PENINGTON INSTITUTE

AUSTRALIA'S ANNUAL OVERDOSE REPORT

2019

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Contents

Contents continued

List of figures

Figures (continued)

Figures (continued)

List of tables

1.   Foreword

John Ryan
CEO
Penington Institute

I am proud to present Australia's Annual Overdose Report 2019. This report is unique: no other organisation publishes regular, public, detailed monitoring of drug-induced deaths across Australia.

The rise in overdose deaths is linked to a range of highly potent drugs, including strong pharmaceutical painkillers and very pure crystal methamphetamine. The use of multiple drugs at once – often including alcohol and pharmaceutical sedatives like benzodiazepines – is further raising risk levels.

Among other things, this report is a chronicle of the immense economic and social cost of unintentional overdose deaths in Australia.

Deaths due to unintentional injuries and mental disorders (which includes drug and alcohol dependence) are two of the costliest types when measured in terms of productivity loss. A death due to unintentional injuries has been estimated to incur a productivity loss of $595,000[1]. Based on the findings of this report, that means that the 1,612 unintentional overdose deaths cost our economy almost $1 billion in 2017 alone.

But the economic costs can never adequately convey the human cost of a fatal overdose.

The effects of overdose are profound. Every death is a preventable tragedy that creates a years-long ripple effect.

The numbers in this report are compelling, but they're just the beginning. While every Australian whose death is recorded here can no longer tell their story, decision-makers, practitioners, researchers, family members and local communities know that we can prevent more overdose deaths.

The report makes plain the urgent need for action as Australia's overdose risk profile continues to diversify.

There is no simple solution, but fortunately, Australia doesn't have to start from scratch – there's already ample evidence on how to make overdose less frequent and less fatal. Community-wide and targeted education to potential overdose witnesses, expanded access to drug treatment including opioid agonist therapy, improved access to the opioid reversal drug naloxone, pain management and allied health will all help. Localised interventions for regional and rural communities that are community-led and based on partnership should also be expanded.

Initiatives like real-time prescription monitoring might help, if they're implemented in a way that increases, rather than restricts, access to health services. If we just rely on supply-side interventions, patients may attempt to treat their pain or withdrawal symptoms with illicit opioids like heroin.

Australia's Annual Overdose Report 2019 makes plain that the need for action is only becoming more urgent.

The options are there, at our disposal, to reduce the number of overdose deaths.

For every day that we fail to take them, Australians will die unnecessarily.

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[1] Carter, H. E., Schofield, D., & Shrestha, R. (2017). The long-term productivity impacts of all cause premature mortality in Australia. *Australian and New Zealand journal of public health, 41(2)*, 137-143.

2.   Executive summary

The number of Australians who die from unintentional drug overdose each year continues its long-term rise. This report examines drug-induced deaths, where the death is directly attributable to the drug use, with a focus on unintentional-drug induced deaths[1]. This report presents key statistics about unintentional drug-induced deaths in Australia from 2001 to 2017, with a snapshot of 2017 data provided in Figure 1.

Opioids (including both pharmaceutical opioids and heroin) continue to be the primary drug group associated with unintentional drug-induced deaths, though there have been significant changes in the types of opioids since 2001. While deaths involving pharmaceutical opioids have continued to rise, and comprise the largest proportion of deaths involving opioids, there have been dramatic rises in deaths involving heroin since 2012.

Benzodiazepines remain the second most common group of drugs identified in unintentional drug-induced deaths, behind opioids, though these are predominantly identified in poly-substance overdose deaths. Since 2013 there has been a significant increase in unintentional drug-induced deaths involving benzodiazepines in both Western Australia and Victoria, and to a lesser extent, New South Wales.

There has been a sharp rise in deaths involving stimulants (including methamphetamine) in Australia since 2012, which is seen in both regional and urban areas.

Deaths involving other prescription medications – such as anti-convulsant medications used as treatment for neuropathic pain, and anti-psychotics – have increased markedly in the last few years, although they account for only a small proportion of all unintentional drug-induced deaths.

Drug-induced death is not confined to either illegal drugs or those taken as medicines; alcohol may also be involved in unintentional drug-induced deaths. When used in conjunction with other drugs, alcohol may contribute to a fatal overdose, or rarely, be the sole cause of an unintentional drug-induced death. Up until recently, alcohol was the third most common drug involved in unintentional drug-induced deaths, though it has recently been surpassed by stimulants.

While a single drug may be identified in an unintentional drug-induced death, it is rare for a death to be attributable to toxicity from a single drug; deaths involving multiple drugs are the norm rather than the exception. Poly-drug deaths involving four or more substances have increased significantly in recent years.

While drug use is commonly associated with younger people, this report shows that it is middle-aged Australians (30-59 years) who have the highest incidence of unintentional drug-induced mortality. Further, the gap between this middle-aged cohort and Australians under-30 or over-60 has expanded in the last fifteen years and continues to widen. Unintentional drug-induced deaths overall are more prevalent among men, with the number of deaths for males increasing more rapidly than for women in recent years. Similarly, the rate of unintentional drug-induced death remains higher for Aboriginal Australians than for non-Aboriginal Australians, and this gap is widening. Finally, unintentional drug-induced deaths occur across all socio-economic areas, with small differences in prevalence observed between the most advantaged neighbourhoods and the most disadvantaged neighbourhoods.

Drugs and overdose also tend to be associated with urban areas; the data, however, reveal that the highest growth in unintentional drug-induced deaths is occurring in regional settings, away from capital cities. This trend poses significant challenges for responding to overdose, as regional areas tend to have less access to drug treatment and support services and may have longer delays in ambulance attendance.

Penington Institute has compiled this report based on data from the Australian Bureau of Statistics (ABS).

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[1] Unintentional drug-induced deaths includes drug overdoses, wrong drugs given or taken in error, and accidental poisoning due to drugs. Drug-induced deaths deemed homicidal, suicidal or of undetermined intent are not included in unintentional drug-induced deaths.

Figure 1 – Number and characteristics of unintentional drug-induced deaths in 2017

Unintentional drug-induced deaths in 2017

Drugs

Opioids
Benzodiazepines
Stimulants Alcohol
Cannabinoids
Antipsychotics
Anticonvulsants
Cocaine

Most common drugs involved

Age

30-59: 71.6%
Under 30: 9.4%

Deaths are most prevalent among 30-59 year olds

1612 DEATHS

Wealth

Overdose deaths affect people from both poor and wealthy neighbourhoods

Aboriginality

Aboriginal Australians more than three times as likely to die from overdose

Sex

Twice as many men as women

2.1.   Key findings

The key findings of the report are as follows:

There were 1,612 unintentional drug-induced deaths in Australia in 2017, accounting for almost three-quarters (74.6%) of all drug-induced deaths.

• This equates to more than four unintentional drug-induced deaths per day in 2017, or one death every 5.4 hours. It is anticipated that these numbers will rise as cases are finalised through the coronial system.

• Opioids were the drug group most commonly identified in unintentional drug-induced deaths in 2017 (involved in 904 deaths), followed by benzodiazepines (involved in 583 deaths) and stimulants (involved in 417 deaths).

• Unintentional deaths were most common among the 40-49 age group, which accounted for 27.9% of all unintentional drug-induced deaths in 2017. Fewer than one in ten (9.4%) deaths recorded was among those aged under 30.

• Males were more than twice as likely as females to suffer an unintentional drug-induced death in 2017, accounting for 71.5% of deaths.

• Aboriginal people were more than three times as likely to die from an unintentional drug-induced death in 2017, with a rate of deaths of 19.2 per 100,000 population, compared with 6.2 deaths per 100,000 population for non-Aboriginal people.

The gap between unintentional drug-induced deaths and the road-toll continues to widen.

• Unintentional drug-induced deaths are increasing by 3.4% per year, based on trends from the 2001-2017 period. If nothing is done to alter this trend, it will equate to an additional 393 drug-induced deaths by 2022, of which 293 will likely be unintentional. In contrast, the road toll has decreased on average by 2.2% per year, equating to 131 fewer deaths by 2022 (Figure 2).

• In 2017, 1,612 people died from unintentional drug-induced overdoses in Australia, compared to 1,246 people who died on our roads.

The number of unintentional drug-induced deaths has increased significantly over the past 15 years, from 981 in 2001 to 1,612 in 2017.

• From 2001 to 2017, the population of Australia increased by 27.8%. During the same period, the number of unintentional drug-induced deaths increased by 64.3% (Figure 7).

• Opioids continue to be the most commonly identified drug group in unintentional drug-induced deaths, and the number of unintentional drug-induced deaths involving opioids has increased by 144% over the last 15 years (Figure 9).

• There are significant increases in deaths involving stimulants, cannabinoids, anti-convulsants (used to treat neuropathic pain) and anti-psychotics (Figure 9). In the last 15 years, unintentional drug-induced deaths involving stimulants have increased 11-fold. Recent trends have emerged involving anti-psychotic and anti-convulsant medications; in the last three years there has been a 6-fold increase in deaths involving anti-psychotics, and in the last two years a 5-fold increase in deaths involving anti-convulsants.

• Poly-drug use underlies many of these deaths, and deaths where four or more substances were detected are increasing dramatically (Figure 15). The number of unintentional drug-induced deaths that involve four or more substances has almost trebled, from 163 in 2013 to 445 in 2017. In comparison, deaths involving the detection of a single drug, or the detection of alcohol on its own, have not significantly increased over time.

