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Opioid Use and Associated Harms in South Australia

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Opioid Use and Associated Harms in South Australia

Background

The term opioids encompasses both naturally occurring opiates (morphine and codeine) derived from the resin of the opium poppy, semi-synthetic (oxycodone) and synthetic (fentanyl) opioids. These drugs are only available via prescription; however they can be obtained and used illicitly. Heroin (diamorphine) is also derived from the opium poppy, but is produced illegally and not available by prescription. Opioids can be highly effective for the treatment of pain, although there is a risk of adverse effects and potential for dependence when not used appropriately².

Global estimates suggest that the number of opiate³ users has remained stable in recent years, comprising around 0.4% of the global population aged 15-64 years in 2014⁴. Opiate use is highest in South-West Asia⁵ (0.9%), Central Asia, (0.8%), Europe (0.6%) and North America (0.5%). There is evidence of increased use or harm in some countries, with heroin-related deaths rising substantially in the United Kingdom between 2012 and 2014. In addition, estimates of problem opiate users in France have shown a marked increase in recent years, and heroin use in Italy based on population surveys increased significantly between 2008 (0.4%) and 2014 (0.8%), although overall use is still low. However, household surveys have shown decreases in heroin use (measured as use in the last 12 months) in the general population between 1999 and 2014 in countries such as Hungary, Norway, the UK, Austria, France and Denmark, with use stable in Germany, Spain and Ireland. Prevalence of use in the last 12 months is also low, at 0.5% or less in all countries surveyed in 2014, with the exception of Italy (0.8%).

In contrast, heroin use has been increasing in North America, reflected in national household surveys (use in the last 12 months among those aged 12 years and over increased from 0.1% in 2003 to 0.3% in 2014⁶) and in the number of heroin-related deaths (from 0.7 deaths per 100,000 population in 1999 to 2.7 deaths in 2013⁷). The UNODC has also documented increases in opiate use in Africa, whereas it has remained largely unchanged in Asia between 1998 and 2014 and has declined in Oceania. This is primarily due to decreases in heroin use in Australia, where prevalence of use in the last 12 months decreased from 0.8% in 1998 to 0.2% in 2001, and remaining between 0.1% and 0.2% from 2010 to 2016. In the United States, deaths due to prescription opioids are greater than those for heroin and non-opioid drugs such as cocaine.⁸

In Australia, there has been an almost four-fold increase between 1990 and 2014 in the prescription of opioids for medicinal purposes, primarily due to a rise in the prescription of drugs such as morphine and methadone for the management of chronic non-cancer pain⁹. In addition, the use of other synthetic opioids such as oxycodone, fentanyl and buprenorphine rose markedly between 2000 and 2011¹⁰. Australian research looking at opioid prescriptions from the Pharmaceutical Benefits Scheme (PBS) and Repatriation Schedule of Pharmaceutical Benefits Scheme (RPBS) reported a marked increase in prescriptions for oxycodone between 2002-03 and 2007-08, but a decrease in prescriptions for morphine¹¹. Prescriptions for fentanyl also increased between 2002 and 2011¹². National sales data¹³ for over-the-counter (OTC) codeine and prescription opioids¹⁴ estimated community use in 2013, and found that OTC codeine was the most commonly sold opioid¹⁵. In addition, most prescription use was for the stronger opioids, which includes fentanyl, oxycodone and morphine. The study concluded that opioid use is considerably higher than is suggested by PBS/RPBS data alone. However, national data after 2013 are not included in these studies; this bulletin presents South Australian PBS/RPBS data up to 2017.

National data are also available on opioid-related overdose deaths from the National Coronial Information System (NCIS), and include oxycodone¹⁶, fentanyl¹⁷ and codeine¹⁸. Although numbers are small (465 in total for oxycodone, 136 for fentanyl and 113 for codeine), deaths where the underlying or contributing cause was related to these drugs increased from 2000 to 2013. For 53% of oxycodone-related deaths, it was recorded that the drug was prescribed, compared with 37% of fentanyl-related deaths, and 60% of codeine-related deaths¹⁹. In addition, 27% of oxycodone-related deaths were persons with a history of drug injecting (55% of fentanyl-related deaths and 16% of codeine-related deaths) and multiple drugs (in particular alcohol and benzodiazepines) were recorded in the majority of deaths for all three opioids. A study²⁰ looking at all deaths in Australia for those aged 15-74 years where opioid overdose was the underlying cause found that pharmaceutical opioid overdose deaths increased from 21.9 per million population in 2001 to 36.2 per million population in 2012. The pharmaceutical opioid death rate in 2012 was 2.5 times higher than that of heroin

overdose deaths. The death rate for fentanyl and oxycodone increased significantly between 2001 and 2012, and the death rate was highest for oxycodone (7.8 per million persons) in 2012. This study also calculated death rates per 100,000 Oral Morphine Equivalent (OME)²¹ grams dispensed, which enabled a comparison of the different pharmaceutical opioids by taking into account the different formulations and strengths of each drug. There was no change between 2001 and 2012 in morphine or oxycodone deaths per 100,000 OME grams, but a significant increase for fentanyl. In 2012, morphine-related death rates per 100,000 OME grams were significantly higher than those for oxycodone (1.7 times) and fentanyl (2.2 times).

More recent data²² on opioid overdose deaths for Australians aged 15-54 years found that 76% of these deaths in 2013 were attributed to pharmaceutical opioids, compared with 68% in 2010. For accidental deaths only, the proportion attributable to pharmaceutical opioids increased slightly from 67% in 2010 to 68% in 2013. Data were only available to 2013, which includes the period in which the consumption and prescription of opioids began to rise in South Australia (as presented in this bulletin); mortality data from 2014-2017 are not available.

Population survey data also indicate a small increase in non-medical use of prescription pain-killers/analgesics and opioids²³, and there has been an increase since the 1990s in the proportion of accidental overdose deaths due to prescription opioids, as well as an increase since 2006 in accidental overdose deaths due to heroin²⁴.

In response to these findings, this report presents data²⁵ on current trends in opioid²⁶ use and harms, specifically:

1. The prevalence of opioid use in the population (via surveys, prescriptions, and wastewater data);
2. Hospitalisations, emergency department presentations and deaths related to opioid use;
3. Specialised services provided for opioid misuse.

Where possible, South Australian data are compared with data from other States and Territories, as well as nationally. Unless otherwise stated, data presented are from South Australia.

Key findings

Opioid prevalence

- A small increase in the prevalence of recent non-medical use of prescription pain-killers/analgesics and opioids occurred between 2013 and 2016; the prevalence of heroin use has remained low and stable.
- Consumption levels of opioids measured through wastewater analysis in Adelaide have decreased since 2015.
- In August 2017 the National Wastewater Drug Monitoring Program found that South Australian metropolitan sites were above capital city average consumption rates for both oxycodone and fentanyl. South Australian regional sites were below the regional average for oxycodone but above the regional average for fentanyl. Trends over time indicate decreases in both oxycodone and fentanyl in the metropolitan sites, and fluctuations in the regional sites.
- There have been decreases since 2015 in the number and rate per 10,000 population of opioid prescriptions, which follow a similar pattern to consumption levels as shown by wastewater data. However, these decreases are of lesser magnitude than those seen in wastewater.
- The frequency of opioid use among people who inject drugs has shown a decrease over time.

Prevalence of use of prescription pain-killers/analgesics and opioids in the general population is low; opioid consumption as measured in wastewater and the number of prescriptions dispensed has decreased since 2015.

Opioid harms

- There were increases in hospitalisations for heroin between 2007-08 (42) and 2016-17 (61), but decreases in emergency department presentations (96 in 2007-08 and 72 in 2016-17); more recent trends indicate small increases in both between 2013-14 and 2015-16.
- There were decreases in hospitalisations for other opioids between 2007-08 (370) and 2016-17 (353), but increases in emergency department presentations (150 in 2007-08 and 249 in 2016-17); more recent trends indicate increases in both between 2013-14 and 2015-16.
- Hospitalisations due to poisoning from opioids other than heroin comprised 237 (62%) of all opioid-related hospitalisations, but this is relatively unchanged from 245 (60%) in 2007-08.

- There were increases in the rate of accidental opioid deaths per million persons aged 15-54 years between 1988 and 1999 in South Australia and Australia, followed by a substantial drop in the early 2000s. Although there have been increases since 2003, the rates have not returned to pre-1999 levels. In 2013 there were 28 deaths in South Australia and 597 in Australia.
- From 2001 to 2012, 55% of accidental opioid overdose deaths and 63% of all opioid overdose deaths among Australians aged 15-74 years were due to pharmaceutical opioids, and there was an increase in the proportion of all deaths due to PO pharmaceutical opioids from 62% in 2001 to 72% in 2012.
- While the death rate for heroin in Australia has fluctuated and the trend from 2009 is for a decrease (from 17 deaths per million persons in 2009 to 12 deaths in 2012), the rate for pharmaceutical opioids has continued to rise, from 13 deaths per million persons in 2001 to 22 in 2012.

Hospitalisations and emergency department presentations for heroin and other opioids increased between 2013-14 and 2015-16, with decreases for heroin in 2016-17. While opioid deaths have not returned to the numbers seen prior to 1999, the proportion due to pharmaceutical opioids and the death rate per million persons increased between 2001 and 2012.

Opioid treatment

- The number of clients on the Medication Assisted Treatment for Opioid Dependence (MATOD) program increased steadily from 1984 to 2010, primarily driven by growth in the private sector. Decreases have occurred in all programs in the last 10 years except for a small increase in the number of clients in private programs.
- Calls to the Alcohol and Drug Information Service for heroin have fluctuated, but remained stable overall between 2014-15 (282) and 2016-17 (280); calls for other opioids increased between 2014-15 (207) and 2016-17 (370). However, calls for heroin and other opioids make up a small proportion of all drug-related calls.
- Outpatient treatment episodes where opioid analgesics were the principal drugs of concern increased from 11% in 2009-10 to 13% in 2016-17 and the overall number increased slightly (from 858 to 910).
- There was a decrease in South Australia in the proportion of closed treatment episodes for which heroin (from 8.3% in 2006-07 to 4.5% in 2015-16) or other opioids (from 7.9% in 2006-07 to 4.3% in 2015-16) were nominated as the principal drugs of concern. However, this needs to be interpreted in the context of a growing demand for treatment services for methamphetamine.

The number of clients on the MATOD program and the proportion of closed treatment episodes where opioids were the primary drug of concern have decreased; with small increases in outpatient episodes for opioids and an increase in the number of calls to ADIS.

Conclusions

Data presented in this report show that the use of heroin is low and stable; and that there have been decreases in emergency department presentations, deaths, outpatient episodes and closed treatment episodes where the principal drug of concern was heroin. Moreover, while heroin-related hospitalisations have increased, numbers are small overall. Although there is evidence of an increase in the consumption of other opioids in wastewater and in prescriptions for opioids, this reached a peak in 2015 and has decreased since that time. Prevalence of use has remained stable or decreased. There have been increases in opioid-related emergency department presentations, but hospitalisations have remained stable. Overdose deaths due to pharmaceutical opioids have increased nationally, but South Australian data and data after 2013 are not available. Data after 2013 have shown decreases in consumption as measured by wastewater, and to a lesser degree, prescription data. Outpatient treatment episodes have increased slightly overall, but the proportion of treatment episodes where the principal drugs of concern were other opioids have decreased. Calls to ADIS for opioids other than heroin have also increased, but the number of calls for each individual drug is reasonably low, and they make up a small proportion of all drug-related calls. Therefore, while it is important to continue monitoring these indicators, the data to date do not indicate a significant increase in use and harms associated with other opioids in South Australia.

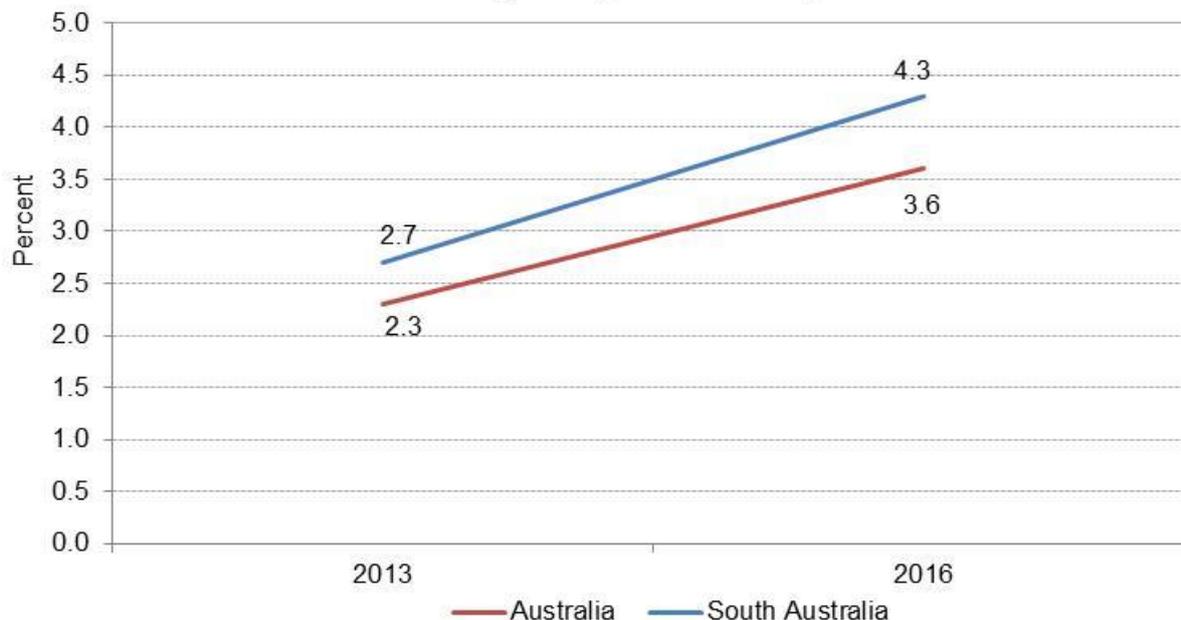
The prevalence of opioid use

Population surveys

The most recent data from the National Drug Strategy Household Survey (NDSHS)²⁷ show that in 2016, 4.3% of South Australians used prescription²⁸ pain-killers/analgesics and opioids²⁹ for non-medical purposes in the last 12 months (a small increase from 2.7% in 2013; see Figure 1). Due to the small sample in South Australia, it is more accurate to look at national trends, where use rose from 2.3% in 2013 to 3.6% in 2016. Pain-killers/analgesics and opioids were the second most commonly illicitly used drugs after cannabis.

