.04$, $p = 0.928$). Residential rehabilitation episodes had a median of 23 days duration, however, completed episodes were significantly longer with a median duration of 57 days in comparison with 15 days for non-completed episodes ($\chi^2_{df=1} = 82.1$, $p = 0.000$). Inpatient detoxification had a

median duration of five days and completed detoxification took a median of six days compared to three days in cases on non-compliance ($\chi^2_{df=1} = 49.6, p = 0.000$)

3.6 Completion of treatment episodes

Less than half of all treatment episodes were completed (44%) and in 16% of episodes the client was transferred or referred to another agency. Thirty-two per cent of episodes were terminated for reasons suggestive of non-compliance (i.e., person left without notice or against advice, or left involuntarily due to non-compliance) while the remaining 8% of episode were terminated for other reasons (e.g., external factors such as imprisonment, death, or change in locality of residence). Non-compliance was higher for residential rehabilitation compared to other forms of treatment, with 65% of episodes not completed for reasons related to non-compliance (Table 4).

Table 4: Client retention in treatment services provided for the use of amphetamines

	Counselling	Residential rehabilitation	Inpatient withdrawal	Outpatient withdrawal	All services
Completed	37	21	61	45	44
Referred	16	10	8	10	16
Non-compliance ^a	36	65	30	38	32
Other reason	11	4	1	7	8

^aNon-compliance includes left without notice, left against advice and left involuntarily.

3.7 Presentations by region

Treatment presentations for the use of amphetamines was highest in regional NSW both in terms of the absolute number of treatment presentations and when calculated per head of population aged 10-59 years. This geographic area surrounding Sydney accounted for 49% of all treatment presentations in NSW (Table 5). Sydney metropolitan region only accounted for 28% of presentations in NSW, while the rate per population in this region was substantially lower than for either regional or rural NSW (52 per 100,000 population

vs. 111 and 85 per 100,000 population in regional and rural NSW respectively; Figure 1). Note that these geographic subdivisions mask considerable variation in the rates of treatment presentation between specific Area Health Services, especially within the Sydney metropolitan region and rural NSW. There were twice as many amphetamine treatment presentations involved male clients than female clients.

Table 5: Number and population rate of client presentations where amphetamines were the principal drug of concern by sex and geographic region

Geographic Region of Area Health Service ^a	Males	Female	Total
Number			
Metropolitan	714	335	1,050
Regional	1,190	618	1,810
Rural	577	256	836
All NSW	2,481	1,209	3,696
Rate per 100,000 population^b			
Metropolitan	71	34	52
Regional	144	76	111
Rural	116	53	85
All NSW	107	53	80

^aMetropolitan Area Health Services include: Central Sydney, Northern Sydney, South Eastern Sydney and Western Sydney. Regional Area Health Services include: Central Coast, Hunter, Illawarra, South Western Sydney and Wentworth. Rural Area Health Services include: Far West, Greater Murray, Macquarie, Mid North Coast, Mid Western, New England, Northern Rivers, Southern.

^bABS estimated residence population as at 30 June 2003 for persons aged 10-59 years.

