

Drug-related hospital stays in Australia 1993–2009

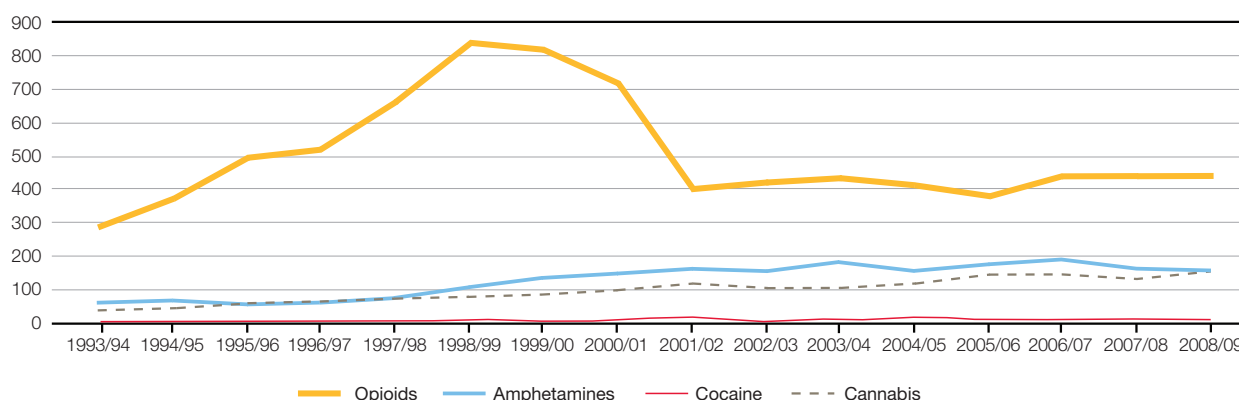


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Introduction

- + This bulletin presents data on drug-related hospital separations in Australia from 1993–2009 for the following drug types: opioids, cocaine, amphetamines and cannabis.
- + A hospital separation is defined as an episode of care for an admitted patient, which may refer to a total hospital stay (from admission to discharge), or a portion of a hospital stay beginning or ending in a change of type of care, or transfer to another hospital.
- + At the time of separation, a principal (main) diagnosis, and up to 40 secondary diagnoses may be made. The data presented in this bulletin include only hospital separations where opioids, cocaine, amphetamines or cannabis were determined to be the principal (i.e. main) reason for the hospital stay. The data presented will therefore be an under-estimate of the total number of drug-related hospital admissions.
- + Hospital separations are coded according to the World Health Organization's (WHO) International Statistical Classification of Diseases (ICD) and Related Problems. The ICD 10th revision (ICD 10 AM) (National Centre for Classification in Health, 1998) was used to code data dating from 1999 to the present in South Australia (SA), Western Australia (WA), and Queensland (QLD). The remaining jurisdictions commenced using ICD 10 AM codes in 1998. Prior to this, the ICD 9th revision (ICD 9 CM) (National Coding Centre, 1996) was used to code hospital separations.
- + Appendix A provides the ICD codes used for this analysis.
- + As problems associated with drug use occur largely in youth to middle age, hospital separations are presented as numbers per million persons aged 15–54, calculated using the Australian Bureau of Statistics estimated resident population figures as at 30 June each year.
- + All figures referred to in this bulletin are rates per million population
- + Figure 1 shows the rates of hospital separations per million persons for each of the four drug types over the fifteen year time period (1993–2009). Rates were highest for opioids across the entire period, followed by amphetamines, cannabis and cocaine.

Figure 1: Rates per million persons of principal drug-related hospital separations in Australia among persons aged 15–54, by drug type, 1993–2009



Opioid-related hospital separations

For the purposes of this bulletin, opioid-related hospital separations are defined as those separations where opioids were recorded as the principal diagnosis. See Appendix A for the ICD codes used in this analysis.

TRENDS OVER TIME

- + Over time, opioid-related hospital separations have remained relatively stable at a national level since 2001/02 (Figure 2), after a dramatic decline in 2000/01.
- + In 2008/09, opioid dependence accounted for half (51%) of all principal opioid-related separations in Australia, representing a decrease from approximately two-thirds of separations in earlier years.
- + Over time there has been an increase nationally in presentations due to poisoning from other opioids (including morphine, oxycodone, and codeine) which accounted for approximately one-fifth (20%) of all opioid-related separations in 2008/09 (these poisonings accounted for 7% of all opioid-related separations in 2000/01).