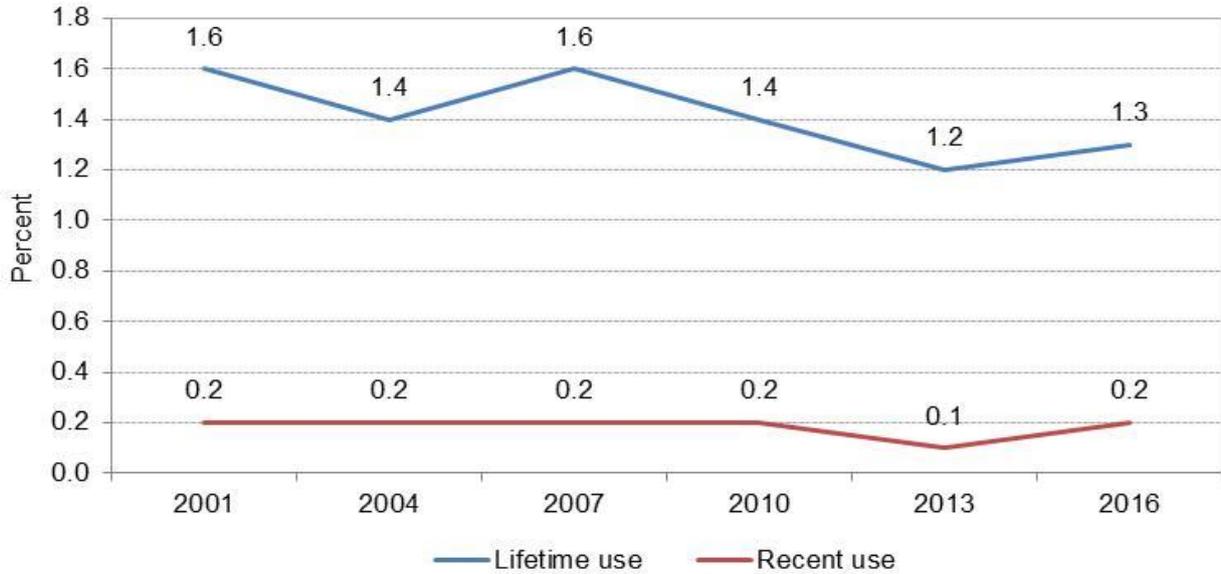
Comparable data from other jurisdictions in 2016 indicate that South Australia has a higher prevalence of use of prescription pain-killers/analgesics and opioids, with the Northern Territory and Queensland having the next highest (4.2% and 4.1%, respectively). All others reported recent use of between 3.2% (New South Wales) and 3.7% (Western Australia). Note that there were increases between 2013 and 2016 in all jurisdictions³⁰.

Figure 1: Recent misuse (last 12 months) of prescription pain-killers/analgesics and opioids among South Australians and Australians aged 14 years and over, 2013-2016



The NDSHS also collects data on lifetime and recent use of heroin. South Australian data are unreliable due to small numbers, and therefore national data are reported here instead. Figure 2 shows that there has been little change in lifetime or recent use since 2001.

Figure 2: Lifetime and recent use (last 12 months) of heroin among Australians aged 14 years and over, 2001-2016

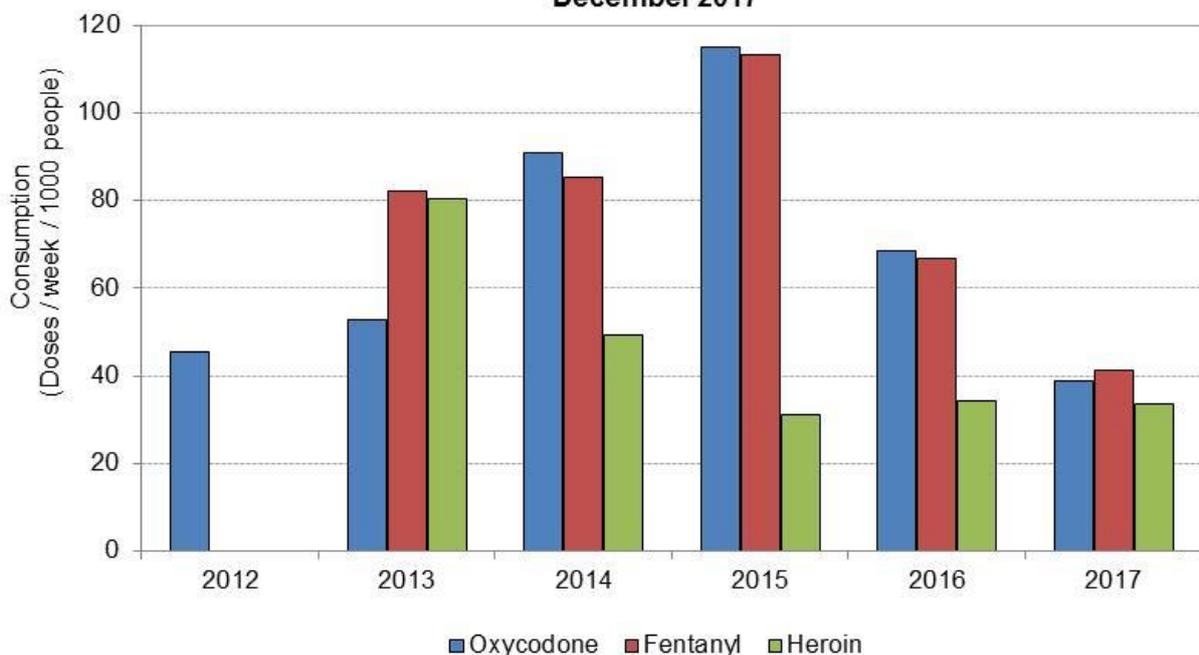


Wastewater data

Analysis of Adelaide metropolitan wastewater³¹ has found that population consumption levels of codeine, methadone and morphine have declined in the past four years and in the past two years for oxycodone and fentanyl (see Figures 3 and 4). More specifically:

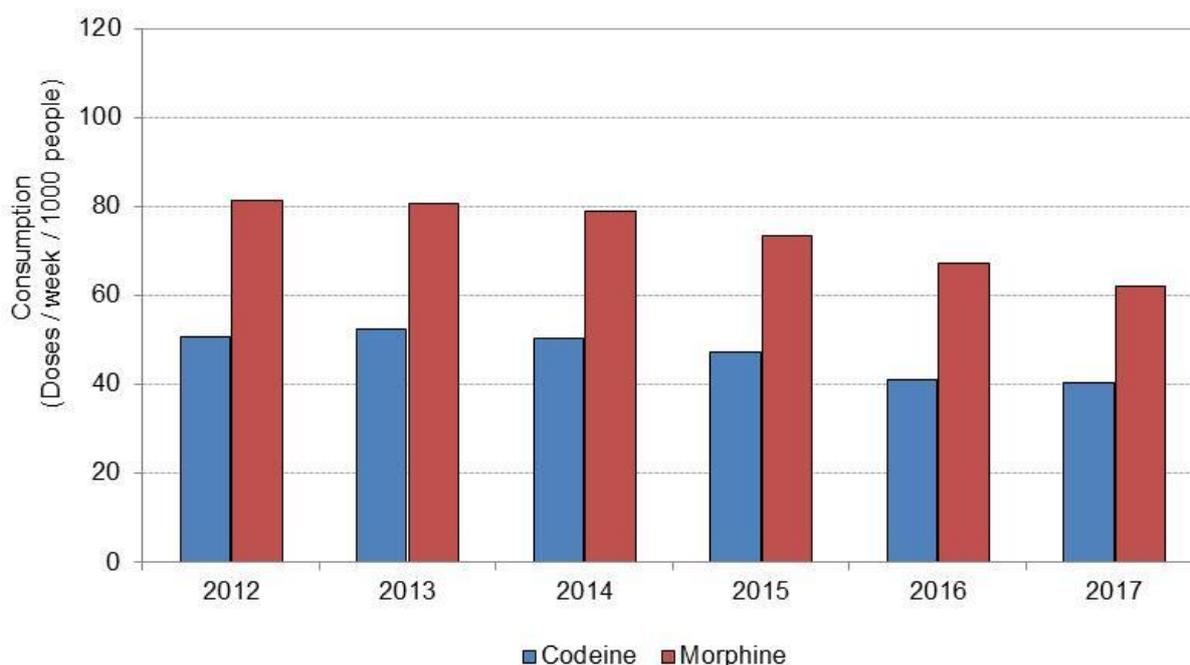
- Oxycodone and fentanyl consumption levels increased from 2012 to 2015, and have decreased in 2016 and 2017 to levels seen at the beginning of data collection.
- Codeine consumption levels fluctuated but the trend was a gradual decrease from 2012 to 2017.
- Morphine consumption levels decreased from 2012 to 2017.
- Heroin consumption levels declined between 2013 and 2015 and have remained relatively stable since then.

Figure 3: Consumption levels of oxycodone, fentanyl and heroin measured in wastewater in metropolitan Adelaide, February 2012 - December 2017



Average consumption (dose/day/1000 people) of oxycodone (10mg dose), fentanyl (0.2mg dose) and heroin (20mg dose) for 2012-2017 (fentanyl and heroin testing began in 2013). The South Australian population has also been updated from August 2016 according to the 2016 Census release (Australian Bureau of Statistics).

Figure 4: Consumption levels of codeine and morphine as measured in wastewater in metropolitan Adelaide, February 2012 - December 2017



Average consumption (dose/day/1000 people) of codeine (200mg dose) and morphine (30mg dose) for 2012-2017. The South Australian population has also been updated from August 2016 according to the 2016 Census release (Australian Bureau of Statistics).

National Wastewater Project³²

Three reports have been completed to date, the first in March 2017 (based on samples from 22 treatment plants in capital cities and 29 regional sites, collected for up to seven consecutive days in August 2016), the second in July 2017 (15 treatment plants in capital cities and 22 regional sites, collected during October and December 2016, and February 2017), and the third in November 2017 (22 treatment plants in capital cities and 32 regional sites, collected during April, June and August 2017)³³. A summary of the main findings is below; note that a lot of data were missing from sites in the Northern Territory and Tasmania, so they have been excluded:

Oxycodone:

- Adelaide sites were well above the capital average consumption until April 2017 when consumption decreased to just above average, and were higher than all Sydney, Melbourne and Perth sites. This was also observed in Adelaide in August 2017.
- In August 2017, all Adelaide sites combined and two South Australian regional sites were above the all site average consumption.
- South Australian regional sites combined were below the regional average; regional consumption combined is highest in Victoria, Queensland and New South Wales.
- In South Australia over time, there have been decreases in consumption at Adelaide sites combined, and a decrease in regional sites combined between August 2016 and December 2016, followed by small increases in 2017 to date.

Fentanyl:

- In August 2017, all Adelaide sites except one were above the National capital average consumption and were higher than all Sydney and Melbourne sites, and higher than all but one Western Australian site.
- In August 2017, all Adelaide sites but one, and all regional sites were above the all site average consumption.
- South Australian regional sites combined are above the regional average and second only to New South Wales with the highest consumption, followed by Queensland and Victoria.

- In South Australia over time, there have been decreases in consumption at Adelaide sites combined, and a decrease in regional sites combined between August 2016 and April 2017, followed by an increase in August 2017.