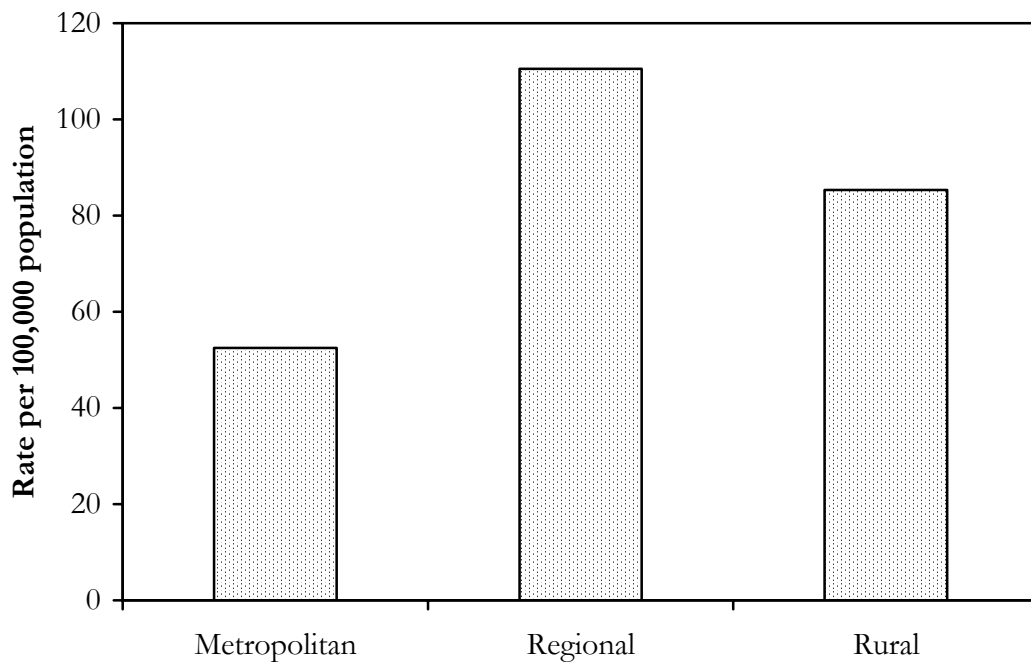


Figure 1: Rate per 100,000 population of amphetamine treatment presentations in metropolitan, regional and rural NSW

4 DISCUSSION

Providing treatment for the use of amphetamines is clearly a regional and rural issue in NSW. Treatment presentation rates per population in the regional area of NSW bounding Sydney were almost double that for metropolitan Sydney, while almost three-quarters of all treatment presentations occurred outside of Sydney. This finding has important implications for both supporting treatment delivery and understanding patterns of problematic amphetamine (and methamphetamine) use in NSW. This over-representation of amphetamine treatment presentations in regional and rural NSW could result from better service access in these regions; however, it is unlikely that service access could account for such a large difference in the rates of presentation between these geographic areas. It is highly likely that the high number of amphetamine treatment presentations within rural and regional NSW reflects a higher prevalence of problematic amphetamine use in these areas.

People receiving treatment for the use of amphetamines in NSW were highly unlikely to be employed, with only 14% reporting either half- or full-time employment. Employment among those engaged in treatment was far lower than would be expected based on surveys of out-of-treatment samples of amphetamine users, where around two-thirds of participants report employment (Hando et al., 1997; Vincent et al., 1999). Low levels of employment among those attending treatment for amphetamine use is consistent with treatment research in the United States of America (Copeland & Sorensen, 2001; Rawson et al., 2000; Reiber et al., 2000) and also previous research in Australia showing that those people who seek treatment for amphetamine use tend to have higher levels of unemployment than their non-treatment seeking counterparts (Hando et al., 1997; Vincent et al., 1999; Baker et al., 2001a). However, the MDS-AODTS only includes publicly funded treatment services and these services may be more accessible to unemployed amphetamine users (e.g., because of their hours of opening). Amphetamine users who are employed may be more likely to seek treatment from a range of services not included in the MDS-AODTS data collection system, such as private clinics, general practitioners, hospitals or emergency departments (Hando et al., 1997). Any future research on treatment access among amphetamine users should consider whether services are private or publicly funded, and also consider related

differences in service provision that may affect utilisation by different segments of the amphetamine using population.

Australian born English speaking clients appear to be over-represented among those seeking treatment for the use of amphetamines, with 94% of clients being Australian born and almost all nominating English as their preferred language. In contrast, 29.5% of people among the general population of New South Wales are born outside of Australia, and 24.3% do not speak English at home (Australian Bureau of Statistics, 2002). There are several possible explanations for the over-representation of Australian-born English speaking people among those seeking treatment for the use of amphetamines. First, there may be cultural and language barriers to non-English speaking people seeking help from drug treatment centres. Second, Australian residents who are born outside of Australia tend to cluster within capital cities (New South Wales Department of Health, 2004), whereas almost three-quarters of amphetamine treatment presentations occurred in rural or regional areas outside of Sydney. Third, a high proportion of amphetamine users may be born within Australia. The findings from a recent survey of out-of-treatment methamphetamine users within Sydney supports this view (McKetin et al., in preparation). All three of these factors are likely to contribute to the extremely high levels of Australian born, English speaking, amphetamine treatment clients.

Counselling was the main treatment service provided to clients receiving treatment for the use of amphetamines, although residential rehabilitation and detoxification were also common. This finding is consistent with research by Hando et al. (1997) who found that counselling was a common modality of treatment sought by amphetamine users in Sydney. Treatment services provided for the use of amphetamines stand in contrast to those provided for alcohol, opioid drugs and cocaine, where in-patient detoxification is the primary service provided (Copeland & Indig, 2004). Counselling is the most common treatment service provided for both cannabis and amphetamines: a factor that would facilitate integration of treatment for these two drugs in those cases where clients report concern with both drugs.