AGE ANALYSIS

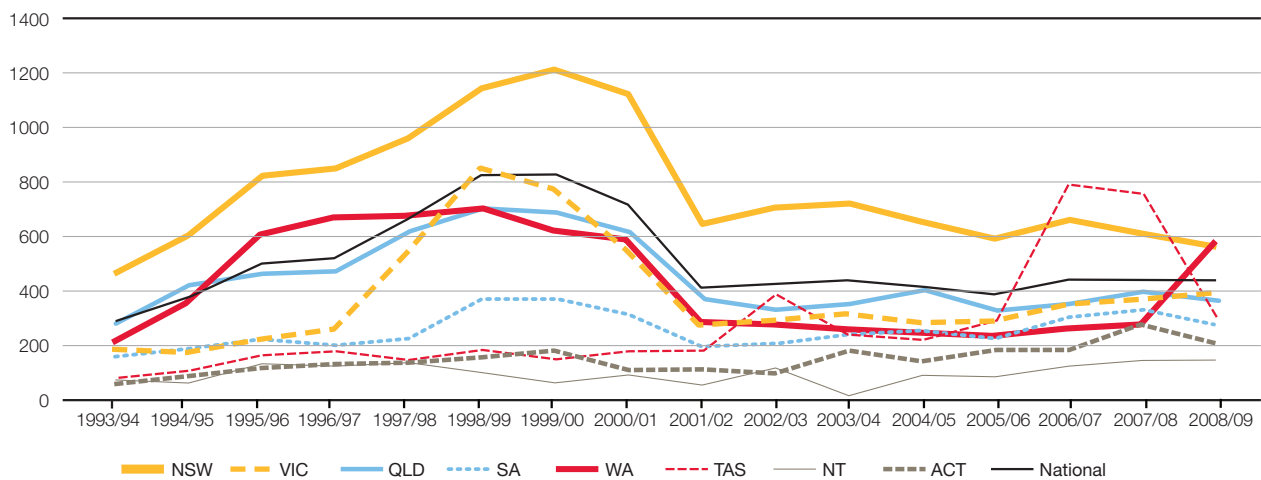
- + Over time, there are different trends apparent across different age groups. The dramatic decline recorded in 2000/01 occurred primarily among the younger age groups (10 to 19, 20 to 29, and 30 to 39 year olds). Separations among the 30 to 39 year age group have started increasing again since 2001/02, while they've continued to decline among Australians aged 10 to 19 years. Separations among older Australians (aged to 40 to 59) have showed continued increases over the entire period (data not shown).
- + In 2008/09, the 30 to 39 year age group accounted for the largest proportion (35%) of opioid-related separations.

JURISDICTIONAL ANALYSIS

- + At the jurisdictional level opioid-related separations were continually highest in New South Wales (NSW) for the period 1993/94 to 2005/06, with separations in Western Australia (WA) being higher than NSW in 2008/09.
- + The higher number recorded in WA in 2008/09 (560 per million persons compared to 269 in 2007/08) was mostly due to an increase in presentations for opioid dependence. These presentations accounted for nearly two-thirds (60%) of all opioid-related separations in WA in 2008/09, representing an increasing from 34% in 2007/08.
- + Trends in WA separations are consistent with findings from the Illicit Drug Reporting System (IDRS). There was an increase in the proportion of participants in WA reporting heroin use at this time (from 51% in 2008 to 71% in 2009) (Stafford and Burns, 2010), and this proportion subsequently increased to 79% in 2011, the highest reported since 2003 (Stafford and Burns, in press).
- + Victoria (VIC) has also recorded steady increases between 2001/02 (at 270 separations per million) and 2008/09 (to 386 per million). This was mostly due to an increase in presentations for opioid dependence, which accounted for just under half (45%) of all opioid-related separations in VIC in 2008/09.
- + The other trend of note is the decline in opioid-related separations in TAS from 751 per million persons in 2007/08 to 299 in 2008/09. This decline is mostly due to a decline in presentations due to other opioid poisonings (for drugs including codeine, oxycodone, and morphine). These presentations accounted for just under one-quarter (23%) of separations in 2008/09 compared to one third (35%) of separations in 2007/08.
- + Trends in opioid-related separations in other jurisdictions have remained relatively stable since 2007/08.