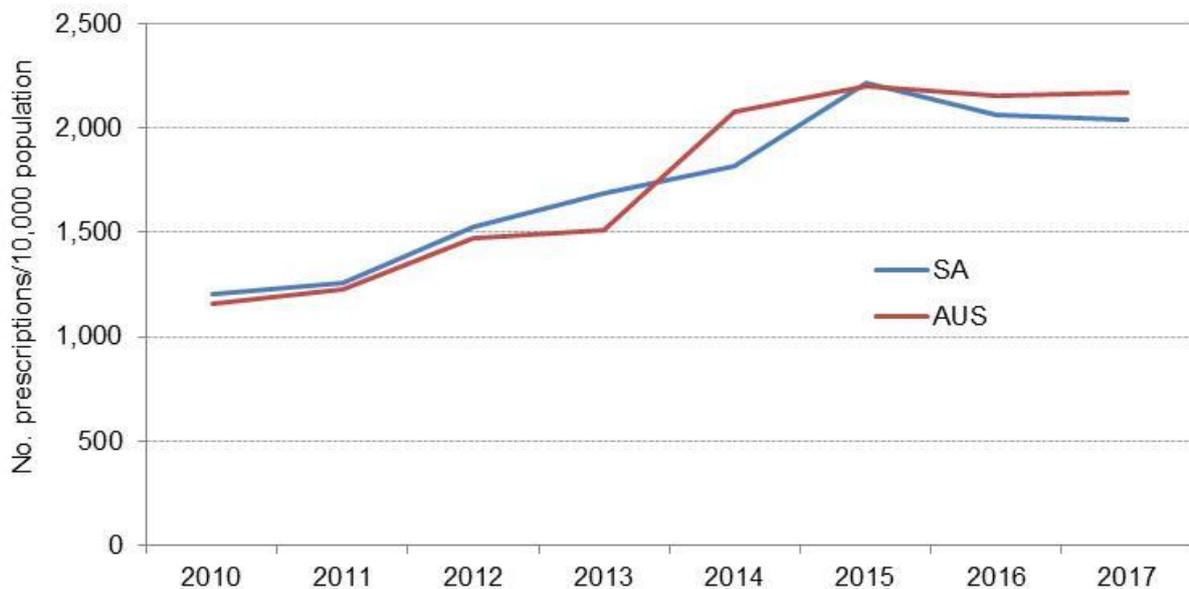
Prescription data³⁴

Prescription monitoring, through PBS and RPBS data are available on the Medicare Australia website³⁵. Data include opioid prescriptions from all pharmacies and all South Australian hospitals; both private and public.

Opioids selected for analysis included oxycodone³⁶, fentanyl, codeine³⁷ and morphine. To enable comparisons with national data the number of prescriptions has been expressed as a population rate. Figures 5-8 show that South Australian trends were similar to those seen nationally. Main findings as follows:

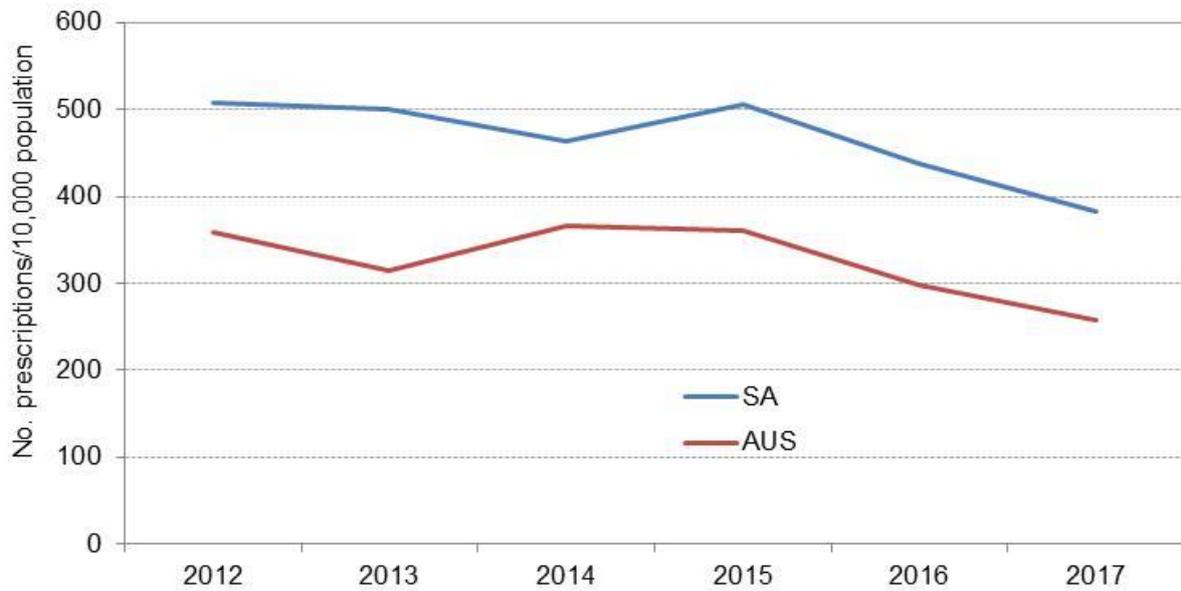
- The number of prescriptions for oxycodone per 10,000 population increased to 2015 and then decreased only slightly in 2016 and 2017.
- The number of prescriptions for fentanyl per 10,000 population increased slightly between 2013 and 2015 and then decreased in 2016 and 2017.
- The number of prescriptions for codeine per 10,000 population have shown a relatively small variation between 2012 and 2017 but there has been a decline.
- The number of prescriptions for morphine per 10,000 population decreased since 2011.
- While South Australian trends were similar to those seen nationally, the number of prescriptions per 10,000 population was higher in South Australia for fentanyl, codeine and morphine, and fluctuated for oxycodone.

Figure 5: Number of Oxycodone prescriptions (PBS and RPBS) per 10,000 population, South Australia & Australia, 2010-2017



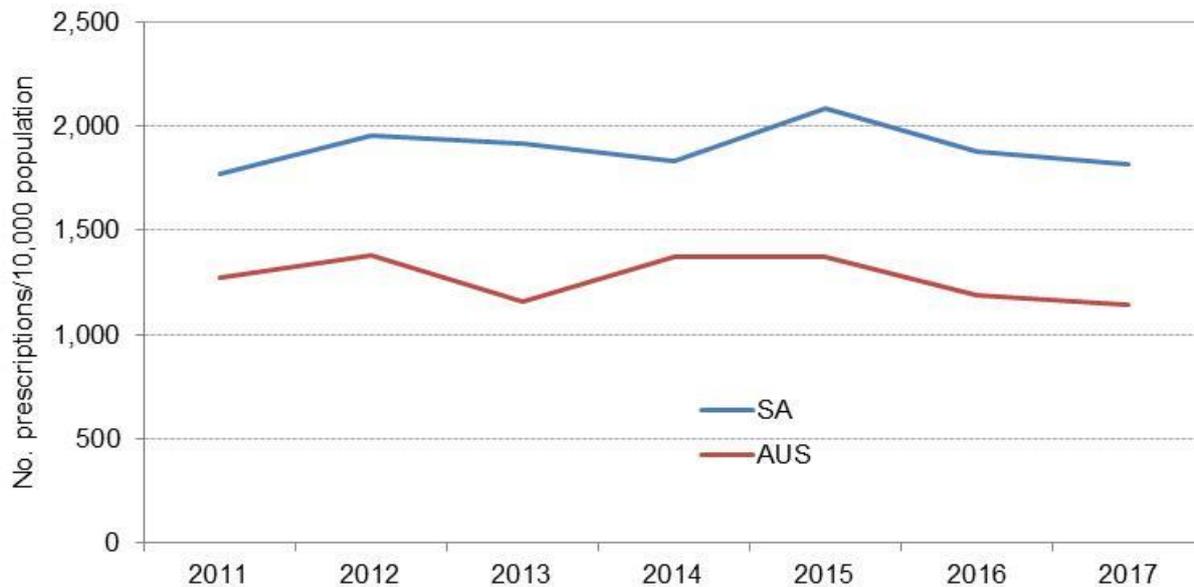
Population estimates from ABS:3235.0 Population by Age and Sex, Regions of Australia- for 15+ years, as at 30 June of each year. Estimates for 2017 are not yet available so those from 2016 were used.

Figure 6: Number of Fentanyl prescriptions (PBS and RPBS) per 10,000 population, South Australia & Australia, 2012-2017



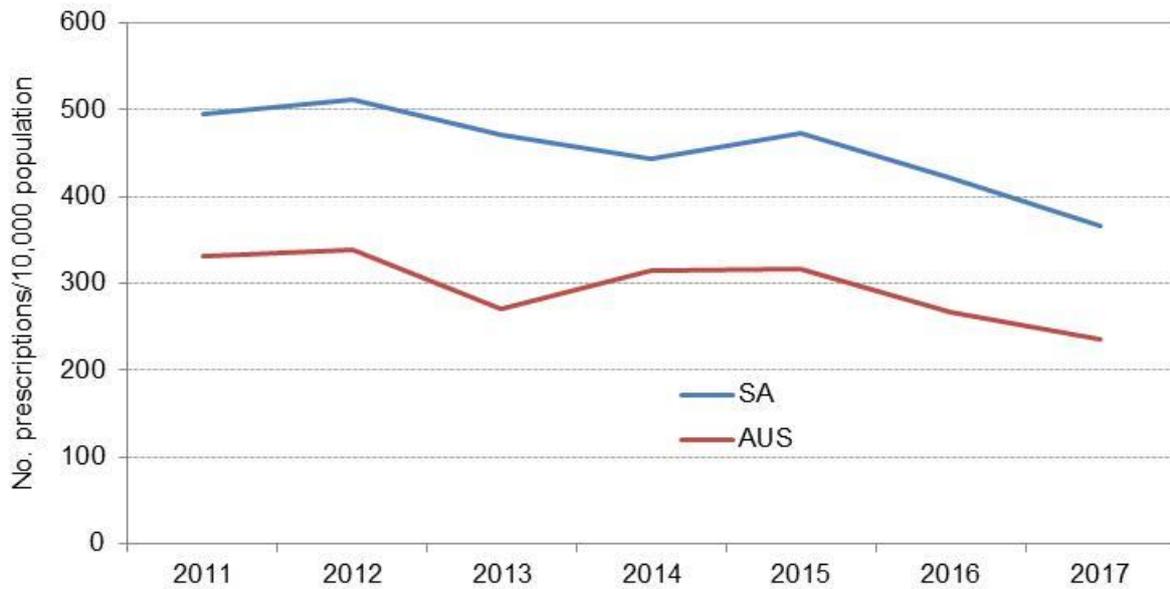
Population estimates from ABS:3235.0 *Population by Age and Sex, Regions of Australia*- for 15+ years, as at 30 June of each year. Estimates for 2017 are not yet available so those from 2016 were used.

Figure 7: Number of Codeine prescriptions (PBS and RPBS) per 10,000 population, South Australia & Australia, 2011-2017



Population estimates from ABS:3235.0 *Population by Age and Sex, Regions of Australia*- for 15+ years, as at 30 June of each year. Estimates for 2017 are not yet available so those from 2016 were used.

Figure 8: Number of Morphine prescriptions (PBS and RPBS) per 10,000 population, South Australia & Australia, 2011-2017

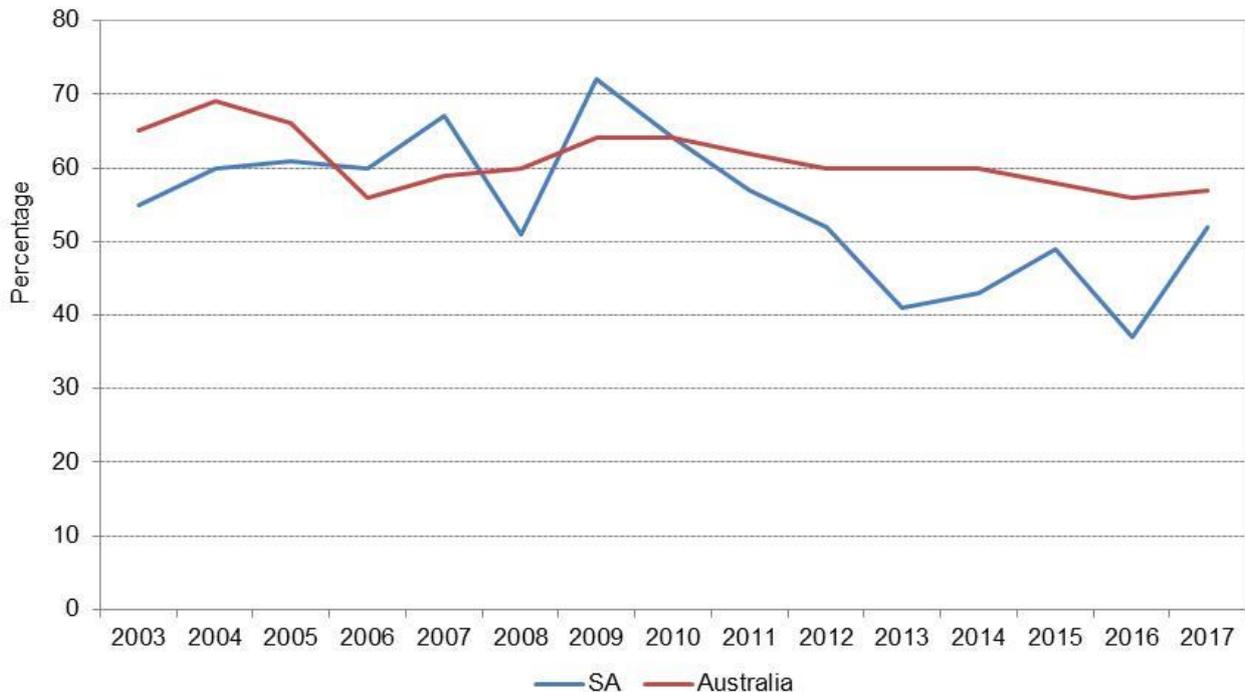


Population estimates from ABS:3235.0 *Population by Age and Sex, Regions of Australia*- for 15+ years, as at 30 June of each year. Estimates for 2017 are not yet available so those from 2016 were used.