The increase in unintentional drug-induced deaths is more pronounced among some parts of the community.

- Since 2001, the number of unintentional drug-induced deaths has increased significantly among people aged 30-59 (from 540 to 1,154 in 2017, an increase of 113.7%), but has decreased among those aged under 30 (from 248 to 151 in 2017, a decrease of 39.1%) (Figure 10).

- Since 2012, the number of unintentional drug-induced deaths among males increased by 41.7%, while the number of deaths among females increased by 8.5% (Figure 11).

- The rate of unintentional drug-induced death among Aboriginal people has been higher than the rate among non-Aboriginal people for the last 15 years, has been increasing since 2009, and was 19.2 deaths per 100,000 people in 2017 (Figure 12).

- Since 2011, the rate of unintentional drug-induced deaths in regional parts of Australia has surpassed the rate seen in capital cities (Figure 14). From 2011 to 2017 the rate of unintentional drug-induced deaths in rural and regional Australia has increased by 24%, compared to an increase of 5% in capital cities.

The number of unintentional drug-induced deaths involving opioids has increased consistently since 2006.

- The number of unintentional drug-induced deaths involving opioids has more than trebled in the last 10 years, increasing from 338 in 2006 to 904 in 2017 (Figure 16).

- Sharp increases have been observed in the last five years in the number of unintentional deaths involving heroin and oxycodone / morphine / codeine (Figure 16). Since 2013, the number of deaths involving heroin has increased from 195 to 358 – an 83.6% increase. Similarly, the number of deaths involving oxycodone / morphine / codeine has increased from 269 to 344; a 27.9% increase.

- While unintentional drug-induced deaths involving heroin are most common among 30-39 year-olds (519 deaths from 2013-2017), deaths involving pharmaceutical opioids are most common in the 40-49 age group (817 deaths from 2013-2017) (Figure 18).

- In the capital cities, the number of unintentional drug-induced deaths involving heroin has increased dramatically since 2014 (from 156 to 271 in 2017) and has now overtaken the number of deaths involving oxycodone / morphine / codeine (221 in 2017). In contrast, unintentional drug-induced deaths involving opioids outside of capital cities continue to be dominated by oxycodone / morphine / codeine (123 deaths in 2017) (Figure 20).

- Unintentional drug-induced deaths involving heroin are highest in Victoria: rates of unintentional drug-induced deaths involving heroin have increased by 225% in Victoria since 2012 (from 0.8 to 2.6 deaths per 100,000 population) (Figure 17), with a particularly high increase of 343% (from 0.7 to 3.1 deaths per 100,000 population) observed in regional Victoria over the same period (Figure 37).

The number of unintentional drug-induced deaths involving benzodiazepines has continue to rise overall.

- Since 2013, the increase in the rate of unintentional drug-induced deaths involving benzodiazepines has been most evident in Western Australia (from 1.1 to 3.8 deaths per 100,000 population) and Victoria (from 1.8 to 3.1 deaths per 100,000 population) (Figure 22).

- The number of unintentional drug-induced deaths involving benzodiazepines over the period 2013-2017 was highest among people aged 40-49 (accounting for 32.6% of deaths involving benzodiazepines), followed by those aged 30-39 (29.4% of deaths involving benzodiazepines) (Figure 23).

- Males accounted for two-thirds of unintentional drug-induced deaths involving benzodiazepines in the period 2013-2017 (1,630 deaths, 66.1%) compared with 836 deaths among females (Figure 24).

The number of unintentional drug-induced deaths involving stimulants has increased sharply since 2012.

- There were 417 unintentional drug-induced deaths involving stimulants in 2017, up from 139 in 2012 – an increase of 200%.

- The rate of unintentional drug-induced deaths involving stimulants has increased since 2012 in both capital cities (by 183%) and regional areas (by 167%) (Figure 29).

- From 2013 to 2017, males accounted for three-quarters of unintentional drug-induced deaths involving stimulants (1,200 deaths, 75.8%), compared with 383 deaths among females (Figure 28).

The rate of unintentional drug-induced deaths involving anti-convulsants and anti-psychotics has increased markedly in recent years.

- While the overall number of unintentional drug-induced deaths involving anti-convulsants is low (67 deaths in 2017, representing just 4.2% of all unintentional drug-induced deaths), the rate of unintentional drug-induced deaths involving anti-convulsants has increased markedly since 2015 (11 deaths in 2015) (Figure 30).

- Rates of unintentional drug-induced deaths involving anti-psychotics have also increased markedly since 2014 (when there were 28 deaths involving anti-psychotics) to 192 such deaths in 2017, representing 11.9% of all unintentional drug-induced deaths (Figure 32).

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3.   Explanatory notes and definitions

The report examines drug-induced deaths, where the death is directly attributable to the drug use, with a primary focus on unintentional drug-induced deaths. The following sections explain the data definitions and methods used to compile this report.

3.1.   Source of data

This report is about drug-induced deaths in Australia, with a focus on unintentional drug-induced deaths. Drug-induced deaths are where the death was directly attributable to the drug use, as opposed to deaths where a drug was found to be a contributory factor (such as a car crash where the deceased was found to be affected by drug or alcohol intoxication at the time of death). Drug-induced deaths may be caused by a range of intents, including unintentional overdose, suicide, homicide, and undetermined intent[1]. This report primarily focuses on unintentional drug-induced deaths, which includes drug overdoses, and accidental poisoning due to drugs. Drug-induced deaths that were deemed homicidal, suicidal or of undetermined intent are not included in unintentional drug-induced deaths. It is important to note that the drugs identified in this report are associated with a drug-induced death, but may not be the sole cause of death. Indeed, it is rare for a single drug to be the sole cause of death. This issue is discussed in more detail in section 3.5.1.

This report is based on cause of death information, which is certified by doctors or coroners (as the case requires), collected by state and territory governments, and validated and compiled by the Australian Bureau of Statistics (ABS). Unless otherwise referenced, data in this report were sourced from the ABS in a customised report provided in May 2019. Full explanatory notes for cause of death data are available on the ABS website[2].

3.2.   Preliminary Data

In Australia, all drug-induced deaths must be reported to a coroner (as with any sudden or unexpected death, or where a medical practitioner is unwilling or unable to provide a cause of death). These investigations can, in some instances, take several years. Therefore, the first available data are preliminary; they are then revised the following year, and then finalised the year after that.

In Penington Institute's 2018 Overdose Report, the data for 2015 were revised, the data for 2016 data were preliminary, and the data for 2017 were not yet available. In the current 2019 report, data for 2015 are finalised, data for 2016 are revised, and data for 2017 are preliminary. This means that 2016 and 2017 data are likely to increase in subsequent reports, as cases progress. This also means that, in this report, the data for 2015 and 2016 will appear different from the 2018 Penington Institute report.

Table 1 illustrates the status of the data in this year's report and in reports from the previous two years.

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[1] ABS (2017) 'Drug Induced Deaths in Australia: A changing story', *Australian Bureau of Statistics*: www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2016~Main%20Features~Drug%20Induced%20Deaths%20in%20Australia~6
[2] ABS (2017) '3303.0 - Causes of Death, Australia, 2015', Australian Bureau of Statistics: http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3303.0Explanatory%20Notes12015?OpenDocument

Table 1: Status of data, 2014-2017.

2017 report		2014 - revised	2015 - preliminary	
	All drug-induced deaths	2,043	2,023	
	Unintentional drug-induced deaths	1,490	1,489	
2018 report		2014 - finalised	2015 - revised	2016 - preliminary
	All drug-induced deaths	2,068	2,144	2,177
	Unintentional drug-induced deaths	1,513	1,604	1,704
2019 report		2015 - finalised	2016 - revised	2017 - preliminary
	All drug-induced deaths	2,178	2,231	2,162
	Unintentional drug-induced deaths	1,612	1,728	1,612

Current numbers for 2016 and 2017 should be considered preliminary. Based on past reporting, the number of deaths for 2016 and 2017 is expected to rise. Comparing data between the 2017, 2018 and 2019 reports, numbers typically increase by approximately 8% as they move from preliminary to finalised. The increase from preliminary to revised is typically larger than the subsequent increase from revised to finalised.

In graphs depicting a time-series, data not yet finalised (2016 and 2017) are represented as being to the right of a dashed vertical line on the graph.

3.3. Definitions

These definitions are based on the data provided by ABS, summarised as per ICD-10 coding[1].

Drug: for the purpose of this report includes illicit drugs, pharmaceutical products, alcohol, and other substances with a psychoactive effect that may be licit, illicit or of undetermined legal status. It is important to note that ABS may report drug-induced deaths and alcohol-induced deaths separately, however, for the purpose of this report, alcohol is included as a drug. Tobacco is not included in this definition.

Drug-induced death means a death caused directly by drug use, due to all intents (i.e. homicide, suicide, accidents and undetermined intent). This may include a range of specific causes of death and clinical states which broadly fall into either drug poisoning or mental and behavioural disorders due to psychoactive substance use. The definition excludes deaths indirectly related to drug use, such as where drugs may have played a contributory role (e.g. in a fatal traffic crash).

Unintentional drug-induced deaths means drug-induced deaths determined to be unintentional by legal rulings. This includes deaths resulting from exposures to drugs or pharmaceuticals where harm or death was not the primary intent, accidental overdose of a drug, wrong drug given or taken in error, drug taken inadvertently, misadventures in the use of drugs, medicaments and biological substances in medical and surgical procedures, or where a harmful amount of drug is taken in error with therapeutic intent resulting

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[1] World Health Organisation (2015). International Statistical Classification of Diseases and Related Health Problems 10th Revision: https://icd.who.int/browse10/2015/en

in overdose. This does not include circumstances where the correct drug was properly administered in a therapeutic dose, when death is caused by an adverse effect.