Opioid-related hospital separations continued...

Figure 2: Rates per million persons of principal opioid-related hospital separations in Australia among persons aged 15–54, 1993–2009



TRENDS IN OTHER DATA

- + At the national level, proportions of IDRS participants across Australia reporting injecting morphine have declined (Stafford and Burns, in press). With the exception of the Northern Territory (NT), where daily morphine injection is common, and Tasmania (TAS), where use is approximately twice weekly, patterns of morphine injecting is sporadic across Australia (Stafford and Burns, in press).
- + Prevalence of oxycodone injection among these opioid injectors has increased over time, however, patterns of use are much more sporadic than those for morphine (Stafford and Burns, in press).

Amphetamine-related hospital separations

For the purposes of this bulletin, amphetamine-related hospital separations are defined as those separations where amphetamines were recorded as the principal diagnosis. See Appendix A for the ICD codes used in this analysis.

TRENDS OVER TIME

- + Amphetamine-related hospital separations were second highest among the drug types examined (Figure 3). Over time, at a national level, these separations have steadily increased since the mid 90's, and peaked at 180 per million persons in 2003/04 and again at 190 in 2006/07. Presentations have stabilised over the past five years.
- + Over time, separations for amphetamine dependence have accounted for an increasing proportion of all amphetamine-related separations in Australia, from 30% in 1999/00 to a peak of 42% in 2006/07. Thirty six percent of amphetamine separations in 2008/09 were for amphetamine dependence.
- + At their peak at 2,258 in 2006/07, amphetamine-related separations represent only one-quarter (25%) of the highest number of opioid-related separations recorded (in 1998/99 at 9,117 nationally) during the fifteen-year period.

AGE ANALYSIS

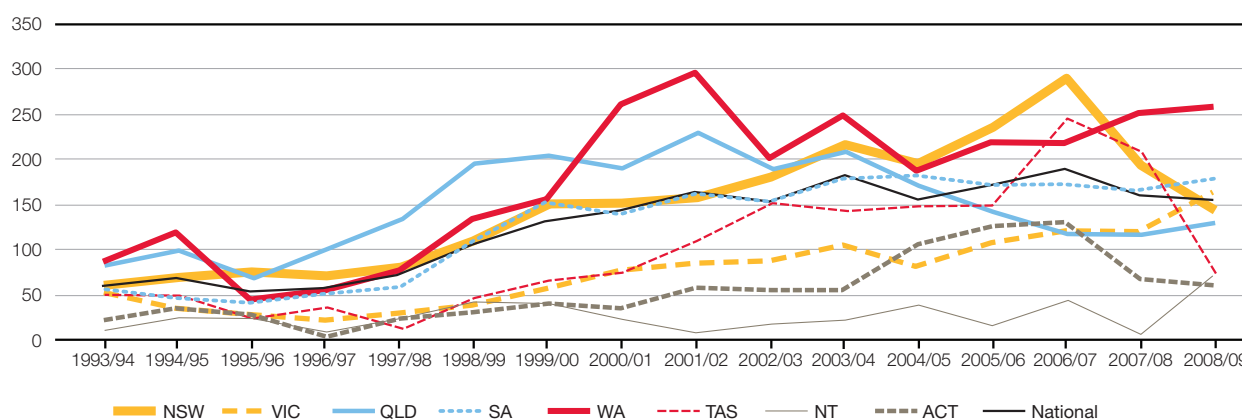
- + Over time, amphetamine-related separations have been highest among the 20 to 29 year age group, followed by the 30 to 39 year age group. Separations among the 20 to 29 year age group have stabilised at a higher level over the past six years after steady increases in the late 90's. Similar trends are apparent among 10 to 19 and 40 to 49 year olds. Separations among the 30 to 39 year age group have declined after peaking in 2006/07 (data not shown).
- + In 2008/09, the 20 to 29 year age group accounted for the largest proportion (48%) of amphetamine-related separations.