People who inject drugs

The Illicit Drug reporting System (IDRS)³⁸ found that nationally, the prevalence of heroin use among people who inject drugs (PWID) has decreased between 2003 and 2017, from 65% to 57%. In South Australia, use has fluctuated, with a steady decrease between 2009 (72%) and 2016 (37%), although there was an increase to 52% in 2017 (see Figure 9). Use is higher in most of the other jurisdictions, with 80% reporting recent use in New South Wales and Victoria in 2017, and 74% in the Australian Capital Territory. Use was lowest in Tasmania (15%) and the Northern Territory (13%).

Figure 9: Percentage of PWID who reported use of heroin in the preceding six months, South Australia and Australia, 2003-2017



The median days of heroin use among recent users has decreased in South Australia, from 72 days in 2003 to 61 in 2017, and remained stable nationally (72 days in both years). Frequency of use in 2017 was highest in New South Wales (140), Western Australia (75) and Victoria (72).

The IDRS also reports on the recent use of other opioids among PWID, including injecting. Figure 10 shows that the percentage of South Australians who reported recent use of morphine has decreased since 2006, from 51% to 19% in 2017. Injecting of this drug has also decreased from 49% to 14%. In 2017, recent use of morphine (including injecting) was highest in the Northern Territory (70%) and Tasmania (43%), with 29% nationally reporting recent use and 27% injecting.

Recent use of oxycodone in South Australia by PWID has fluctuated, almost tripling between 2009 (11%) and 2012 (30%), followed by a decrease to 19% in 2017 (Figure 11). Similarly, injecting increased from 11% in 2009 to 23% in 2012, decreasing to only 9% in 2017. Nationally, recent oxycodone use was at 19% in 2017, and injecting at 13%. Recent use was highest in New South Wales and Tasmania (both 29%) as was recent injecting (26% in New South Wales and 20% in Tasmania).

Recent fentanyl use in 2016 and 2017 was quite low among PWID: 9% and 5%, respectively, in South Australia, and 10% and 9% nationally. Use was highest in New South Wales (21%) and Queensland (9%). Recent methadone injection in South Australia decreased from 25% in 2003 to 1% in 2017; and from 28% to 16% nationally. In 2017, methadone injecting was highest in Tasmania (44%) and Queensland (26%).

Figure 10: Percentage of PWID who reported use of morphine in the preceding six months, South Australia, 2003-2017

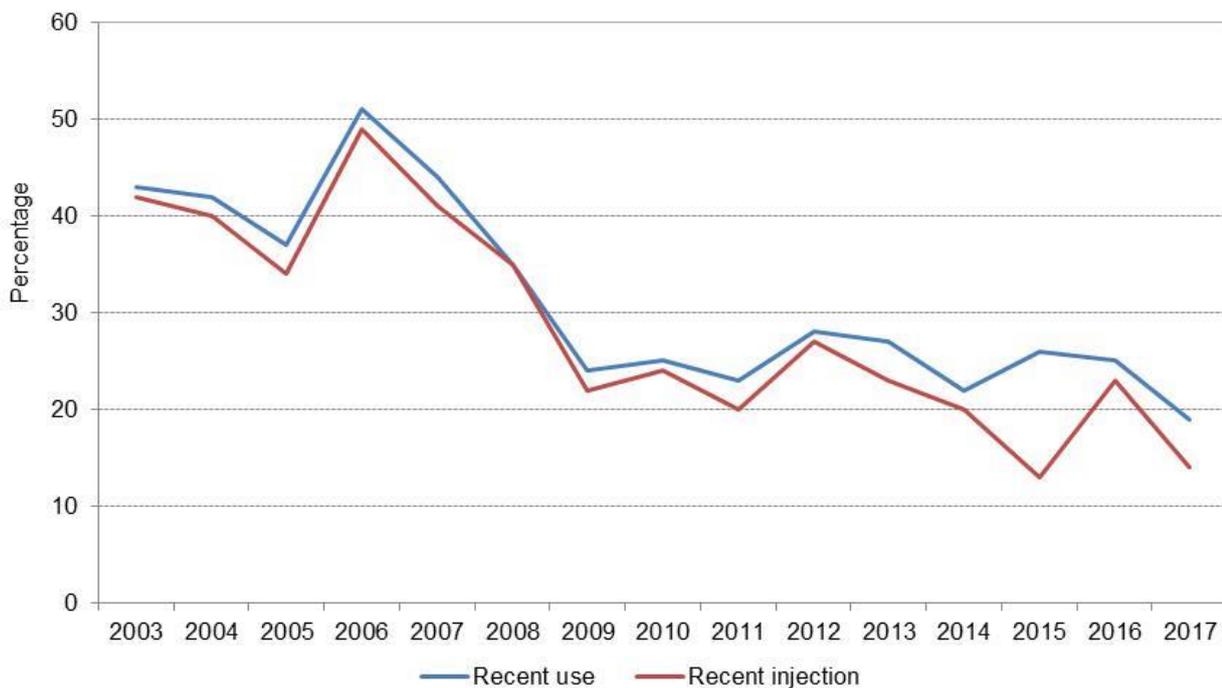
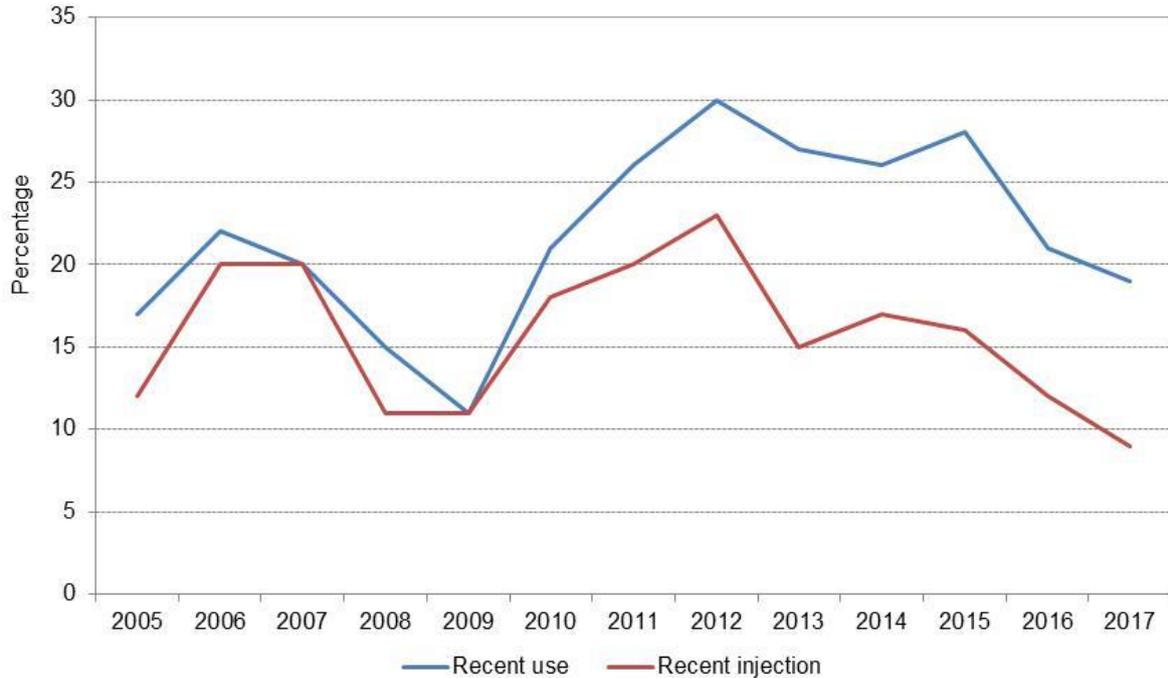


Figure 11: Percentage of PWID who reported use of oxycodone in the preceding six months, South Australia, 2005-2017

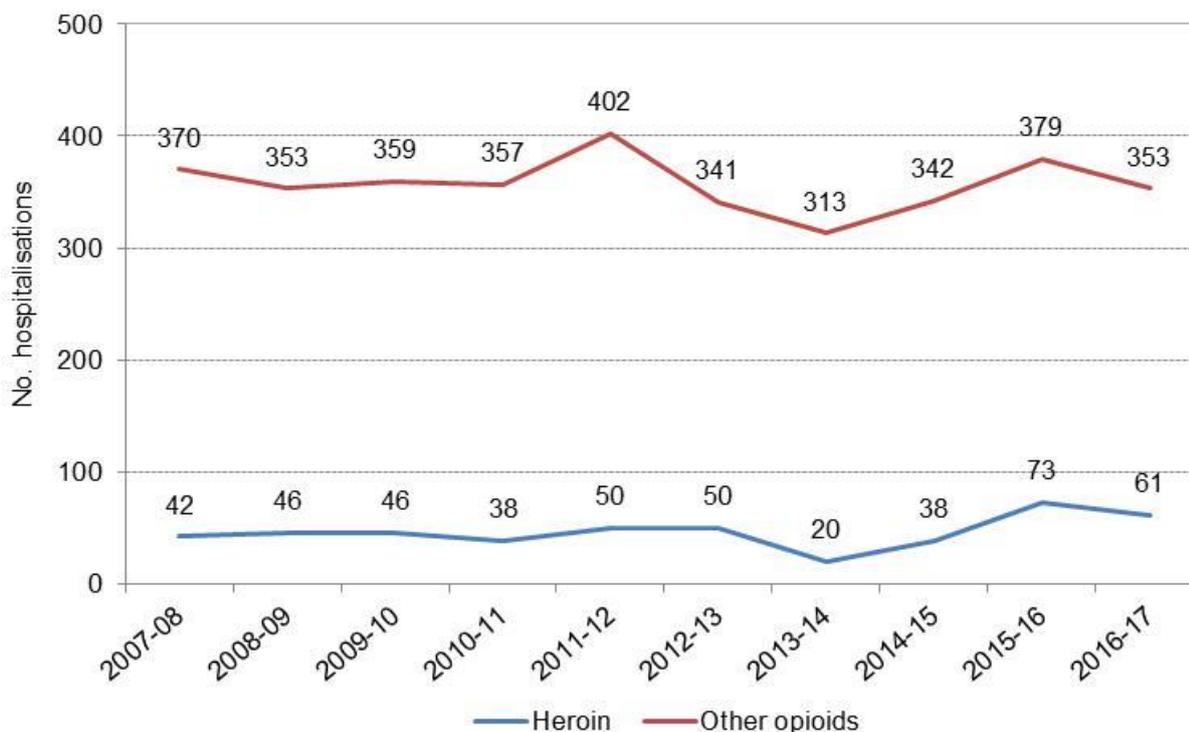


Harms associated with opioid use

Opioid-related hospitalisations

Figure 12 shows that the number of hospitalisations where the primary diagnosis related to heroin decreased between 2007-08 (42) and 2013-14 (20), followed by an increase to 61 in 2016-17. Hospitalisations for other opioids fluctuated, but overall there was a decrease between 2007-08 (370) and 2016-17 (353).

Figure 12: Number of hospitalisations where the primary diagnosis relates to heroin or other opioids*, 2007-08 to 2016-17



*Other opioids may include some heroin cases, as the ICD-10 codes for mental and behavioural disorders (F-codes) do not specify which drug is involved.

Primary diagnoses for other opioids were further broken down by ICD-10³⁹ code, see Table 1 below. There have been small decreases over time in all types, with the exception of poisonings by other synthetic narcotics (which includes fentanyl, buprenorphine and oxycodone). These increased from 40 in 2007-08 to 70 in 2016-17.

Year	Mental and behavioural disorders, F11*	Poisoning: morphine or codeine, T40.2	Poisoning: methadone, T40.3	Poisoning: other synthetic narcotics, T40.4
2007-08	125 (36)	172	33	40
2008-09	136 (26)	137	27	53
2009-10	140 (53)	146	30	43
2010-11	143 (44)	146	19	49
2011-12	169 (69)	157	20	56
2012-13	134 (44)	144	17	46
2013-14	111 (26)	147	19	36
2014-15	105 (31)	154	24	59
2015-16	115 (21)	181	25	58
2016-17	100 (22)	162	21	70

* Number in brackets refers to hospitalisations for dependence.

The National Drug and Alcohol Research Centre (NDARC) has reported opioid-related hospitalisations in Australia from 1993-2015 (based on principal diagnosis), presented as numbers per million persons aged 15-54 years⁴⁰. There were 475 opioid-related hospitalisations per million persons in Australia in 2014-15, with dependence accounting for 52% of these (67% in 2000-01). This is much higher than in South Australia⁴¹ where only 31 opioid-related hospitalisations in 2014-15 (8%) related to dependence (the majority were for morphine or codeine poisoning), but this may be due to the different age ranges used. Nationally, there has been an increase in hospitalisations due to poisoning from opioids other than heroin (including morphine, oxycodone, and codeine), 21% of all opioid-related hospitalisations in 2014-15 (7% in 2000-01). South Australian⁴² data from 2014-15

indicate that hospitalisations due to poisoning from opioids other than heroin comprised 237 (62%) of all opioid-related hospitalisations (relatively unchanged from 245 [60%] in 2007-08).