The definition of "drug" is consistent with the inclusions first defined (for example, it does not include accidental poisoning due to pesticides or organic solvents or carbon monoxide)

Road traffic crashes include all deaths due to road-related crashes, involving trucks, cars, buses, pedestrians, motorbikes and cyclists. This is referred to as the "road toll".

Car crashes means persons who died as occupants of a car involved in a collision or crash.

3.3.1. Description of drug groups

These are the groupings used by the ABS to provide the cause of death data, acknowledging that different data sources may use different groupings.

Alcohol can include ethanol, methanol, ethylene glycol, isopropanol, and butanol; noting however that what is legally purchased as an alcoholic beverage will contain ethanol. Alcohol is a central nervous system depressant, and when mixed with other depressants in a poly-drug setting, can exacerbate effects and lead to respiratory depression (slow and/or ineffective breathing)[2].

Anti-convulsants (neuropathic pain modulators) are medicines that were developed to treat epilepsy, but may now be prescribed in Australia to treat chronic neuropathic (nerve) pain and may also be prescribed off-label to treat non-neuropathic pain, anxiety, and other conditions. These are sometimes referred to as 'anti-epileptics'. Pregabalin and gabapentin are included in this group. Some reports have emerged of non-medical use of these drugs[3].

Anti-psychotics are medicines that are used to treat mental health conditions where there is a disorder in thought content or mood, such as schizophrenia, mania with bipolar disorder and other mental health indications, and are often prescribed off-label for their sedative effects. Some reports have emerged of non-medical use, particularly with quetiapine[4]. This group includes drugs such as quetiapine, olanzapine, risperidone, paliperidone, amisulpride, and lithium.

Benzodiazepines are medicines used to treat anxiety, relax people and assist with sleep, but they may also be used non-medically[5]. The most commonly prescribed drugs in this group in Australia are diazepam and temazepam[6]. Long-term use of benzodiazepines can lead to the development of tolerance and physical and psychological dependence. Like opioids, benzodiazepines slow down the central nervous system and consistently rate as one of the most common drug groups detected in drug-induced deaths[7]. When taken alone, benzodiazepines' depressant effect on the respiratory system does not usually result in complete loss of breathing function. However, their effect on respiration is increased when combined with other drugs like alcohol or opioids, making concurrent use of benzodiazepines with alcohol and/or opioids especially dangerous.

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[2] ABS (2017) 'Drug Induced Deaths in Australia: A changing story', *Australian Bureau of Statistic*s: http://www.abs.gov. au/ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2016~Main%20Features~Drug%20Induced%20Deaths%20in%20 Australia~6

[3] Schifano, F. (2014). Misuse and abuse of pregabalin and gabapentin: cause for concern?. *CNS drugs*, 28(6), 491-496

[4] Montebello, M. E., & Brett, J. (2015). Misuse and associated harms of quetiapine and other atypical antipsychotics. In Non-medical and illicit use of psychoactive drugs (pp. 125-139). Springer, Cham.

[5] Lyphout, C., Yates, C., Margolin, Z. R., Dargan, P. I., Dines, A. M., Heyerdahl, F., ... & Wood, D. M. (2019). Presentations to the emergency department with non-medical use of benzodiazepines and Z-drugs: profiling and relation to sales data. E*uropean journal of clinical pharmacology*, 75(1), 77-85.

[6] PBS (2017) Expenditure and Prescriptions twelve months to 30 June 2017: http://www.pbs.gov.au/info/statistics/expenditure-prescriptions-twelve-months-to-30-june-2017

[7]ABS (2017) 'Drug Induced Deaths in Australia: A changing story', *Australian Bureau of Statistics*: http://www.abs.gov.au/ ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2016~Main%20Features~Drug%20Induced%20Deaths%20in%20 Australia~6

Buprenorphine is a synthetic opioid used in Opioid Agonist Therapy (OAT, also known as Opioid Substitution Therapy (OST)) and as a pain treatment, often in transdermal patches. Buprenorphine is called a 'partial opioid agonist', with reduced opioid effects and side effects at higher doses compared to other opioids.

Cannabinoids refers to plants or drugs containing chemical compounds that act upon the brain's cannabinoid receptors. The most notable cannabinoid is tetrahydrocannabinol (THC), the primary psychoactive substance found in the cannabis plant. However, this category also includes synthetic cannabinoids (often sold as 'synthetic marijuana' or other names such as 'spice'), which can be highly potent and have been linked to an array of harms including fatal overdoses. In this report, the term 'cannabinoids' would include medicinal cannabis products such as Sativex. The medicinal value of pharmaceutical cannabinoids in treating a variety of conditions is subject to ongoing debate, though the use of pharmaceutical cannabinoids for medicinal purposes is increasing.

Heroin (diamorphine) is an opiate derived from the opium poppy most commonly used for recreational and/or non-medical purposes. In Australia, heroin is typically injected[8], though it can be smoked, snorted or swallowed (noting though that injecting is less common in some other regions, e.g. Western Europe[9]). As the sale of heroin is not regulated, it may be mixed with a range of harmful adulterants. Prescription diamorphine is used therapeutically in some parts of the world, and is the same opioid as heroin.

Methadone is a synthetic opioid not included in the pharmaceutical opioid category. This is because it is primarily used as a treatment for opioid addiction as part of OAT[10], though it is also used in the treatment of chronic pain. While taking regular methadone in the context of OAT greatly reduces a person's risk of overdose (by around half), methadone can be a risk factor for overdose if other central nervous system depressants such as opioids, benzodiazepines, or alcohol are taken concurrently, or too high a dose is used on initiation of treatment, or if it is used intravenously. This risk is greatest for people who are not used to methadone, including those just starting in OAT.

Opioids refers to substances that act on the body's opioid receptors. Opioids depress the central nervous system (including the respiratory system) making overdoses involving opioids particularly dangerous. Some opioids, such as morphine, are derived from the opium poppy, and are termed opiates, whereas others (such as oxycodone and fentanyl) are synthetic or semi-synthetic. Some synthetic opioids such as fentanyl are highly potent.

Other pharmaceuticals ipharmaceuticals is a broad group that includes anti-convulsants, anti-psychotics, sedatives and hypnotics, and anaesthetics, but excludes opioid analgesics and benzodiazepines.

Other sedatives refer to a class of drugs with sedating and anaesthetic effect; ketamine is included in this group, acknowledging that it may be used as a hallucinogen in a recreational context.

Pharmaceutical means pharmaceutical drugs, prepared for pharmaceutical purposes, regardless of whether they were acquired through prescription, over the counter purchase, diversion, or through other illegal means.

Pharmaceutical opioids opioids refers to opioids of a pharmaceutical origin including oxycodone, morphine, codeine, fentanyl, pethidine, tramadol, tapentadol, buprenorphine and hydromorphone. Pharmaceutical opioids can be taken medically (for the purpose they were prescribed), or extra-medically (for any purpose other than what they were prescribed for). Methadone is excluded from this category for these analyses.

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[8] Aitken, C., Lloyd, B. & Dietze, P. (2017). Victorian Drug Trends 2016. Findings from the Illicit Drug Reporting System (IDRS). *Australian Drug Trends Series* No.166. Sydney, National Drug and Alcohol Research Centre, UNSW, Australia.
[9] Sarasa-Renedo, A., Barrio, G. (2012). Recent trends in heroin use and heroin injection in Europe: results from the Treatment Demand Indicator (TDI). European Monitoring Centre for Drugs and Drug Addiction, 12th Annual Expert Meeting.
[10] Opioid Agonist Therapy or OAT is also known as Opioid Substitution or Replacement Therapy (OST/ORT) as well as Medication Assisted Treatment for Opioid Dependence (MATOD). This report uses the acronym OAT.

The ABS groups some opioids together into single categories: oxycodone, morphine and codeine form one category, and fentanyl, pethidine and tramadol form another. This report uses ABS data and is therefore unable to provide further information relating to individual drugs within these categories. Buprenorphine, tapentadol, and hydromorphone are not included in these groupings as it is currently rare for them to be detected in coronial data.

Specified anti-convulsants and sedatives are a group of a drugs which, depending on dose, may exhibit sedative or hypnotic effects; zopiclone, zolpidem, and valproic acid are included in this group. In the data provided by ABS, these are grouped separately from benzodiazepines, acknowledging that in some data sources, these are aggregated.

Stimulants are a class of drugs that are primarily taken for recreational or non-medical purposes, though pharmaceutical amphetamines are also used in medical treatments. Illicit amphetamines are commonly available in powder (known as 'speed'), tablets, and increasingly as crystal methamphetamine ('crystal meth' or 'ice'), a highly potent form. In this report, the recreational drug MDMA or 'ecstasy' is classed as a stimulant.

Succinimides and oxazolidinediones refers to a group of drugs that have anti-convulsant or sedating-hypnotic effects; gamma hydroxybutyrate (GHB) is a psychoactive-sedative drug included in this group.

3.4.   Factors of interest

Factors of interest for this report were:

- **Drug type:** definitions as previously described (section 3.3.1).

- **Sex:** refers to biological characteristics, as distinct from gender.