JURISDICTIONAL ANALYSIS

- + At the jurisdictional level, amphetamine-related separations over time have been highest in NSW, WA, and South Australia (SA).
- + Presentations for amphetamine dependence have accounted for an increasing proportion of all amphetamine-related separations in WA over the past five years (from 26% in 2004/05 to 38% in 2008/09).
- + Separations in NSW declined in 2008/09 (from a peak of 291 per million persons in 2006/07 to 145) following increases in the previous two years. This decline is largely due to a decline in presentations for amphetamine dependence, which accounted for 55% of all amphetamine-related separations in NSW in 2006/07, compared to 37% in 2008/09.
- + Queensland (QLD) and VIC have also recorded relatively high rates of amphetamine-related separations.
- + Separations in SA have stabilised over the past six years, while QLD has recorded a downward trend in amphetamine-related separations since 2003/04.

Amphetamine-related hospital separations continued...

Figure 3: Rates per million persons of principal amphetamine-related hospital separations in Australia among persons aged 15–54, 1993–2009



TRENDS IN OTHER DATA

- + Declining trends seen in amphetamine-related separations in NSW are consistent with other indicators. Findings from both the NSW IDRS and Ecstasy and related Drugs Reporting System (EDRS) show a marked decrease in the proportion of participants reporting methamphetamine use in the preceding six months between 2008 and 2009 (Phillips and Burns, 2010, Scott and Burns, 2010). The SA IDRS and EDRS findings also reflected stabilisation of proportions reporting methamphetamine use between 2008 and 2009, following a decline from 2007 (White, 2010b, White, 2010a).

Cannabis-related hospital separations

For the purposes of this bulletin, cannabis-related hospital separations are defined as those separations where cannabis was recorded as the principal diagnosis. See Appendix A for the ICD codes used in this analysis.

TRENDS OVER TIME

- + Cannabis-related separations were the third highest in number across the four drug types (following opioids and amphetamines). In 2008/09 cannabis-related separations almost reached numbers equivalent to amphetamine separations (Figure 4). At a national level cannabis-related separations steadily increased between 1993/94 and 2005/06, with another increase recorded in 2008/09.
- + Separations for cannabis dependence have accounted for an increasing proportion of all cannabis-related separations in Australia, from 55% in 1999/00 to 75% in 2008/09.

AGE ANALYSIS

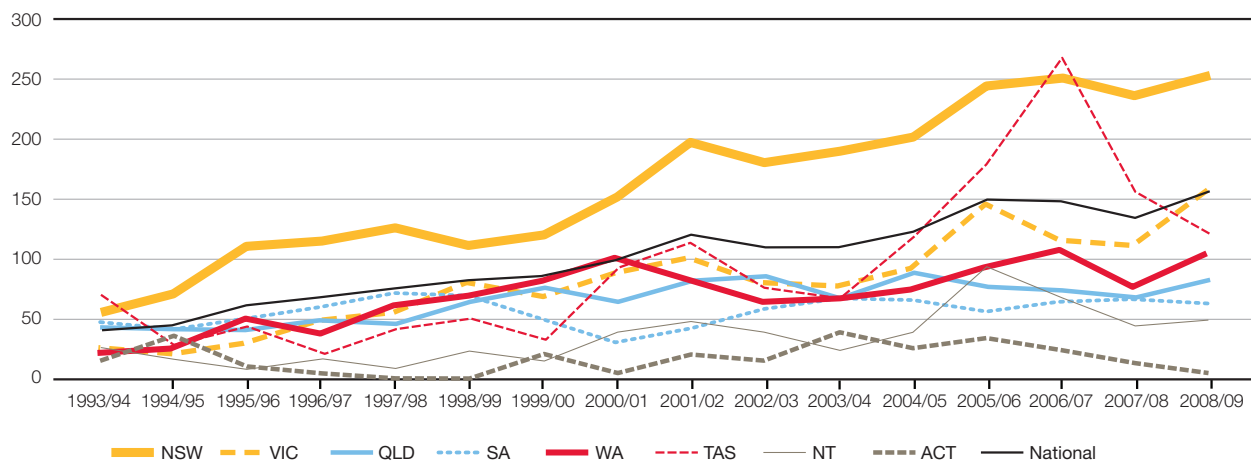
- + In 2008/09, the 20 to 29 year age group accounted for the largest proportion (43%) of cannabis-related separations, and these were primarily for dependence (79%) (data not shown).
- + Although presentations among the 40 to 49 year age group are lower relative to the younger age groups, increases among this older group have been most evident.