Nationally, hospitalisations for heroin poisoning comprised 9% of all opioid-related hospitalisations in 2014-15 (16% in 2000-01; South Australian data showed similar results (10% of all opioid-related hospitalisations in 2014-15⁴³).

Figure 13⁴⁴ shows that in 2014-15, opioid-related hospitalisations were highest in New South Wales (620 per million persons), followed by Queensland (503) and Tasmania (482). Conversely, rates have declined in Western Australia since 2012-13, and have fluctuated in South Australia, although rates in South Australia have primarily remained the lowest after the Northern Territory and the Australian Capital Territory.

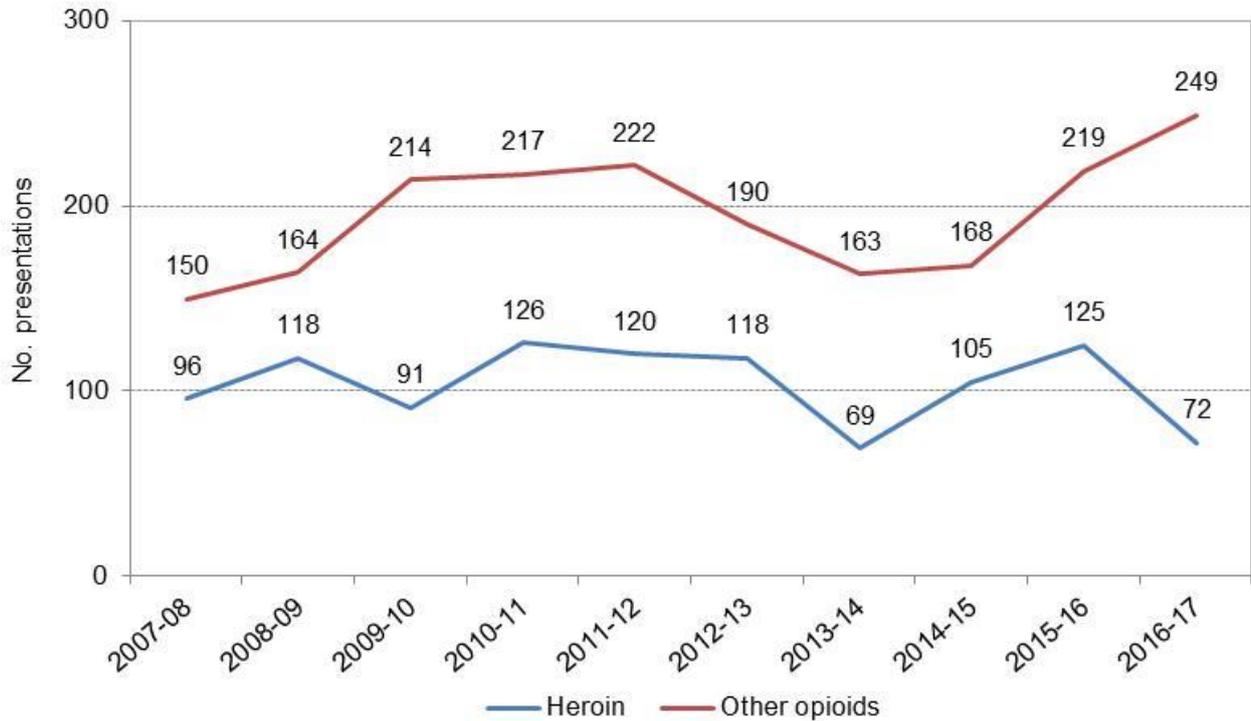
Figure 13: Rate per million persons of opioid-related hospitalisations (principal diagnosis) among persons aged 15-54 years, by jurisdiction, 2014-15



Emergency Department presentations⁴⁵

Figure 14 shows that the number of presentations to metropolitan emergency departments where the primary diagnosis related to other opioids increased between 2007-08 (150) and 2016-17 (249). Conversely, the number of presentations for heroin has decreased, from 96 in 2008-08 to 72 in 2016-17. Primary diagnoses for other opioids were again broken down by ICD-10 code, with increases in poisonings for other synthetic narcotics between 2007-08 (0) and 2016-17 (21). Presentations for mental and behavioural disorders also increased from 72 in 2007-08 to 104 in 2016-17.

Figure 14: Number of emergency department presentations where the primary diagnosis relates to heroin or other opioids*, 2007-08 to 2016-17



*Other opioids may include some heroin cases, as the ICD-10 codes for mental and behavioural disorders (F-codes) do not specify which drug is involved.

Opioid-related deaths⁴⁶

The most recent publicly available data on accidental deaths due to opioids are from 2013; the rate of accidental opioid deaths per million persons aged 15-54 years in South Australia has been similar to Australia between 1988 and 2013 (Figure 15). In 2013 there were 28 deaths in South Australia and 597 Australia wide. In 2013, the highest rate was in Western Australia (56 deaths per million persons), Victoria (52) and New South Wales (47)⁴⁷.

Despite some fluctuations, the long term trend in both South Australia and Australia has been for increases in the rate of accidental opioid deaths per million persons between 1988 and 1999, followed by a substantial drop in the early 2000s. Although there have been increases since 2003, the rates have not returned to pre-1999 levels.

Figure 15: Rate of accidental opioid deaths per million persons among 15–54 year olds, South Australia and Australia, 1988–2013

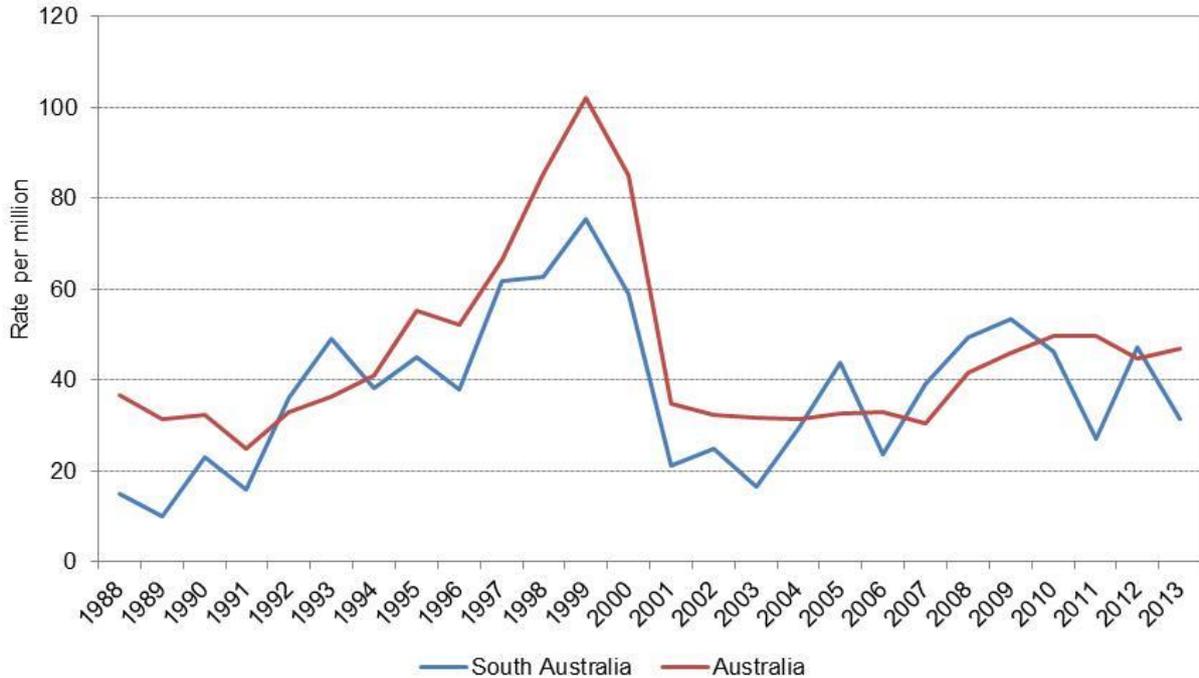
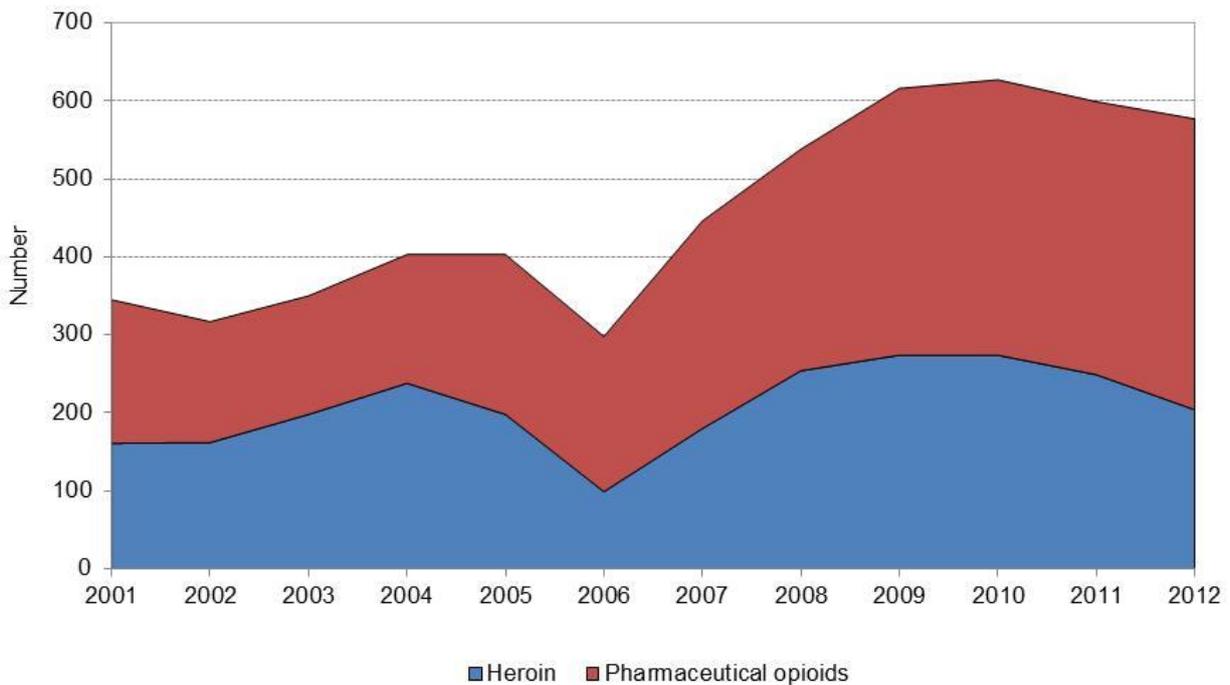


Figure 16 shows the number of accidental opioid overdose deaths in Australia by type, from 2001 to 2012. Heroin-related deaths were higher than those for pharmaceutical opioids between 2002 and 2005, after which time deaths due to pharmaceutical opioids were up to two times higher. Over the reporting period, 55% of accidental opioid overdose deaths were due to pharmaceutical opioids (3028 compared with 2491 due to heroin). For all opioid overdose deaths between 2001 and 2012 (accidental, intentional and undetermined intent), 63% were for pharmaceutical opioids, increasing from 62% in 2001 to 72% in 2012.

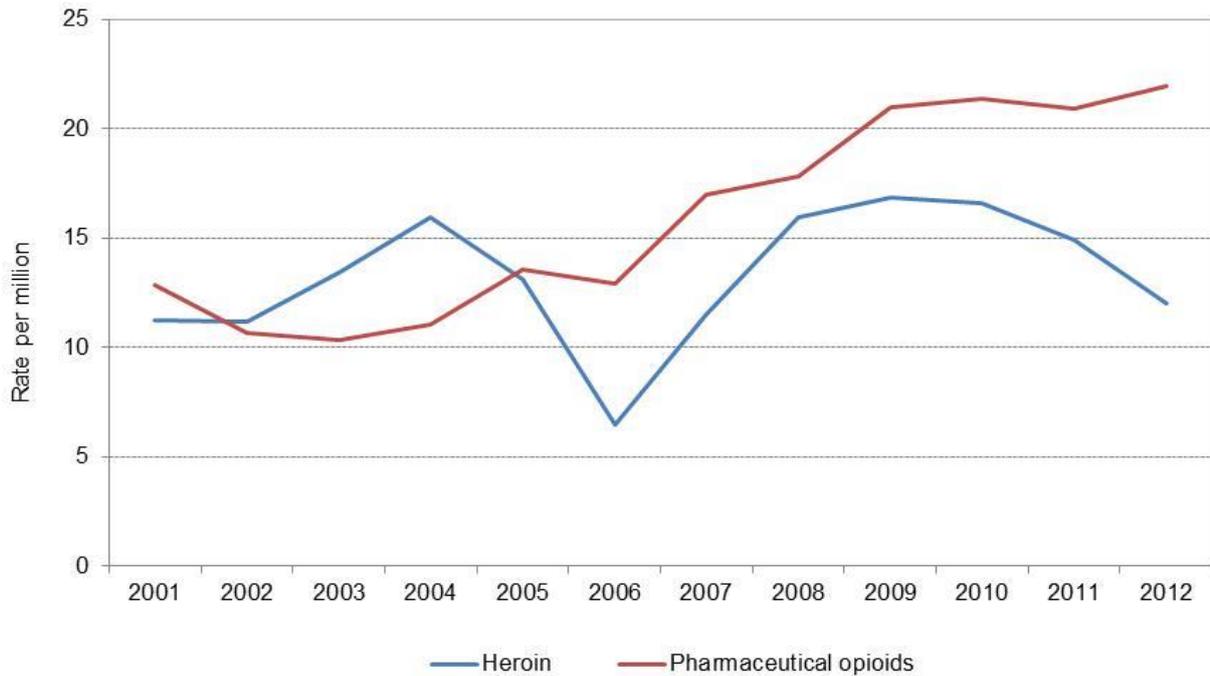
Figure 16: Number of accidental opioid overdose deaths among 15-74 year olds by opioid type*, Australia, 2001–2012



*Excludes deaths where there was not enough information to determine whether the death was due to heroin or morphine.