- **Age:** this refers to age at death; noting that where the age of the deceased was not stated these deaths are still included in the overall totals.

- **Indigenous status (Aboriginality):** this includes persons who identified as Aboriginal, Torres Strait Islander or both, with non-Aboriginal meaning people for whom Indigenous status was not stated. People with an identified Indigenous status are referred to as Aboriginal in this report. Additionally, data on Indigenous status is only based on New South Wales, Queensland, South Australia, Western Australia, and the Northern Territory, as these are the only jurisdictions that have a sufficient level of Indigenous identification to support this analysis.

- **Socio-economic status (SES):** socio-economic status is described on the basis of Socio-Economic Indexes for Areas (SEIFA) using the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD)[11] , and the deciles (ten equal groups) are based on the ranking of an area within Australia (not the ranking within its state/territory). The scores are based on the area in which the person was usually resident, not on the individual; a low score indicates an area with relatively greater disadvantage (e.g. many households with low incomes or in unskilled occupations) and a general lack of advantage (e.g. few households with high incomes). Limitations to this approach exist; for example, Richmond in Victoria is in decile 9 of SEIFA-IRSAD in Australia, and is therefore among the most advantaged areas, but also has a high density of low-income housing and has been the site of many drug-induced deaths involving heroin, due to a localised strong drug market.

Further, data are described spatially on the basis of:

- **State or territory:** causes of death statistics for states and territories have been compiled based on the

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[11] ABS description of SEIFA IRSAD:
https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~IRSAD~20

state or territory of usual residence of the deceased, regardless of where in Australia the death occurred. Deaths of persons usually resident overseas which occur in Australia are included in the state/territory in which their death was registered. In some instances (e.g. Figure 8) data are presented for Northern Territory, Tasmania, Australian Capital Territory combined, in order to have sufficient numbers to calculate a rate.

- **Regionality:** greater capital city or regional area[12], noting that the Australian Capital Territory cannot be delineated in this way.

- **Primary Health Network:** Primary Health Networks (PHNs) are healthcare bodies coordinating primary health and other services for geographic catchments areas in Australia. There are 31 PHNs in Australia.

- **Local areas:** Statistical Area 3 (SA3)[13] is a means of regional grouping used by the ABS. They typically have populations between 30,000 and 130,000 persons. SA3s are often the functional areas of regional towns and cities with a population in excess of 20,000 or clusters of related suburbs around urban commercial and transport hubs within the major urban areas.

3.5.   Methods

When data are presented as a rate per 100,000 population, this is an age-standardised death rate[14], based on the mid-year population. These data were either provided by ABS, or in the case of Figures 8, 17, 22, 29-33, were calculated using estimated resident population data from the ABS[15]. Some rates are unreliable when there are small numbers of deaths over the reference period. Rates calculated when there were fewer than 19 deaths should be interpreted with caution, as they can show greater volatility due to the small numbers.

To minimise the effects of localised "spikes" or outliers, in some instances this report uses comparison periods (e.g. Table 8). These five-year periods are 2003-2007 (the reference period) and 2013-2017 (the recent period). Ratios are then used to show changes in the number of deaths relative to the reference period. They are calculated by dividing the number of deaths in the more recent period by the number of deaths in the reference period. It is important to note that this calculation of ratio is made on unrounded data, therefore, the ratio cannot be calculated exactly from the rounded (to 1 decimal place) rates provided in Table 8. A ratio of 2.0 means there were twice as many deaths during 2013-17 as there were during 2003-2007; a ratio of 3.0 means there were three times as many deaths, and so on. A ratio of 0.5 means there were half as many (50 per cent fewer) deaths in the recent period as in the reference period.

In some instances, where the data are being divided and analysed in small groups, an aggregated group of data is used, rather than analysing the data year by year. For example, data on individual drugs for specific sex and age groups are analysed using aggregated data from 2013-2017. Otherwise, numbers may be too small for meaningful analysis.

The word "significant" is used to describe statistical significance, with a threshold of $p<0.05$. This can be interpreted as meaning that the likelihood of these results occurring by chance was less than 5%; this is a standard threshold for significance.

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[12] Definitions and boundaries of greater capital city statistical areas (GCCSAs) can be found at: https://www.abs.gov.au/geography
[13] ABS description of SA3: https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.001~July%202016~Main%20 Features~Statistical%20Area%20Level%203%20(SA3)~10015
[14] Age-standardised death rates enable the comparison of death rates over time and between populations of different age-structures. They are particularly relevant when comparing with Aboriginal populations due to their younger age profile than the general Australian population
[15] Estimated resident population available from ABS at: https://www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0

Data cubes for all figures are provided at the end of the document in Appendix 1. These contain the values (numbers or rates) from each graph, allowing readers to see the raw data used to produce each graph. To protect confidentiality of individuals, data cells with small values are randomly assigned, and as a result some totals will not equal the sum of their components. This does not affect cells with a zero value.

3.5.1. Poly-drug use

It is important to note that most drug-induced deaths are caused by a combination of drugs and are not the result of a single drug. A 2017 report by the Australian Bureau of Statistics indicates that multiple drugs were detected in over half (59%) of unintentional drug-induced deaths in 2016[16].

For example, as shown in Figure 3, benzodiazepines have been recorded as the second most common drug group associated with drug-induced deaths, but they are rarely the sole cause of death. Most benzodiazepines determined to have contributed to a drug-induced death were used concurrently with other drugs.

The data used to produce this report identify the involvement of drugs that were determined to have contributed to a person's death, however, do not necessarily indicate the primary cause of death. For example, a coroner may determine that while opioids were the primary cause of one individual's death, alcohol and benzodiazepines also contributed significantly. In this case, this individual would be included in three drug-type categories, however, this individual will only be counted once in the total.

If multiple drugs are involved in a death and the coroner has not determined that one drug was the cause of death, then the underlying cause is coded to ICD Code X44 (Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances) and all the drugs involved are listed as multiple causes in the order listed by the coroner.

3.6.   Limitations

Data groupings: The data used to produce this report were provided by the Australian Bureau of Statistics (ABS). The ABS groups substances into single categories (such as the category 'fentanyl, pethidine and tramadol'), using ICD-10 groupings. Data for less common substances (opioids like dextropropoxyphene, tapentadol and others) are not individually collected and so are not included in this report. The limitation of this is that particular substances may dominate the group that they are in (e.g. GHB typically forms the majority of the succinimides and oxazolidinediones group, methamphetamine typically forms the majority of the stimulants group), but this cannot be quantified with the existing data.

Buprenorphine: Data on drug-induced deaths involving buprenorphine were not available for the report, due to low involvement in coronial data.

Heroin and morphine: Drug-induced deaths involving heroin may be under-counted, or misattributed to morphine, due to challenges in interpreting toxicity data and the rapid conversion of heroin to morphine in the body after administration[17].

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[16] ABS (2017) Ibid.
[17] Stam, N. C., Gerostamoulos, D., Pilgrim, J. L., Smith, K., Moran, L., Parsons, S., & Drummer, O. H. (2019). An analysis of issues in the classification and reporting of heroin-related deaths. *Addiction*, 114(3), 504-512.

4. All drug-induced deaths 2001-2017

This chapter examines trends and patterns in all drug-induced deaths. While the overall focus of the report is on unintentional drug-induced deaths, this chapter sets the context of how many drug-induced deaths are unintentional, and compares trends in drug-induced deaths to road traffic and car crashes. This chapter also presents data on Aboriginality and socio-economic status by drug type, where the only available data are for all drug-induced deaths.

In 2017, there were 2,162 drug-induced deaths in Australia. This equates to 67,197 years of life lost to drug-induced deaths, with an average of 33 years of life lost per drug-induced death. As a point of reference; the 2017 rate of drug-induced deaths in Australia was 8.9 per 100,000 people, compared to 21.7 per 100,000 people in the United States in 2017[1]. The current rate of deaths in Australia is equivalent to the rate of deaths in the United States in 2003[2].

As shown in Figure 2, the number of all drug-induced deaths surpassed road traffic crashes (the "road toll") in 2008 and has continued to rise in the years since. In comparison, the road toll has continued to fall. In 2014, the number of unintentional drug-induced deaths also surpassed the road toll and has continued to increase. Based on the current trends from 2001-2017, both drug-induced deaths and unintentional drug-induced deaths have been increasing on average by 3.4% per year. This would equate to an additional 393 drug-induced deaths in 2022; 293 will likely be unintentional. In contrast, the road toll has decreased on average by 2.2% per year, equating to 131 fewer deaths by 2022.