Non-completion of treatment episodes for amphetamine use was high, but comparable to that seen with other drug types (Copeland & Indig, 2004). Non-compliance was

particularly high for residential rehabilitation. High levels of non-compliance for residential rehabilitation could reflect that amphetamine users do not find this treatment modality appealing or successful. However, clients engaged in residential rehabilitation are also likely to be heavier drug users with a history of relapse and therefore may be more likely to drop out of treatment earlier than their counterparts seeking other forms of treatment (Ross, Teesson, Darke, Lynskey, Hetherington, Mills, Williamson & Fairbairn, 2002).

Injecting drug use was the norm among clients receiving treatment for the use of amphetamines and the prevalence of injecting among this population was comparable to that seen among clients seeking treatment for heroin use (Copeland & Indig, 2004). High levels of injection are consistent with previous research on amphetamine use in New South Wales, and also evidence that those who inject the drug are more likely to be dependent and seek treatment (Darke et al., 1994; Hando & Hall, 1994; Hando et al., 1997). Injecting drug use is associated with a range of adverse health consequences in addition to increased risk of drug dependence, most notably risk of blood borne virus transmission and other injection-related health problems (e.g., abscesses and thrombosis; Darke, Ross, Cohen, Hando & Hall, 1995). In Australia, the potential for the spread of Hepatitis C is a particular concern, with a prevalence of 71% recorded among injecting drug users in NSW (National Centre in HIV Epidemiology and Clinical Research, 2003). Sharing of injecting equipment is common among those who inject amphetamines (Darke et al., 1995) and strategies to reduce HIV risk-taking behaviours should be incorporated into treatment services for this population.

A very small proportion of people in treatment for the use of amphetamines reported that they usually smoked the drug, this being indicative of a recent trend toward smoking crystalline methamphetamine in parts of NSW (Topp et al., 2002). Although smoking was not common among people in treatment for amphetamine use, the time lag observed between the onset of drug use and treatment entry (Kessler, Aguilar-Gaxiola, Berglund, Caraveo-Anduaga, DeWit, Greenfield, Kolody, Olfson & Vega, 2001) means it would be premature to assume either that smoking methamphetamine was not common among out-of-treatment methamphetamine users or that this pattern of use was not associated with treatment demand. Smoking methamphetamine has been associated with treatment

demand in parts of the United States of America where this pattern of drug use is prevalent (Brecht et al., 2000; Copeland & Sorensen, 2001; Reiber et al., 2000).

Almost half of all clients receiving treatment for amphetamines noted cannabis as a secondary drug of concern. High levels of cannabis problems among amphetamine clients suggest a need to integrate treatment options for cannabis use together with those for the use of amphetamines. In contrast, heroin featured as a secondary drug of concern among only 11 per cent of treatment clients. This finding is consistent with previous research on amphetamine treatment clients (Brecht et al., 2000; Baker et al., 2001b; Copeland & Sorensen, 2001; Shearer et al., 2001); however, it is in stark contrast to polydrug use patterns among out-of-treatment samples in NSW, where almost one-half report recent opioid use (Baker et al., 2001a; Darke et al., 1994; Hando & Hall, 1994; Topp & Mattick, 1997). The higher level of opioid use observed among previous out-of-treatment samples of amphetamine users is likely to reflect the drug use situation in the metropolitan regions from which these samples were drawn, together with the inherent biases in sampling illicit drug users from the community. Opioid use may also appear lower among amphetamine clients represented in the NSW MDS-AODTS because this data collection system measures only 'drugs of concern' rather than the totality of the client's drug use.

Data from the MDS-AODTS has been able to provide more representative information on the socio-demographic characteristics of amphetamine treatment clients in NSW than was available through previous research. The broad geographic coverage of this data collection system was able to demonstrate that treatment demand for amphetamines disproportionately affects regional and rural areas of NSW. Moreover, the polydrug use and demographic characteristics look somewhat different than what would be expected based on previous community surveys of methamphetamine and amphetamine users in metropolitan areas of NSW. Although the MDS-AODTS has provided a more comprehensive picture of treatment provision in New South Wales than was previously available, there are several factors that affect the interpretation of data from the MDS-AODTS. The MDS-AODTS represents only publicly funded treatment services, and therefore does not provide a full picture of all types of treatment services sought by users of amphetamines. Inclusion of only publicly funded services may also create a bias toward particular client characteristics. In this case, inclusion of only publicly funded

treatment services may account for the particularly low socio-demographic characteristics of the client group.

A further limitation of the MDS-AODTS is its measurement of treatment duration. Although the MDS-AODTS collects data on the duration of treatment provided per episode, the lack of a unique identifier to track clients across treatment services meant that the total treatment exposure for each client could not be calculated. Inclusion of a statewide unique client identifier would improve information on the level and nature of treatment exposure among clients, and also improve the accuracy of other information on client characteristics.

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