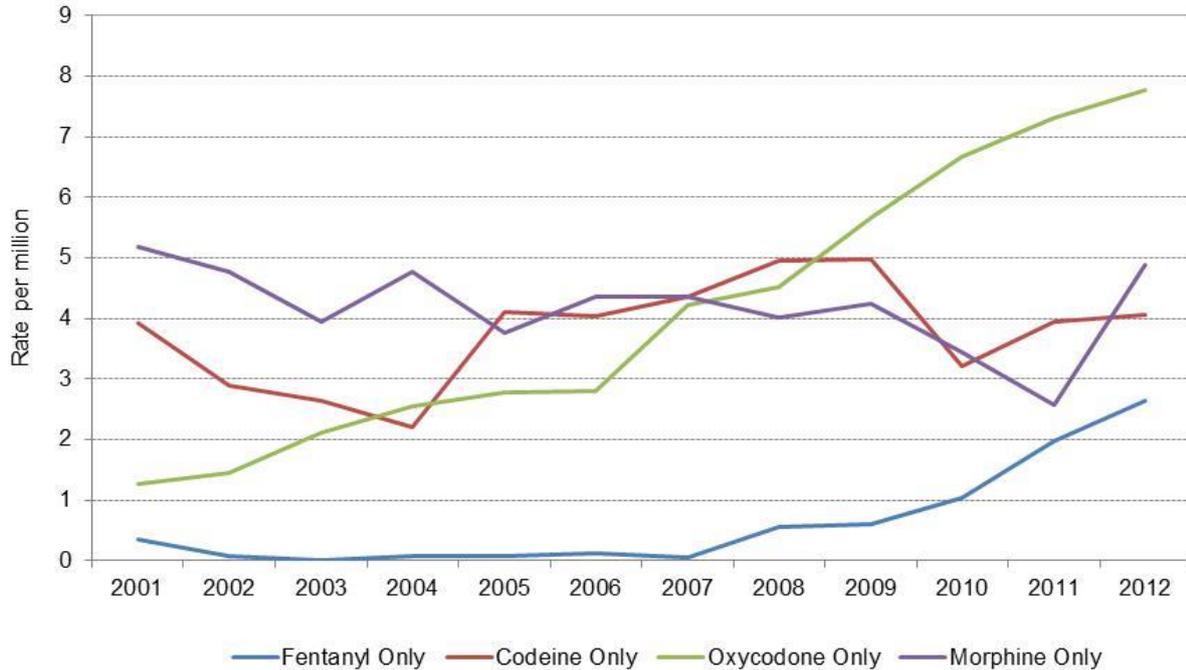
Figure 17 shows the rate of accidental opioid deaths by type. While the rate for heroin has fluctuated and the trend from 2009 is for a decrease (from 17 deaths per million persons in 2009 to 12 deaths in 2012), the rate for pharmaceutical opioids has continued to rise, from 13 deaths per million persons in 2001 to 22 in 2012. Figure 18 shows the rate of total opioid overdose deaths for fentanyl, oxycodone, codeine and morphine; where that drug alone was the underlying cause of death. The rate increased between 2001 and 2012 for oxycodone (from 1.3 to 7.8 deaths per million persons) and fentanyl (from 0.4 to 2.7 deaths per million persons). Death rates for morphine and codeine, although fluctuating over the reporting period, remained stable at five and four deaths per million persons, respectively.

Figure 17: Rate of accidental opioid deaths per million persons among 15–74 year olds, by opioid type*, Australia, 2001–2012



*Excludes deaths where there was not enough information to determine whether the death was due to heroin or morphine.

Figure 18: Rate of total opioid deaths per million persons among 15–74 year olds, by pharmaceutical opioid type*, Australia, 2001–2012



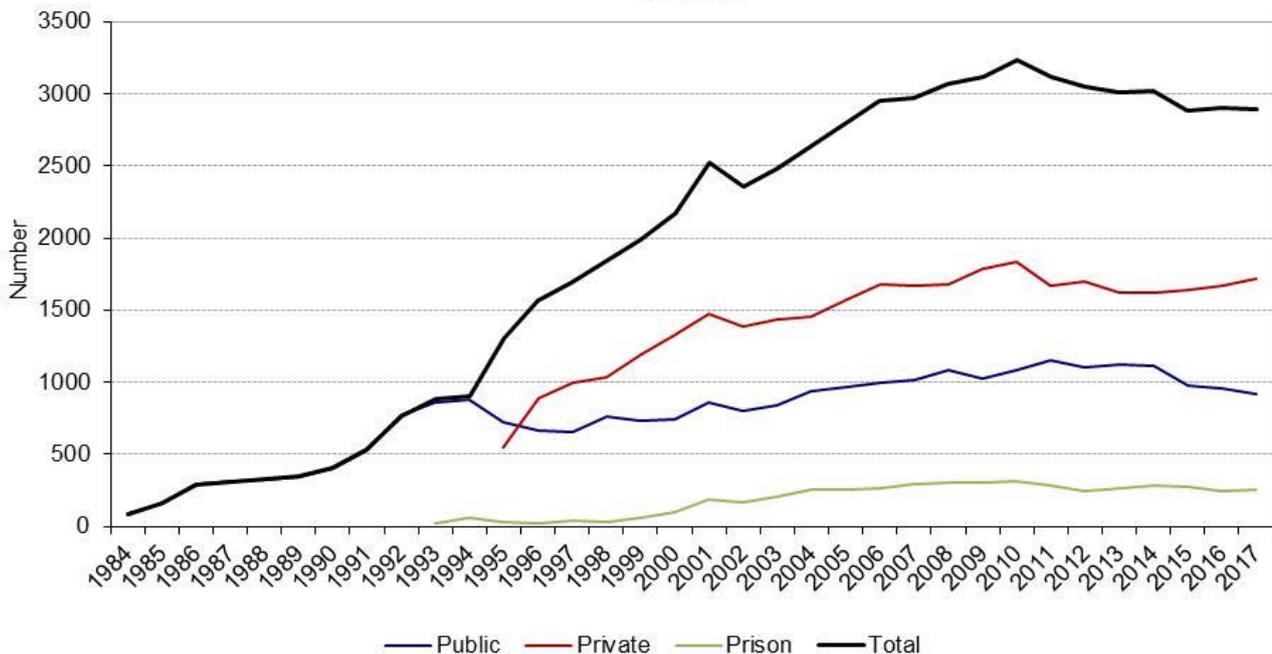
*Includes intentional deaths and deaths where intent was undetermined. Excludes deaths where there was not enough information to determine whether the death was due to heroin or morphine.

Treatment for opioid use

Opioid pharmacotherapy

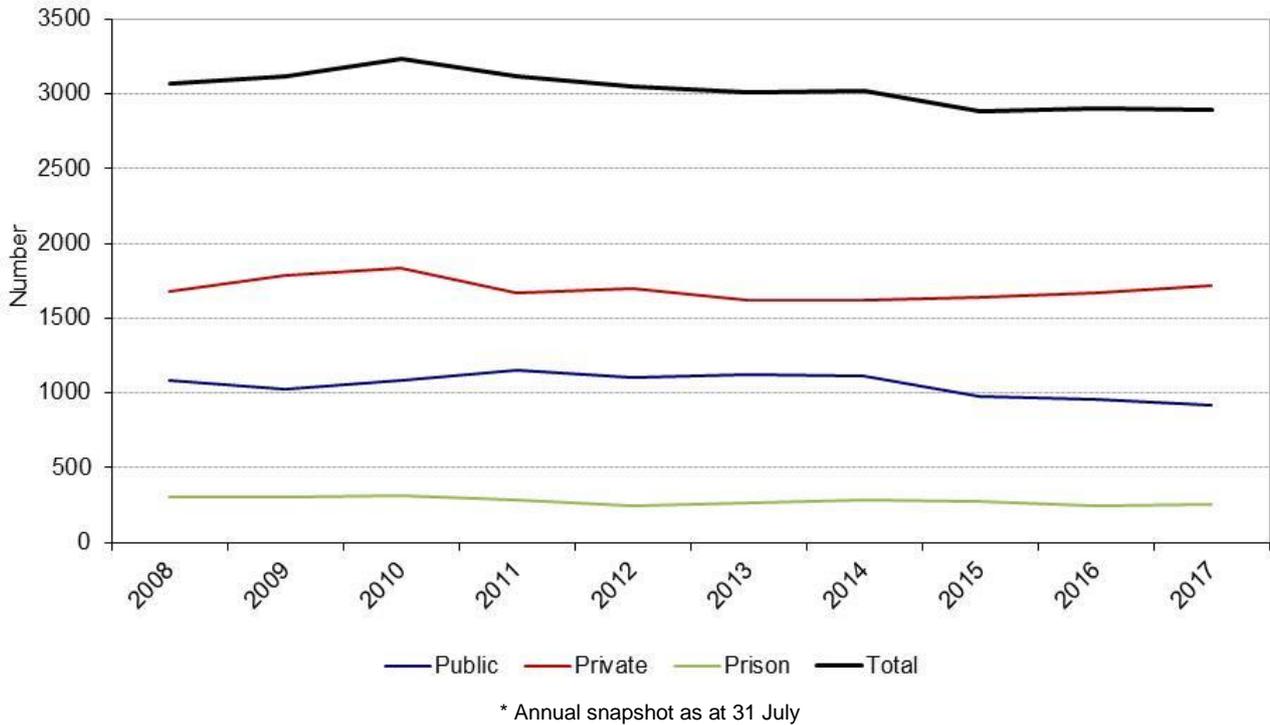
Figure 19 shows that the number of clients on the MATOD⁴⁸ program increased steadily from 1984 to 2010, primarily driven by growth in the private sector, and has levelled off since then. Decreases have occurred in the number of clients in all programs in the past 10 years except for a small increase in the number in private programs (Figure 20).

Figure 19: Number of clients on MATOD by program type, annual snapshot from 1984-2017*



* From 2006, annual snapshot as at 31 July. From 1984-2004, annual snapshot with the month not specified. Data for 2005 were not available and are estimates based on 2004 and 2006.

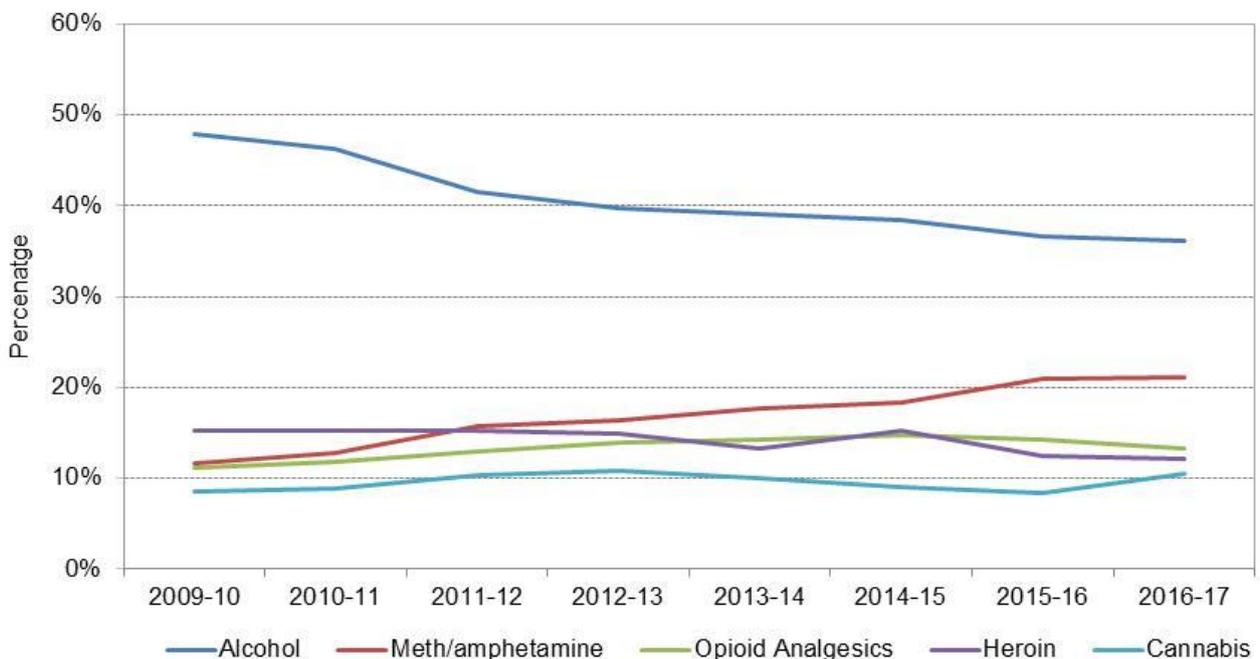
Figure 20: Number of clients on MATOD by program type, annual snapshot from 2008-2017*