Figure 2: Number of drug-induced deaths in Australia, compared to other causes of death, 2001-2017
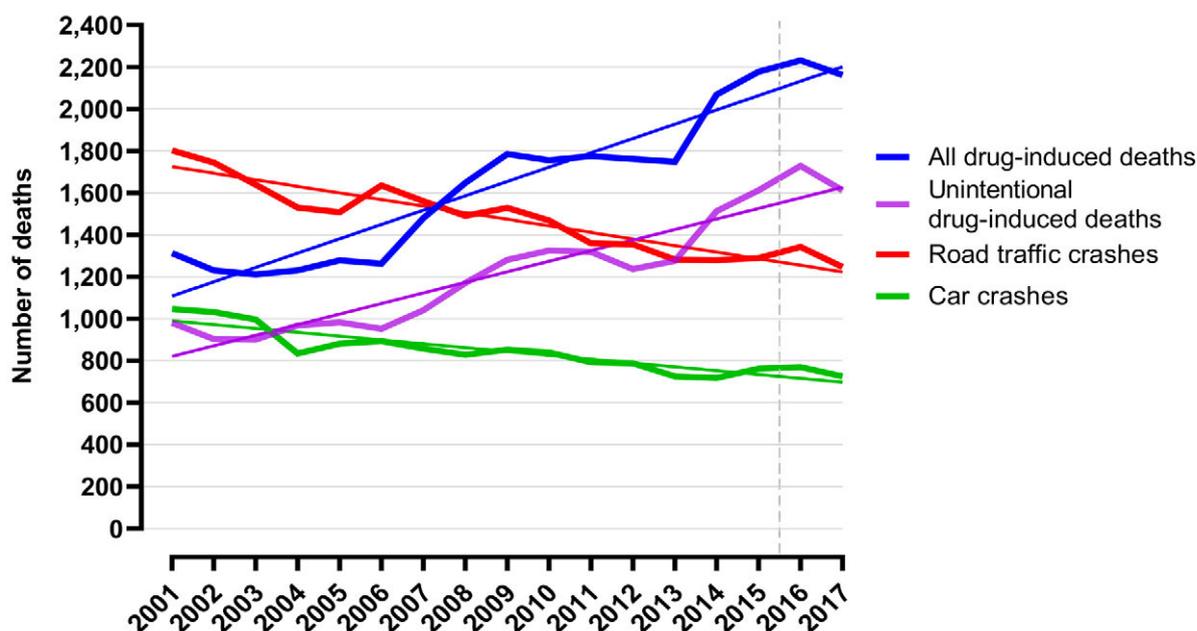
Note: 2016 and 2017 data are preliminary, and likely to rise.

[1] Centres for Disease Control and Prevention (2019). Drug Overdose Mortality by State: https://www.cdc.gov/nchs/pressroom/sosmap/drug_poisoning_mortality/drug_poisoning.htm
[2] Hedegaard, H., Minino, A., Warner, M. (2018) NCHS Data Brief No. 329: Drug Overdose Deaths in the United States, 1999-2017. Centres for Disease Control and Prevention: https://www.cdc.gov/nchs/products/databriefs/db329.htm

As shown in Figure 3, opioids continued to be the largest overall drug group identified in drug-induced deaths, followed by benzodiazepines, and stimulants (this includes methamphetamine, amphetamine and ecstasy). Drug-induced deaths involving both opioids and benzodiazepines have been increasing steadily over the past decade, following a fairly stable period to 2006. From 2009 onwards, the number of drug-induced deaths involving alcohol appears to have stabilised. In contrast, deaths involving stimulants, anti-psychotics and anti-convulsants have increased rapidly since 2013. Deaths involving stimulants have almost trebled in recent years, from 175 in 2013 to 468 in 2017, while deaths involving anti-psychotics increased from 31 in 2013 to 292 in 2017. Deaths involving anti-convulsants – rare in the decade prior to 2014 due to limited prescribing in Australia – increased from 24 in 2015 to 101 in 2017.

Figure 3: Number of drug-induced deaths in Australia, by drug type, 2001-2017
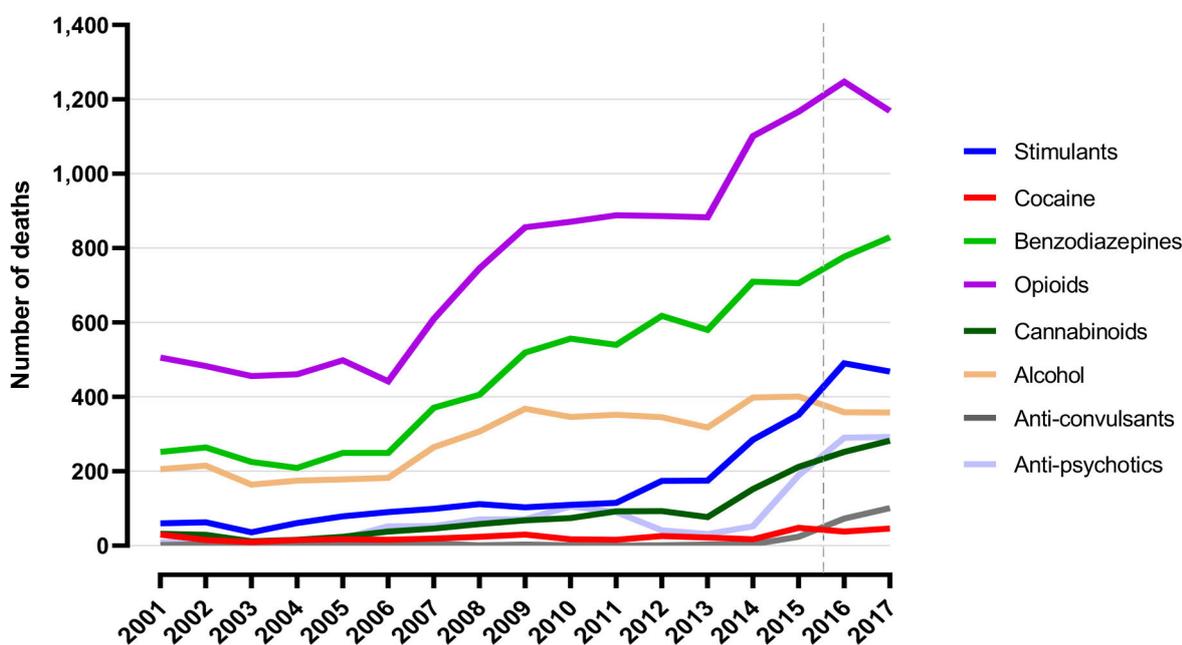
Note: 2016 and 2017 data are preliminary, and likely to rise. Smaller drug groups including other sedatives (including ketamine), and succinimides and oxazolidinediones are not shown on the figure above, due to low numbers.

In 2017, preliminary data show that opioids, followed by benzodiazepines, and stimulants (includes methamphetamine, amphetamine, ecstasy) were the most commonly identified substances in drug-induced deaths (Figure 4). However, the proportion of drug-induced deaths that were unintentional differed by substance type, with percentages ranging from 55.1% to 93.5% unintentional. The drugs with the highest proportion of unintentional drug-induced deaths (compared to total drug-induced deaths) were cocaine (93.5%), heroin (91.1%), and cannabinoids (89.4%). The drugs with lowest proportion of involvement in unintentional drug-induced deaths were 'specified anti-convulsants and sedatives' (this includes zopiclone, zolpidem, and valproic acid) (55.1%), oxycodone / morphine / codeine (64.4%), and anti-psychotics (65.8%).

Figure 4: Number of drug-induced deaths in 2017 by drug type: all deaths and unintentional deaths
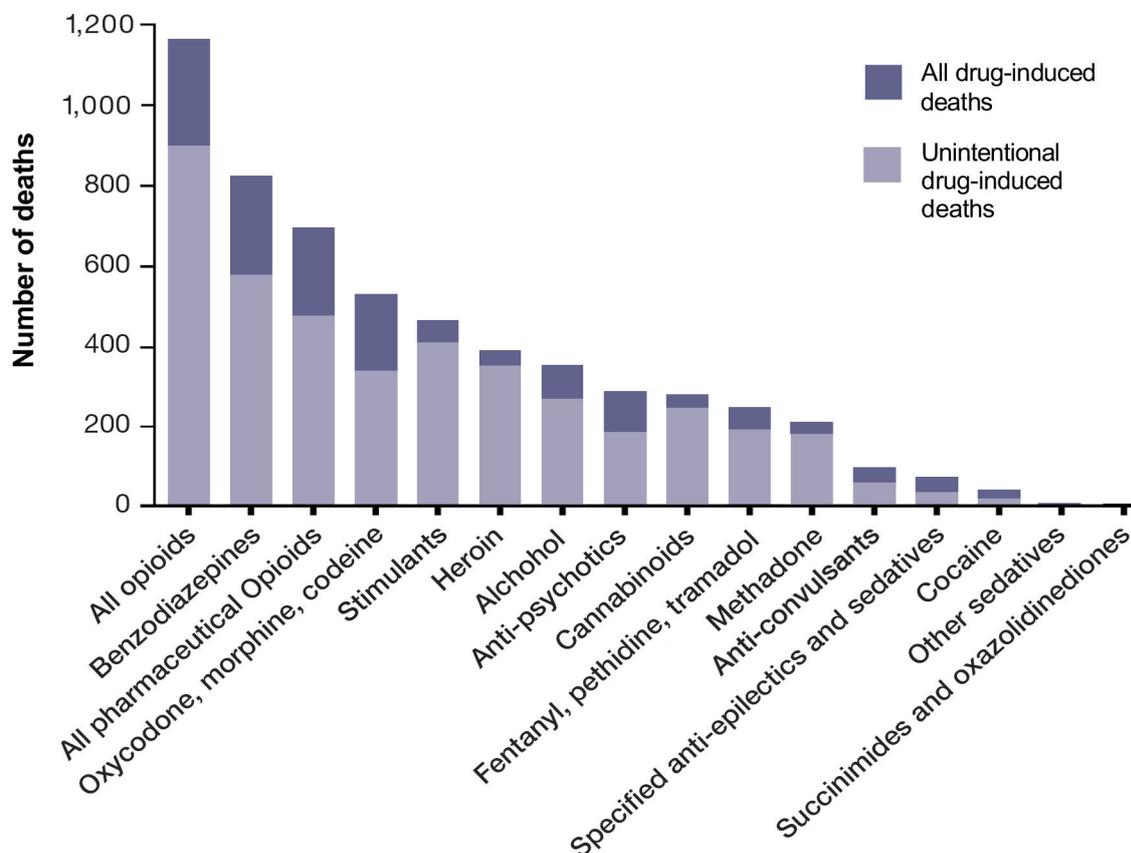
Note: All opioids include; opium, heroin, methadone, oxycodone, morphine, codeine, fentanyl, pethidine, tramadol, buprenorphine, hydromorphone. All pharmaceutical opioids includes the groups; oxycodone / morphine / codeine, and fentanyl / pethidine / tramadol, as well as buprenorphine and hydromorphone, but these are not shown separately due to low numbers. Opium is not shown on the graph as a single bar as there were zero deaths involving opium.