JURISDICTIONAL ANALYSIS

- + At the jurisdictional level cannabis-related separations have been most predominant in NSW. Steady increases have been recorded in NSW since 1993/94 (from 55 per million persons in 1993/94 to 251 per million persons in 2008/09). This increase has largely been driven by cannabis dependence, and these separations accounted for the majority (81%) of cannabis-related separations in NSW in 2008/09.
- + After dramatic increases in cannabis-related separations in TAS between 2003/04 and 2006/07 (which were predominantly due to dependence and harmful use), these separations declined sharply in 2007/08, and again in 2008/09. This drop was due to a decline in presentations for both harmful use and dependence.
- + Separations in VIC and WA have also increased over time. The increase in these jurisdictions in 2008/09 was driven by separations for both cannabis dependence and harmful use.
- + QLD and SA have recorded stable numbers of cannabis-related separations over the past five years.

Cannabis-related hospital separations continued...

Figure 4: Rates per million persons of principal cannabis-related hospital separations in Australia among persons aged 15–54, 1993–2009



TRENDS IN OTHER DATA

- + These findings are consistent with general population trends. The 2010 National Drug Strategy Household Survey showed that a higher proportion of older Australians, aged over 40 reported daily cannabis use (Australian Institute of Health and Welfare, 2011).

Cocaine-related hospital separations

For the purposes of this bulletin, cocaine-related hospital separations are defined as those separations where cocaine was recorded as the principal diagnosis. See Appendix A for the ICD codes used in this analysis.

TRENDS OVER TIME

- + Cocaine-related separations were the lowest across the four drug types during the fifteen-year period (Figure 5). Nationally these separations have increased since 1993/94, although at a relatively low level.

AGE ANALYSIS

- + The 30 to 39 year age group continue to account for the largest proportion of cocaine-related separations (38% in 2008/09) followed by the 40 to 49 year olds (29%) and the 20 to 29 year olds (28%). There have been steady increases recorded over time in cocaine-related presentations among the older age groups (30 to 49 years) (data not shown).