Outpatient treatment

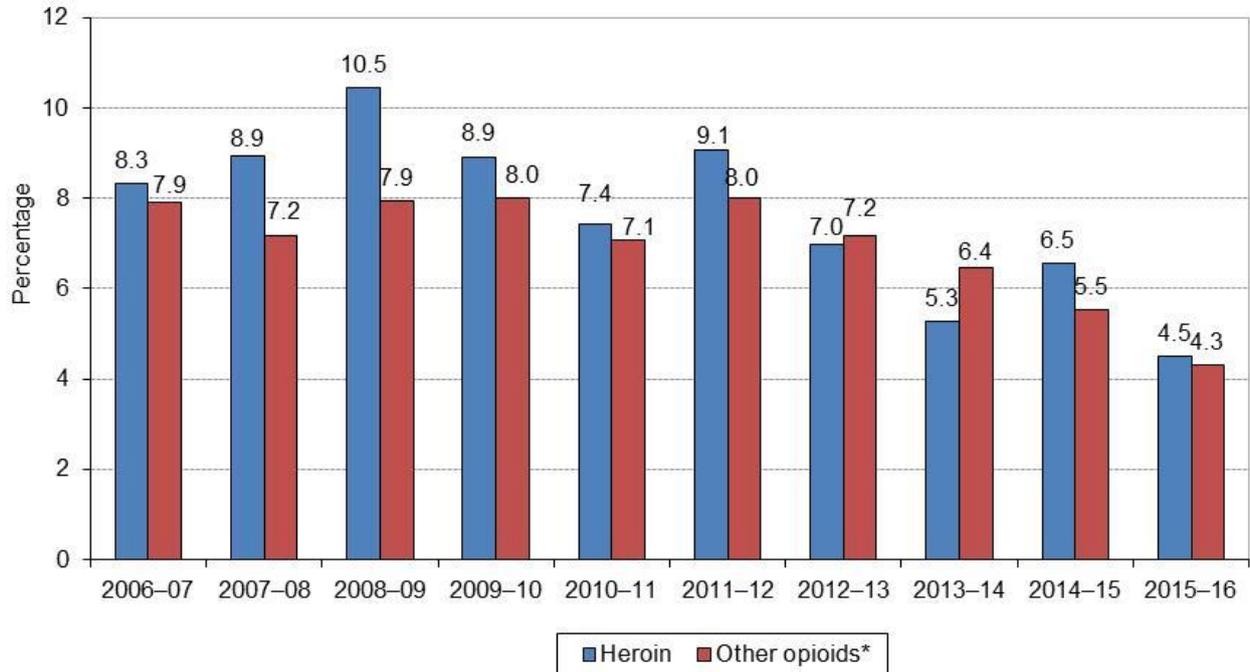
Figure 21 shows that the proportion of DASSA outpatient treatment episodes⁴⁹ where the principal drugs of concern were opioid analgesics has shown a small increase between 2009-10 (11%) and 2016-17 (13%), and the overall number has increased slightly from 858 in 2009-10 to 910 in 2016-17. There was little change for heroin between 2009-10 and 2014-15 (both 15%) but a small decrease between 2014-15 and 2016-17 (12%). The overall number has also decreased, from 1184 in 2009-10 to 766 in 2016-17.

Figure 21: Principal drug of concern for DASSA outpatient episodes of treatment, 2009-10 to 2016-17



Consistent with DASSA outpatient treatment, data from the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS-NMDS)⁵⁰ shows that there has been a decrease over time in South Australia in the proportion of closed treatment episodes for which heroin or other opioids were nominated as the principal drugs of concern, from 8.3% in 2006-07 to 4.5% in 2015-16 for heroin, and from 7.9% in 2006-07 to 4.3% in 2015-16 for other opioids (Figure 22)⁵¹.

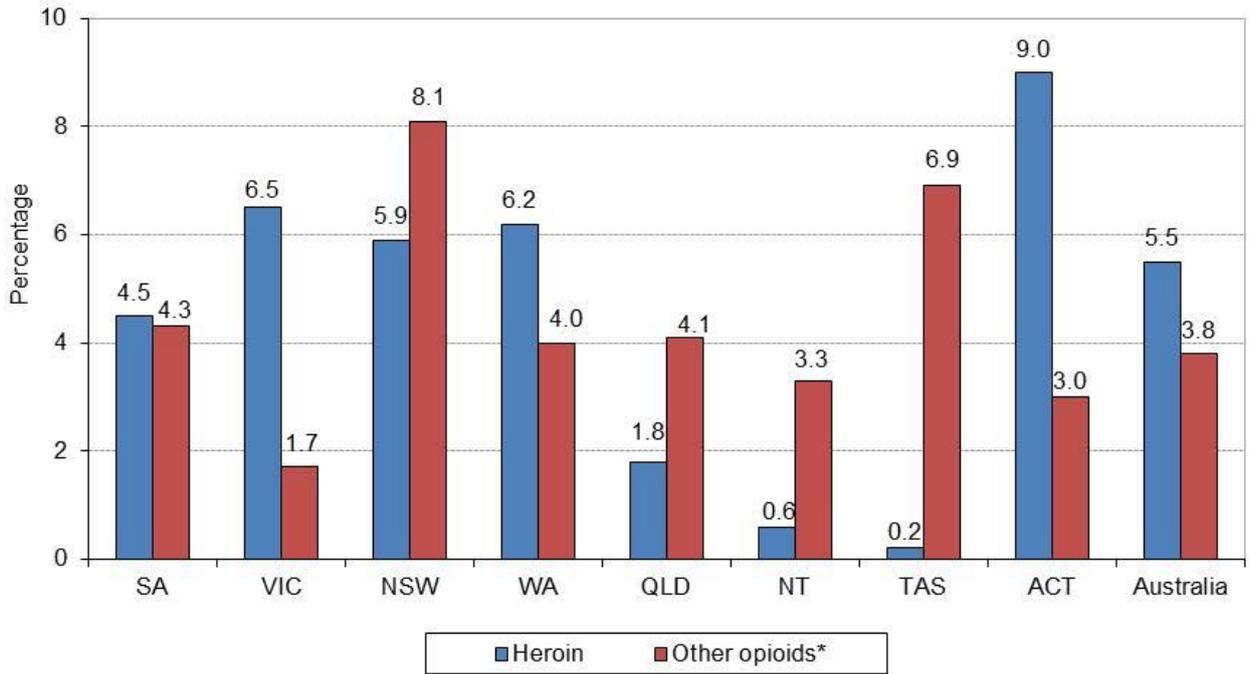
Figure 22: Percentage of closed treatment episodes where the principal drugs of concern are opioids, SA, 2006-07 to 2015-16



*Codeine, morphine, methadone, buprenorphine, oxycodone, other opioids.

The proportion of closed treatment episodes for which heroin or other opioids were nominated as the principal drugs of concern are presented in Figure 23 for all States and Territories in 2015-16. The highest proportion of closed treatment episodes where heroin was the principal drug of concern was in the Australian Capital Territory (9%), followed by Victoria (6.5%) and Western Australia (6.2%). South Australia was one of the lowest at 4.5%. The highest proportion of closed treatment episodes where other opioids were the principal drugs of concern was in NSW (8.1%) and Tasmania (6.9%), with South Australia again lower at 4.3%.

Figure 23: Percentage of closed treatment episodes where the principal drugs of concern are opioids, by jurisdiction, 2015-16



Calls to the Alcohol and Drug Information Service (ADIS)⁵²

Figure 24 shows that heroin-related calls to ADIS remained relatively unchanged over the reporting period, with 92 calls in Jul/Sep 2014 and 96 in Jul/Sep 2017. However, numbers fluctuated from quarter to quarter, with a drop of almost 50% between Jul-Sep 2014 and Oct-Dec 2014. In addition, the number of calls in 2015 was higher than seen throughout 2016. Calls about heroin make up a small proportion of total calls about specific drugs: in 2016-17, alcohol was identified as the specific drug of concern in 37% of calls, followed by 19% for methamphetamine, 12% for opioids (excluding heroin) and 3% for heroin⁵³.

Figure 24: Quarterly number of Alcohol and Drug Information Service (ADIS) calls relating to heroin, Jul-Sep 2014 to Jul-Sep 2017

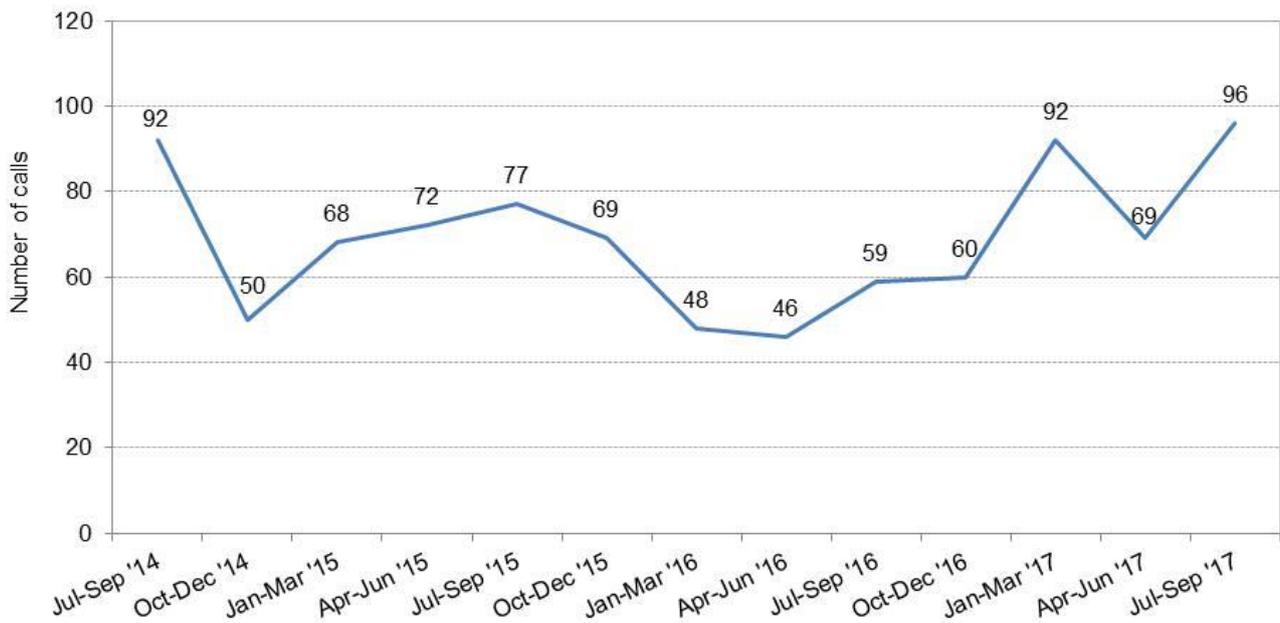
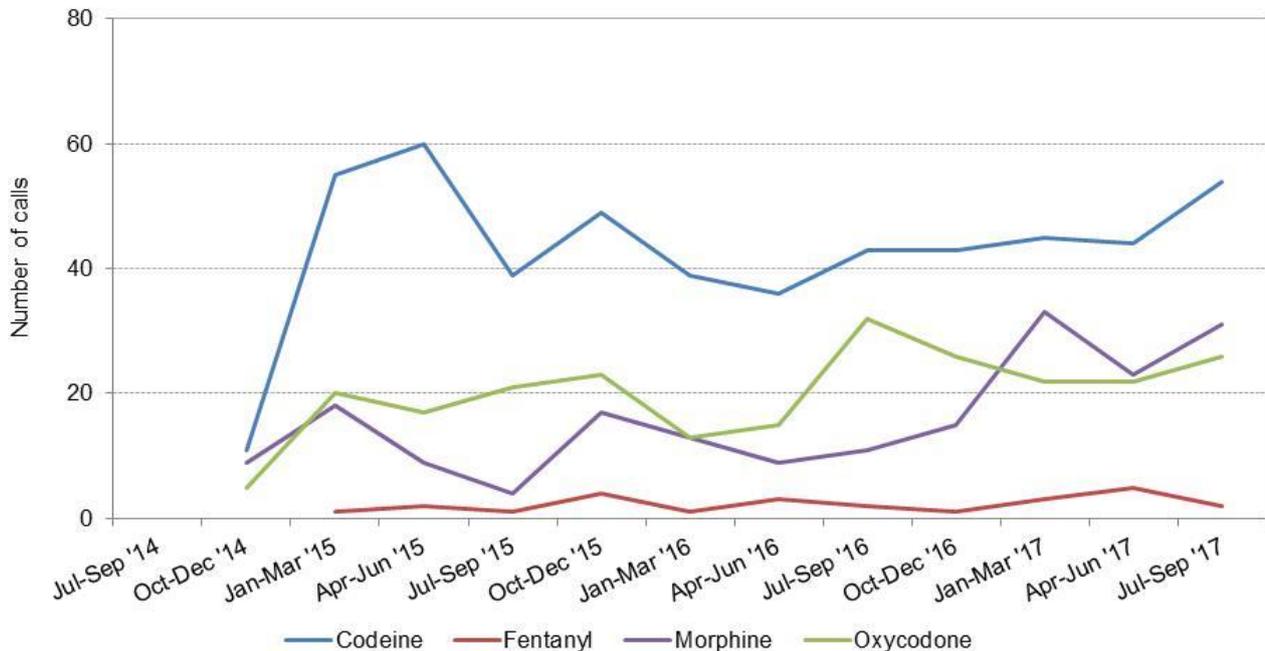


Figure 25 indicates that there have been increases over the reporting period in the number of calls for codeine (from 11 to 54), morphine (from nine to 31) and oxycodone (from five to 26). From the

Jul/Sep 2016 quarter the number of calls for codeine and morphine increased remained stable, and decreased for oxycodone. The number of calls for fentanyl is very small (five or less per quarter)⁵⁴.