4.1.   Drug-induced deaths in Aboriginal people

A broadly similar pattern is seen for drug-induced deaths among Aboriginal people and non-Aboriginal people (Figure 5). In both groups, opioids are the largest – and increasing – group of drugs identified in drug-induced deaths, and there is a general stability in the number of drug-induced deaths involving alcohol. However, there are some notable differences for this cohort. While the overall number of deaths involving benzodiazepines has increased rapidly and steadily in the non-Aboriginal population since 2006, the number of deaths involving these drugs has fluctuated among Aboriginal people. Indeed, since 2015 there have been more deaths involving stimulants than benzodiazepines among Aboriginal people, while the reverse is true for the non-Aboriginal population. Stimulants account for a much higher proportion of all deaths for Aboriginal people: in 2017, 33.0% of all drug-induced deaths involved stimulants for Aboriginal people, compared with 19.1% among all non-Aboriginal people. Further, the increase in deaths involving anti-psychotics and anti-convulsants seen in the non-Aboriginal population is not apparent among Aboriginal Australians.

These data are not yet available for unintentional drug-induced deaths – hence their presentation as all drug-induced deaths – but they may be available for future reports. Futhermore, these data are presented as total numbers rather than rates per 100,000 population, as many numbers were too small when delineated into drug types, to enable calculation of a reliable rate, particularly in earlier years.

Figure 5: Drug-induced deaths by drug type and Aboriginality, 2001-2017
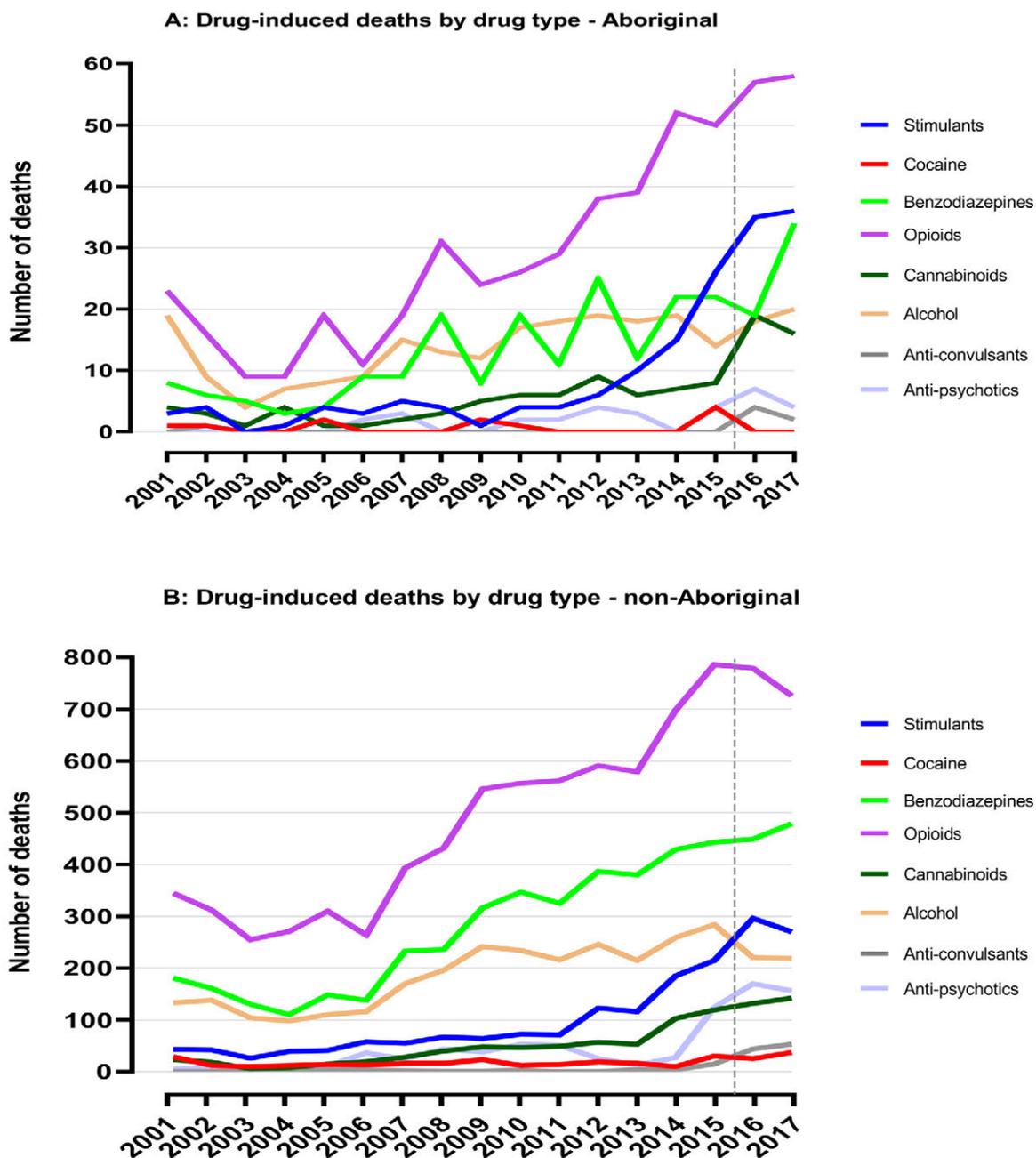
NB: 2016 and 2017 data are preliminary, and likely to rise. Data for NSW, Qld, SA, WA, and NT are aggregated as these are the only jurisdictions that have a sufficient level of Indigenous identification to support this analysis.

4.2.   Socio-economic patterns in drug-induced deaths by drug type

Drug-induced deaths occur in all socio-economic status (SES) areas, however, there are substantial differences across drug types in the relationship between drug-induced deaths and SES – where SES is measured via the Socio-Economic Indexes for Areas (SEIFA) using the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) index, as shown in Figure 6.

The strongest positive relationship is seen for cocaine: as socio-economic status increases from disadvantaged to advantaged, there is a concomitant increase in the proportion of drug-induced deaths in each decile that involve cocaine, with 18.5% of all drug-induced deaths in Decile 10 (the highest socio-economic status) involving this drug type. The strongest negative relationship – where higher socio-economic status is associated with a lower prevalence of drug-induced deaths – is seen for the fentanyl/pethidine/tramadol group of drugs, accounting for 15.8% of drug-induced deaths in the lowest socio-economic group (Decile 1) but only one-third of that figure (5.7%) in the highest (Decile 10). A similar negative relationship between socio-economic status and drug-induced deaths is seen for stimulants, the oxycodone/morphine/codeine group, methadone, and cannabinoids, with a lower proportion of deaths as socio-economic status increases. For other drug types, there appears to be no relationship between socio-economic status and deaths, with the proportion of drug-induced deaths fairly similar across all socio-economic status areas. This is seen especially for alcohol and anti-psychotics.

These data are not yet available for unintentional drug-induced deaths, hence presenting all drug-induced deaths, though these data may be available for future reports.