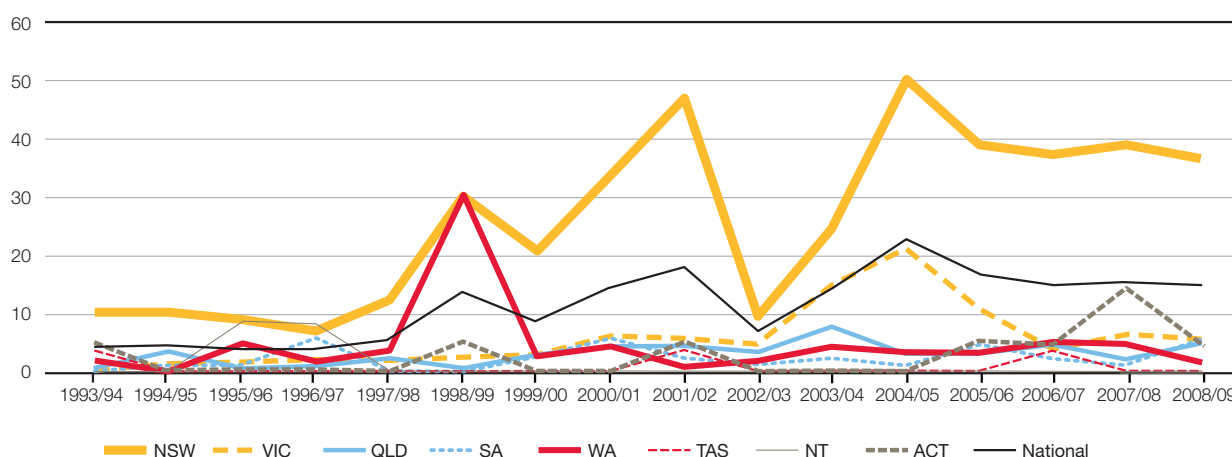
JURISDICTIONAL ANALYSIS

- + NSW recorded the highest number of cocaine-related separations per million persons during this period. Separations peaked in NSW in 2001/02 (at 46.3 per million persons) and again in 2004/05 (at 49.7 per million persons). They have since declined, although they remain higher than figures recorded earlier in the period.
- + Separations in NSW continue to account for the majority (80% in 2008/09) of cocaine-related separations in Australia. In 2008/09 two-thirds (66%) of NSW cocaine-related separations were for dependence.
- + The remaining jurisdictions recorded much lower numbers of cocaine-related separations throughout the time period.

TRENDS IN OTHER DATA

- + The trends seen in cocaine-related hospital separations in NSW are consistent with trends in cocaine use among regular injecting drug users surveyed for the IDRS. Increases in use among this group correspond with the peaks seen in cocaine-related separations in NSW in 2001/02 and again in 2004/05 (Phillips and Burns, 2010).
- + Trends in cocaine-related separations should be interpreted with caution due to relatively small numbers in many jurisdictions.

Figure 5: Rates per million persons of principal cocaine-related hospital separations in Australia among persons aged 15–54, 1993–2008



Implications

- + While opioid-related separations overall have remained relatively stable, presentations for other opioid poisoning (for substances including morphine, codeine and oxycodone) have increased, indicating that continued monitoring of harms related to these drugs is important.
- + The increase in opioid-related separations among older Australians suggests the continued need to engage opioid users in treatment as early as possible.
- + Amphetamine-related hospital separations have stabilised at a high level after steady increases in Australia during the late 1990s.
- + The prominence of amphetamine-related separations among the 20 to 29 year age group suggests that amphetamine users are developing problems earlier with their amphetamine use.
- + For the first time, cannabis-related separations were almost equivalent in number in 2008/09 to amphetamine-related separations, and at a national level, these separations increased again in 2008/09 after stabilising since 2005/06.
- + Cannabis-related separations are most prominent among the 20 to 29 year age group, and there have been steady increases recorded among this group, as well as the 30 to 39 year age group.
- + Although cannabis-related separations among the 40 to 49 year age group are relatively lower than those for the younger age groups, these separations have also steadily increased, which mirrors recent general population findings that daily cannabis use is most prominent among this group (Australian Institute of Health and Welfare, 2011).
- + Cannabis users are traditionally difficult to engage in treatment, with only a minority seeking help (Copeland, 2004). Treatment seeking among this group is often driven by a mental health problem rather than problems associated with cannabis use (Compton et al., 2007). Innovative ways to engage cannabis users earlier in treatment are required such as flexible service delivery models that make interventions more accessible (e.g. web-based interventions).
- + Cocaine-related hospital separations were the lowest across the drug types examined, and separations in NSW continue to account for the majority nationally. Separations in NSW have stabilised at a higher level over the past four years. This trend is consistent with significant increases in past year cocaine use recorded in the National Drug Strategy Household Survey (NDSHS) in 2007 (from 1% in 2004 to 1.6%), and again in 2010 to 2.1% (Australian Institute of Health and Welfare, 2011). The NDSHS also showed that past year cocaine use in 2010 was highest in NSW.
- + Despite the prevalence of cocaine use and the associated morbidity being relatively low in Australia, continued monitoring of prevalence and patterns of use among Australians and sentinel groups of illicit drug users remains an important public health issue.
- + Information contained in this bulletin comes from the National Hospital Morbidity Database. This database is fundamental to the monitoring capacity of the National Illicit Drug Indicators Project. These data provide invaluable information about trends in drug-related harms in Australia, as well as the context within which these trends can be understood. Each additional year of data adds further value to the project and, in conjunction with other available data sources, provides a reliable framework within which to inform evidence-based drug policy in Australia.

Acknowledgements

We would like to acknowledge the Australian Institute of Health and Welfare, and all of the State and Territory Health Departments, for providing us with access to the National Hospital Morbidity Database.