Figure 25: Quarterly number of Alcohol and Drug Information Service (ADIS) calls relating to other opioids, Jul-Sep 2014 to Jul-Sep 2017



¹ This bulletin is an updated version which contains revised data from the PBS.
² <http://www.sahealth.sa.gov.au/wps/wcm/connect/Public+Content/SA+Health+Internet/Clinical+resources/Clinical+topics/Medicines+and+drugs/Opioids/>
³ Opium, morphine and heroin.
⁴ United Nations Office on Drugs and Crime, *World Drug Report 2016* (United Nations publication, Sales No. E.16.XI.7).
⁵ Afghanistan, Islamic Republic of Iran and Pakistan
⁶ United States Center for Behavioral Health Statistics and Quality, *Behavioral Health Trends in the United States: Results from the 2014 National Survey on Drug Use and Health*, HHS Publication No. SMA 15-4927, NSDUH Series H-50 (Rockville, Maryland, 2015).
⁷ Office of National Drug Control Policy, *National Drug Control Strategy: Data Supplement 2015*.
⁸ Paulozzi LJ & Xi Y. (2009). Recent changes in drug poisoning mortality in the United States by urban-rural status and by drug type. *Pharmacoepidemiology and Drug Safety*, 17; 997-1005.
⁹ Karanges, E., Blanch, B. et al. 2016. Twenty-five years of prescription opioid use in Australia: a whole-of-population analysis using pharmaceutical claims. *British Journal of Clinical Pharmacology*, 82; 255-267.
¹⁰ *Ibid*.
¹¹ Roxburgh A, Bruno R, Larance B, Burns L. (2011). Prescription of opioid analgesics and related harms in Australia. *Medical Journal of Australia*, 195; 280-284.
¹² Roxburgh A, Burns L, Drummer OH, Pilgrim J, Farrell M. & Degenhardt, L. (2016). Trends in fentanyl prescriptions and fentanyl-related mortality in Australia. *Drug and Alcohol Review*, 32; 269-275.
¹³ Degnehardt L, Gisev N, Cama E, Nielsen S, Larance B & Bruno R. (2016). The extent and correlates of community-based pharmaceutical opioid utilisation in Australia. *Pharmacoepidemiology and Drug Safety*, 25; 521-538. Data include all pharmaceutical opioid purchases made through pharmaceutical wholesalers and manufacturers who sold direct to pharmacies in 2013, representing over 94% coverage of the Australian market (page 522). Excludes hospitals.
¹⁴ Buprenorphine, codeine, dextropropoxyphene, fentanyl, hydromorphone, methadone, morphine, oxycodone, tapentadol and tramadol.
¹⁵ From 1 February 2018, medicines containing codeine will be available by prescription only, which will likely have a significant impact on OTC use.
¹⁶ Roxburgh A, Bruno R, Larance B, Burns L. (2011). Prescription of opioid analgesics and related harms in Australia. *Medical Journal of Australia*, 195; 280-284.
¹⁷ Roxburgh A, Burns L, Drummer OH, Pilgrim J, Farrell M. & Degenhardt, L. (2016). Trends in fentanyl prescriptions and fentanyl-related mortality in Australia. *Drug and Alcohol Review*, 32; 269-275.
¹⁸ Roxburgh A, Hall WD, Burns L, Pilgrim J, Saar E, Nielsen S & Degenhardt L. (2015). Trends and characteristics of accidental and intentional codeine overdose deaths in Australia. *Medical Journal of Australia*, 203(7); 299e1-299e7.
¹⁹ Information on whether drugs were prescribed was only available for 40% of codeine-related deaths.
²⁰ Roxburgh A, Hall WD, Dobbins T, Gisev N, Burns L, Pearson A, Degenhardt L. Trends in heroin and pharmaceutical opioid overdose deaths in Australia (2017). *Drug and Alcohol Dependence*, 179, 291-298.
²¹ Nielsen, S., Degenhardt, L., Hoban, B., Gisev, N., 2016.. A synthesis of oral morphine equivalents (OME) for opioid utilisation studies, *Pharmacoepidemiology & Drug Safety*, 25; 733-737.
²² Roxburgh, A. and Burns, L. (2017). *Accidental drug-induced deaths due to opioids in Australia, 2013*. Sydney: National Drug and Alcohol Research Centre.
²³ <https://www.aihw.gov.au/reports/illicit-use-of-drugs/ndshs-2016-detailed/contents/table-of-contents>
²⁴ Roxburgh, A. and Burns, L. (2017). *Accidental drug-induced deaths due to opioids in Australia, 2013*. Sydney: National Drug and Alcohol Research Centre.
²⁵ Data sources:

- **National Drug Strategy Household Survey**: a triennial survey on drug use patterns, attitudes and behaviours among respondents aged 12 years and over (Australian Institute of Health and Welfare).

- **Illicit Drug Reporting System:** a national illicit drug monitoring system intended to identify emerging trends of local and national concern in illicit drug markets. Interviews are conducted annually with people who inject drugs regularly: at least six times in the last six months (National Drug and Alcohol Research Centre: NDARC).
- **Pharmaceutical Benefits Scheme (PBS) and:** community based prescriptions from pharmacies and all SA hospitals, both private and public (Medicare).
- **Wastewater analysis:** samples from treatment plants across Adelaide are analysed bi-monthly for metabolites which indicate the level of a range of drugs, including opioids (morphine, codeine, methadone, oxycodone, fentanyl and heroin). Data from the National Wastewater Project are also included, which aimed to cover to all Australian capital cities as well as key regional centres. Drugs sampled included fentanyl and oxycodone (University of South Australia and the Australian Criminal Intelligence Commission).
- **Morbidity data:** number and rate of hospitalisations and metropolitan emergency department presentations where the principal diagnosis was for opioids (Integrated South Australian Activity Collection, ISAAC, and Emergency Department Data Collection, EDDC, unpublished data from SA Health); NDARC data on drug-related hospitalisations in Australia.
- **Mortality data:** overdose deaths (accidental and total) due to opioids (NCIS).
- **Medication Assisted Treatment for Opioid Dependence (MATOD) program:** the opioid pharmacotherapy program operating in South Australia. The program allows accredited and trained medical or nurse practitioners to prescribe methadone liquid or sublingual buprenorphine (with or without naloxone) to maintain/treat opioid drug dependence. MATOD is delivered through public providers such as DASSA, community prescribers (mostly general practitioners), and forensic prescribers. Data presented here are the number of clients by program type over time (unpublished data from the Drugs of Dependence Unit, SA Health).
- **Outpatient treatment:** treatment episodes where opioids were selected by clients as their principal drugs of concern (unpublished data from Drug and Alcohol Services South Australia, DASSA, SA Health).
- **Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS NMDS):** proportion of closed treatment episodes where opioids were the principal drug of concern (Australian Institute of Health and Welfare).
- **Alcohol and Drug Information Service (ADIS):** a confidential telephone counselling, information and referral service for the general public, concerned family and friends, students and health professionals. ADIS is staffed by trained professionals with experience in the alcohol and other drug field. ADIS also provides information about how to access other services including information about available prescribers and pharmacies. Data include the number of calls to the service for opioid analgesics (unpublished data from DASSA, SA Health).

26 Heroin, morphine, methadone, oxycodone, fentanyl and codeine. Also includes the broad categories of 'opioids', 'pharmaceuticals', and 'pan-killers/analgesics and opioids'.

27 <https://www.aihw.gov.au/reports/illicit-use-of-drugs/ndshs-2016-detailed/contents/table-of-contents>

28 Excludes over-the-counter drugs such as paracetamol and aspirin

29 In 2016, pain-killer/analgesics and opioids sections were combined into one section and references and questions about use of non-opioid over-the-counter (OTC) drugs such as paracetamol and aspirin were removed. While analyses have been undertaken to make the 2013 and 2016 data as comparable as possible, the changes to the 2016 survey has resulted in a break in the time-series for pain-killers and opiates. As the data are no longer comparable, significance testing was not undertaken between 2013 and 2016 for 'pain-killers/analgesics and opioids'.

30 *Ibid.*

31 The public report is available here:

<http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/about+us/health+and+medical+research/dassa+research+publications>

32 <https://www.acic.gov.au/publications/intelligence-products/national-wastewater-drug-monitoring-program-report>

33 Samples from regional sites were not collected in June 2017, nor were samples from Darwin and Hobart.

34 Population estimates from *ABS:3235.0 Population by Age and Sex, Regions of Australia-* for 15+ years, as at 30 June of each year. Estimates for 2017 are not yet available so those from 2016 were used. 2017 data from August-December were estimated by using the monthly average from January-July.

35 http://medicarestatistics.humanservices.gov.au/statistics/pbs_item.jsp

36 Includes formulations that contain naloxone.

37 Excludes over-the-counter codeine and may therefore underestimate consumption. It is estimated that approximately 40% of codeine used in Australia in 2013 was sold without a prescription (Gisev, N., Nielsen, S., Cama, E., Larance, B., Bruno, R., Degenhardt, L., 2016. An ecological study of the extent and factors associated with the use of prescription and over-the-counter codeine in Australia. *European Journal of Clinical Pharmacology*, 72; 469–494. Includes formulations that contain aspirin and paracetamol.

38 Stafford, J and Breen, C. 2017. *Australian Drug Trends 2016: Findings from the Illicit Drug Reporting System (IDRS)*. Australian Drug Trends Series No. 163, Sydney, National Drug and Alcohol Research Centre, University of New South Wales. <https://ndarc.med.unsw.edu.au/resource/illicit-drug-reporting-system-idrs-2017-key-findings> Note that data are based on self-report.

39 ICD-10 is the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD), a medical classification list by the World Health Organization (WHO). It contains codes for diseases, signs and symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or diseases.

40 Roxburgh, A. and Breen, C (2017). Drug-related hospital stays in Australia, 1993-2015. Sydney: National Drug and Alcohol Research Centre, University of New South Wales.

41 DASSA Analysis from ISAAC.

42 *Ibid.*

43 *Ibid.*

44 Raw data were not available for NT and ACT, but in 2014-15, the rate in the NT is lower than in SA, and the ACT is slightly higher.

45 Note that ED data are less reliable than hospitalisations data due to inconsistencies and inaccuracies in diagnosis coding, both between and within hospitals.

46 Roxburgh, A. and Burns, L. (2017). *Accidental drug-induced deaths due to opioids in Australia, 2013*. Sydney: National Drug and Alcohol Research Centre; Roxburgh A, Hall WD, Dobbins T, Gisev N, Nurns L, Pearson A, Degenhardt L. Trends in heroin and pharmaceutical opioid overdose deaths in Australia (2017). *Drug and Alcohol Dependence*, 179, 291-298.

47 Data for NT and ACT are excluded; for confidentiality reasons, data are missing from 2005. In 2013, data are also missing in Tasmania.

48 <http://www.sahealth.sa.gov.au/wps/wcm/connect/Public+Content/SA+Health+Internet/Clinical+resources/Clinical+programs/Programs+for+the+prescribing+and+supply+of+medicines/Medication+Assisted+Treatment+for+Opioid+Dependence+MATOD+Program/>

49 Note decreasing proportions of alcohol and increasing proportions of meth/amphetamine as the principal drug of concern.

50 Treatment data are provided by publicly funded alcohol and drug treatment service across Australia The forms of treatment include withdrawal management, counselling, rehabilitation, pharmacotherapy, case management, information/education and assessment.

Includes all clients assessed and/or accepted for one or more types of treatment for their own, or another person's, alcohol and other drug problem from an AOD treatment service. A closed treatment episode refers to a contact period between a client and a service provider that has a defined start and end date. A client may be involved in more than one type of treatment episode at any one time (or may have more

than one treatment episode of the same treatment type within the counting period) therefore the number of closed treatment episodes counted by the AODTS-NMDS does not equate to the number of individuals who have received treatment in any one year.

51 There has been an increase over time in the number of episodes where amphetamines are the principal drugs of concern, without a significant increase in the total number of episodes. These data may therefore be reflective of the increased demand for services for amphetamines, rather than a decrease in demand for opioids. The high proportion of episodes of treatment where amphetamines are the principal drug of concern in South Australia is partly due to the data including assessment under the Police Drug Diversion Initiative. This program is legislated in South Australia, unlike other jurisdictions, and therefore results in a much higher percentage of assessment only services and a very high rate of engagement with amphetamine users. In addition, due to the Cannabis Expiation Notice legislation in South Australia, adult simple cannabis offences are not diverted to treatment and so are excluded from the data.

52 Data on specific drugs prior to 2014-15 were not available.

53 Alcohol and Drug Information Service (ADIS), SA Health.

54 There were no calls recorded for these drugs in the July/September 2014 quarter.