Figure 6: Drug-induced deaths by drug type and socio-economic status, shown as percentages within each decile, 2013-2017 aggregated
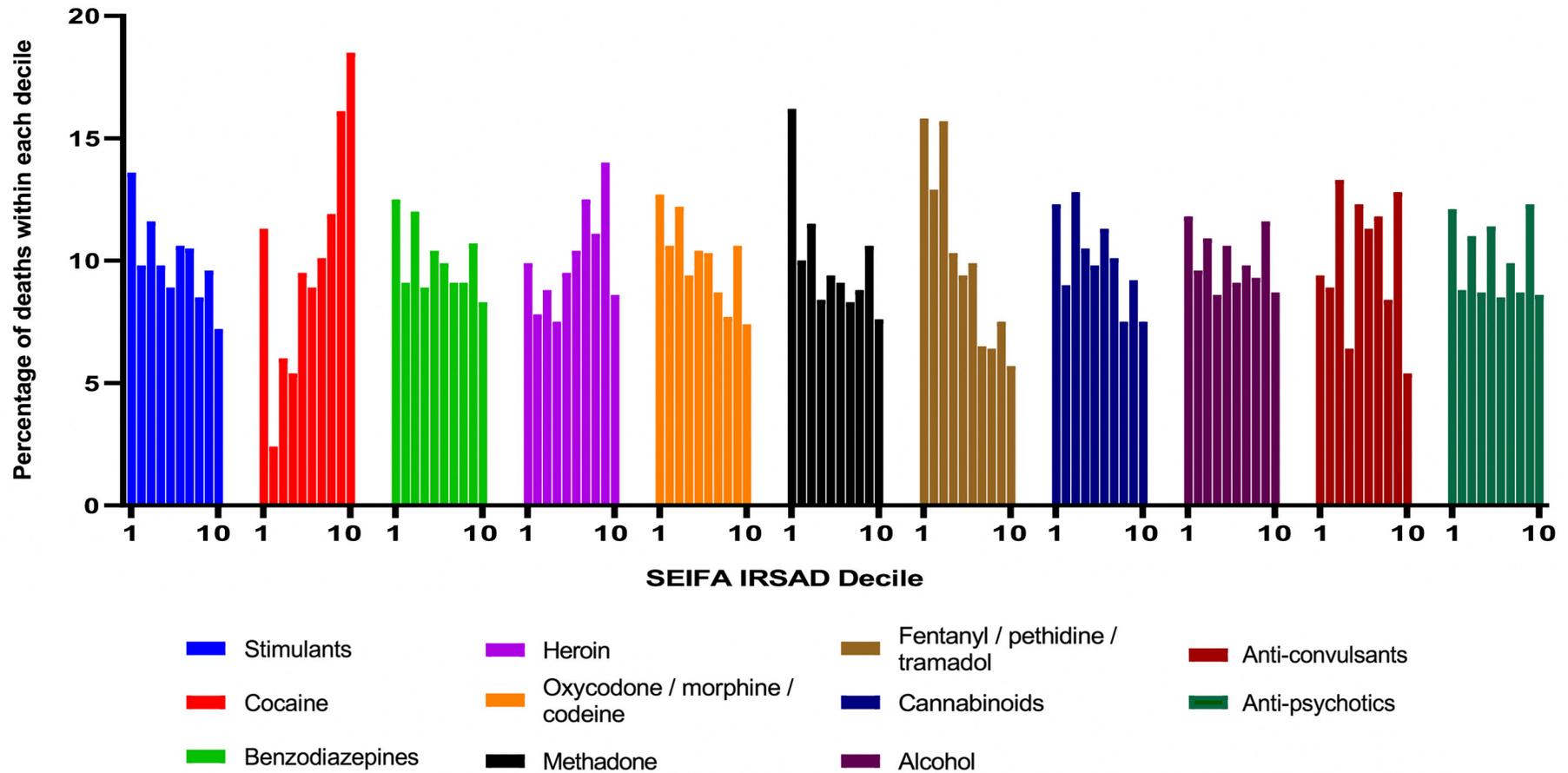
Note: Decile 1 is the most disadvantaged and Decile 10 is the most advantaged. SES: socio-economic status. SEIFA IRSAD: Socio-Economic Indexes for Areas (SEIFA) using the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD).

Unintentional drug-induced deaths comprise approximately three-quarters of all drug-induced deaths (Figure 7), and this proportion has remained relatively constant between 2001-2017 (ranging from 70% to 79%, with an average of 74%). Both are continuing to trend significantly upwards and are increasing more rapidly than the population is growing. From 2001 to 2017, the population of Australia increased by 27.8% (from 19,386,461 persons in December 2001 to 24,775,564 persons in December 2017[1]). In comparison, the number of drug-induced deaths has increased by 64.7%, and unintentional drug-induced deaths have increased by 64.3% over the same period.

The remainder of this report will focus on trends in, and characteristics of, unintentional drug-induced deaths.

Figure 7: Unintentional drug-induced deaths compared to all (total) drug-induced deaths, 2001-2017
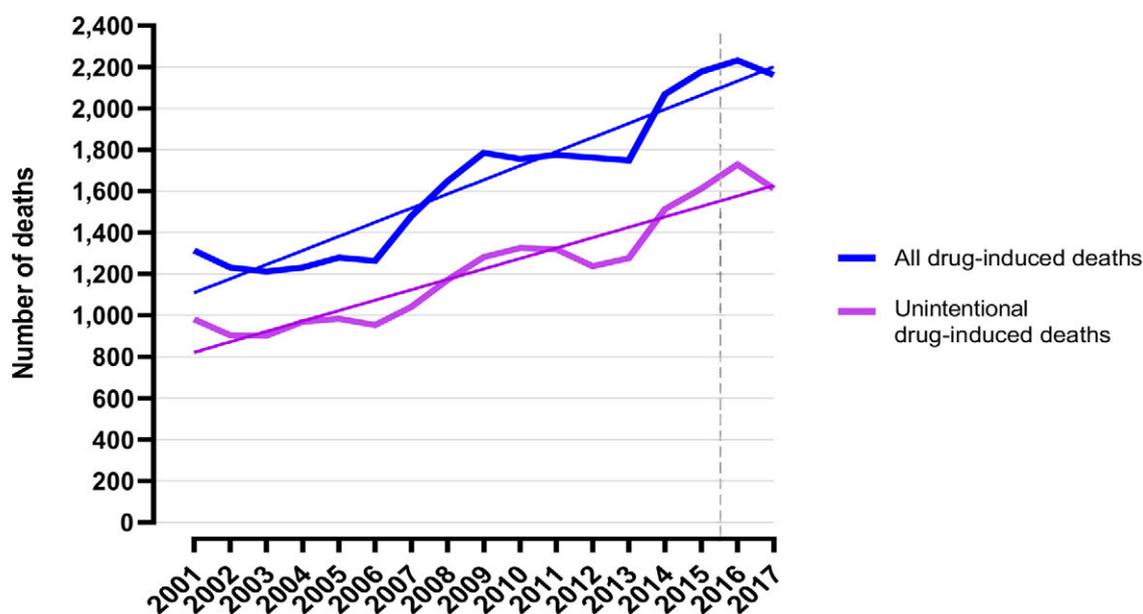
Note: 2016 and 2017 data are preliminary, and likely to rise

5. Unintentional drug-induced deaths 2001-2017

This chapter presents data on trends in unintentional drug-induced deaths, analysed by factors of interest such as sex, age group, state, and drug type. "Unintentional drug-induced deaths" means: drug-induced deaths determined to be unintentional by legal rulings, and excludes suicide, homicide, or deaths with undetermined intent.

As shown in Figure 8, the most notable changes in the rates of unintentional drug-induced deaths are the statistically significant increases seen in New South Wales, Victoria, Queensland, and Western Australia. In recent years, the greatest increase has been observed in Western Australia. Rates of unintentional drug-induced deaths increased from 6.4 per 100,000 in 2012 to 8.1 per 100,000 in 2017 in Western Australia. These data are also provided as numbers of unintentional drug-induced deaths, rather than rates, in Table 2.

Figure 8: Unintentional drug-induced deaths by state, 2001-2017, presented as a rate per 100,000 population
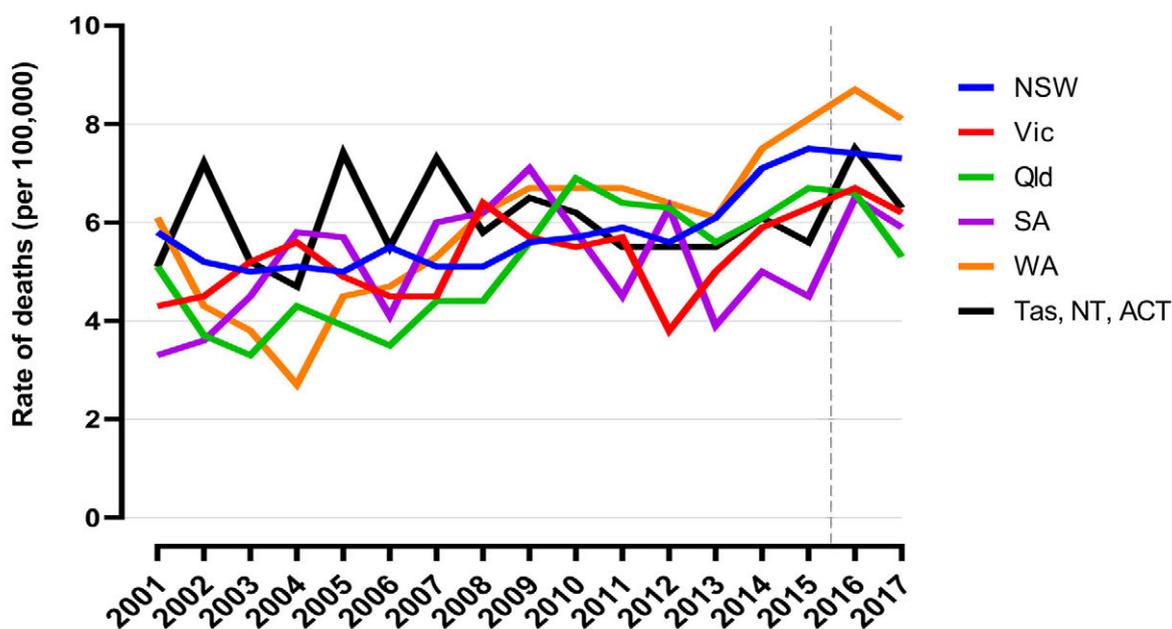
Note: 2016 and 2017 data are preliminary, and likely to rise. Numbers of deaths cannot be reliably converted to rates per 100,000 in Tasmania, Northern Territory, and Australian Capital Territory, due to low numbers and are therefore presented as an aggregate.