Appendix A

OPIOID-RELATED HOSPITAL SEPARATIONS

The following ICD-9-CM (from 1993/94 to 1998/99) and ICD-10-AM (from 1999/00 to 2007/08) codes were used to examine trends in opioid-related hospital separations:

ICD-9 diagnosis	ICD-10 diagnosis	ICD-9-CM	ICD-10-AM
Opium poisoning	Opium poisoning	96500	T400
Heroin poisoning	Heroin poisoning	96501	T401
Methadone poisoning	Methadone poisoning	96502	T403
Morphine/codeine/pethidine poisoning	Other opioids poisoning (including morphine, codeine, oxycodone)	96509	T402
Morphine/codeine/pethidine poisoning	Other synthetic narcotics poisoning (including pethidine)	96509	T404
Morphine/codeine/pethidine poisoning	Other and unspecified narcotics poisoning	96509	T406
Opioid type dependence (including heroin, methadone, morphine, opium)	Opioid dependence syndrome	3040	F112
Opioid and other drug dependence	No equivalent	3047	N/A
Opioid use disorder	Opioid acute intoxication	3055	F110
Opioid use disorder	Opioid harmful use	3055	F111

Note: Withdrawal codes for ICD-9-CM were not drug specific, and accordingly, for comparability purposes, these separations have been left out of the analysis.

AMPHETAMINE-RELATED HOSPITAL SEPARATIONS

The following ICD-9-CM (from 1993/94 to 1998/99) and ICD-10-AM (from 1999/00 to 2007/08) codes were used to examine trends in amphetamine-related hospital separations:

ICD-9 diagnosis	ICD-10 diagnosis	ICD-9-CM	ICD-10-AM
Psychostimulant poisoning	Poisoning by psychostimulants (excluding cocaine)	9697	T436
Amphetamine and other psychostimulant dependence (methylphenidate, phenmetrazine)	Stimulant dependence syndrome	3044	F152
Amphetamine or related sympathomimetic use disorder	Stimulant acute intoxication	3057	F150
Amphetamine or related sympathomimetic use disorder	Stimulant harmful use	3057	F151

Note: Withdrawal and drug-induced psychosis codes for ICD-9-CM were not drug specific, and accordingly, for comparability purposes, these separations have been left out of the analysis.

Appendix A continued...

CANNABIS-RELATED HOSPITAL SEPARATIONS

The following ICD-9-CM (from 1993/94 to 1998/99) and ICD-10-AM (from 1999/00 to 2007/08) codes were used to examine trends in cannabis-related hospital separations:

ICD-9 diagnosis	ICD-10 diagnosis	ICD-9-CM	ICD-10-AM
Cannabis poisoning	Cannabis poisoning	9696	T407
Cannabis dependence	Cannabis dependence syndrome	3043	F122
Cannabis use disorder	Cannabinoids acute intoxication	3052	F120
Cannabis use disorder	Cannabinoids harmful use	3052	F121

Note: Withdrawal and drug-induced psychosis codes for ICD-9-CM were not drug specific, and accordingly, for comparability purposes, these separations have been left out of the analysis.

COCAINE-RELATED HOSPITAL SEPARATIONS

The following ICD-9-CM (from 1993/94 to 1998/99) and ICD-10-AM (from 1999/00 to 2007/08) codes were used to examine trends in cocaine-related hospital separations:

ICD-9 diagnosis	ICD-10 diagnosis	ICD-9-CM	ICD-10-AM
Cocaine dependence	Cocaine dependence syndrome	3042	F142
Cocaine use disorder	Cocaine acute intoxication	3056	F140
Cocaine use disorder	Cocaine harmful use	3056	F141

Note: The ICD-9-CM cocaine poisoning code includes procaine, tetracaine and lignocaine poisoning and accordingly, cannot be translated to an ICD-10-AM poisoning code. Withdrawal and drug-induced psychosis codes for ICD-9-CM were not drug specific, and accordingly, for comparability purposes, these separations have been left out of the analysis.

RELATED LINKS

For more information on NDARC research, go to <http://ndarc.med.unsw.edu.au/>

For more information about the AIHW, go to <http://www.aihw.gov.au>

For more information on ICD-10, go to <http://www.who.int/whosis/icd10/>



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