Table 2: Number of unintentional drug-induced deaths by state or territory, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	379	343	328	337	332	370	349	357	397	404	426	412	448	533	568	571	576
Vic	203	216	255	276	243	226	231	335	306	303	315	217	288	349	377	416	392
Qld	182	134	123	166	153	140	179	184	243	302	286	287	261	286	318	319	260
SA	50	55	68	88	88	63	94	98	115	95	74	104	65	84	77	111	101
WA	116	82	75	53	91	96	111	135	150	153	157	155	152	190	207	223	208
Tas	21	35	20	21	36	30	32	28	40	28	36	30	27	38	31	48	30
NT	13	20	10	12	16	16	23	12	12	20	9	20	12	11	18	12	17
ACT	17	17	22	15	24	11	22	22	18	20	16	12	23	21	16	28	28

Note: 2016 and 2017 data are preliminary, and likely to rise.

When considering unintentional drug-induced deaths by state/territory in 2017, and by whether the person was resident in a capital city, the rate of deaths ranged from 4.7 to 9.6 deaths per 100,000 people (Table 3). In New South Wales and Victoria, the rates of unintentional drug-induced deaths were higher outside the capital cities, with a rate of death more than 80% higher in the rest of Victoria (9.6 per 100,000 population) than in Melbourne (5.3 per 100,000 population), and 33% higher in regional and rural New South Wales (8.8 per 100,000 population) compared to Sydney (6.6 per 100,000 population). In contrast, in Western Australia, and the combined data for Australian Capital Territory, Tasmania, and the Northern Territory, rates were higher in the capital cities. Across all Australia, regional and rural Victoria had the highest rate (per 100,000 people) of unintentional drug-induced deaths in 2017, followed by regional and rural New South Wales, and Perth.

Table 3: Unintentional drug-induced deaths by usual residence in 2017

Region of usual residence	Number	Rate (per 100,000)
New South Wales		
Greater Sydney	340	6.6
Rest of New South Wales	236	8.8
Victoria		
Greater Melbourne	262	5.3
Rest of Victoria	130	9.6
Queensland		
Greater Brisbane	130	5.5
Rest of Queensland	130	5.5
South Australia		
Greater Adelaide	86	6.4
Rest of South Australia	15	– *
Western Australia		
Greater Perth	171	8.5
Rest of Western Australia	37	6.8
Tasmania, Northern Territory, Australian Capital Territory (combined)		
Greater Hobart, Darwin, Australian Capital Territory	55	6.9
Rest of Tasmania and Northern Territory	20	4.7
Australia		
Greater capital cities (total)	1,044	6.3
Remainder of states and territories (total)	568	7.3

* – data cannot be reported as a rate in the rest of South Australia, as the small number of deaths makes statistical interpretation unreliable.

The trends in the number of unintentional drug-induced deaths (Figure 9) mirror those among all drug-induced deaths. Opioids, benzodiazepines, and stimulants have the highest overall involvement in unintentional drug-induced deaths, and all are continuing to show an overall significant upwards trend. More detailed analysis for these drug groups is provided in Chapter 6. While the overall trend for alcohol is upwards, since 2009 onwards this appears to be stabilising.

Figure 9: Unintentional drug-induced deaths by drug type, 2001-2017
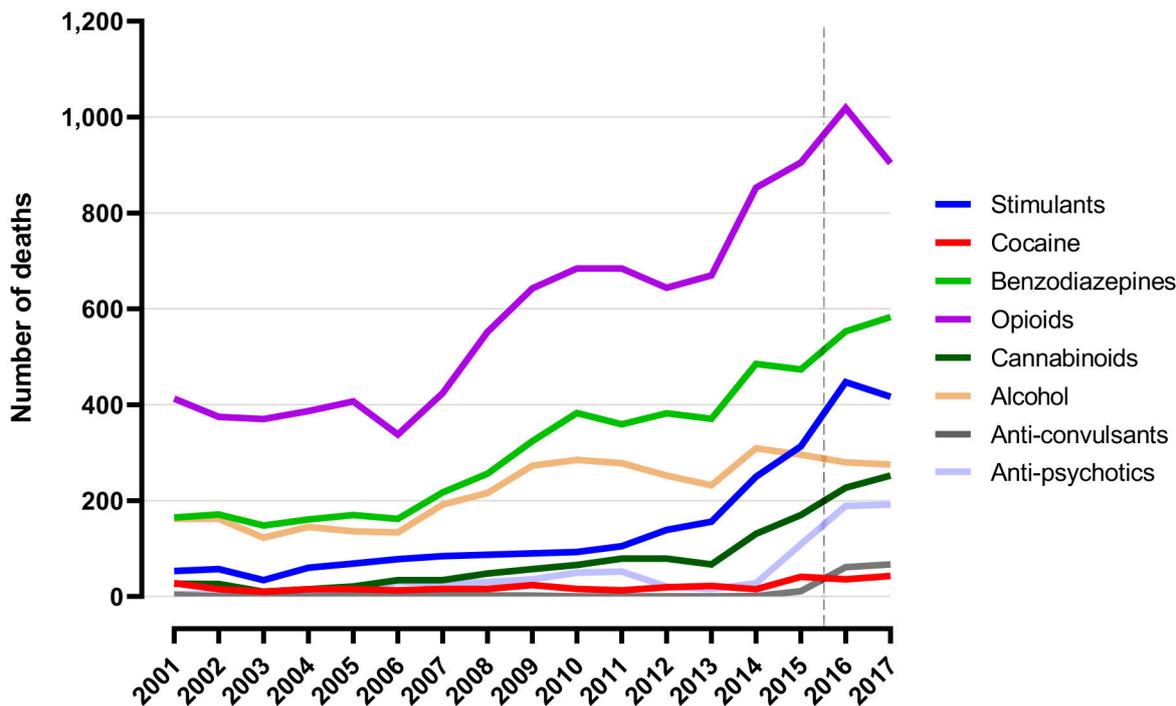
Note: 2016 and 2017 data are preliminary, and likely to rise.

5.1.   Demographic patterns in unintentional drug-induced deaths

There are distinct age-related patterns of harms in unintentional drug-induced deaths, as shown in Figure 10. Since 2001, deaths in the 20-29 age group have significantly decreased, from 212 in 2001 to 139 in 2017, a decrease of 34.4%. In contrast, deaths in the 30-39, 40-49, and 50-59 age groups have significantly increased and continue to rise. Collectively, these three age groups have had an increase of 113.7% since 2001 (from 540 to 1,154 in 2017), with the greatest increase observed in those aged 40-49 (from 192 in 2001 to 450 in 2017, an increase of 134.4%).

Figure 10: Unintentional drug-induced deaths by age group, 2001-2017
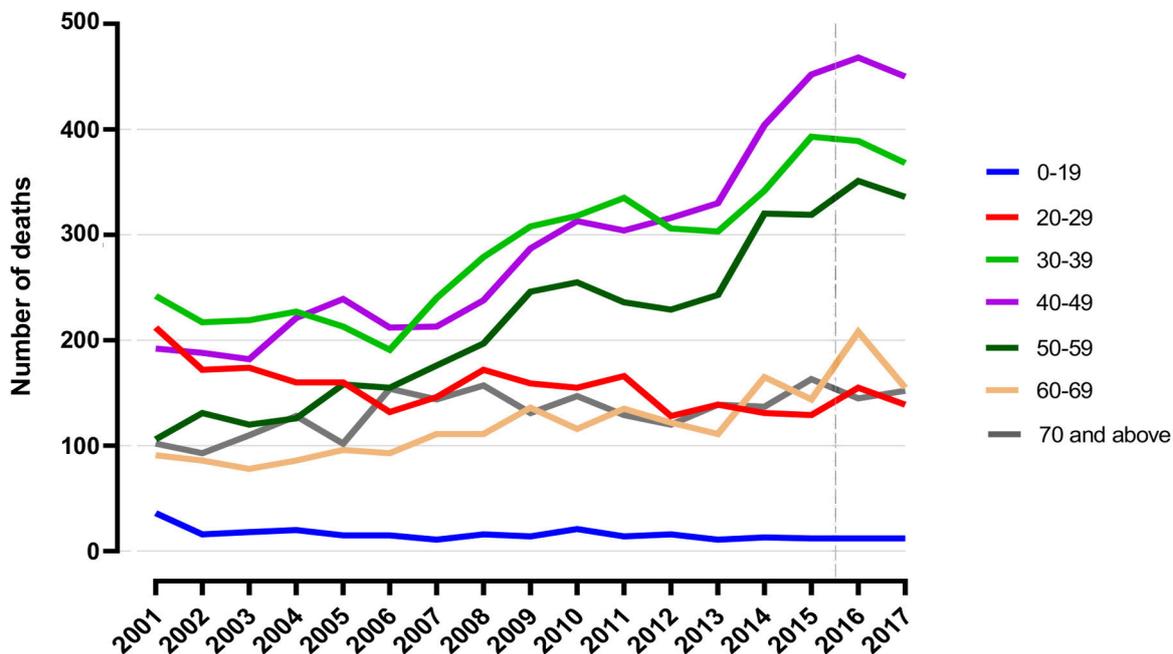
Note: 2016 and 2017 data are preliminary, and likely to rise

Unintentional drug-induced deaths remain more common for males than females, though long-term trends (from 2001-2017) are significantly increasing for both sexes (Figure 11). Males typically account for around two-thirds of unintentional drug-induced deaths but the number of deaths for men has increased more rapidly than it has for women over the past five years. Since 2012, the number of unintentional deaths among males increased by 41.7%, from 813 in 2012 to 1,152 in 2017. During the same period, the number of deaths among females increased by 8.5%, from 424 to 460.

Figure 11: Unintentional drug-induced deaths by sex, 2001-2017
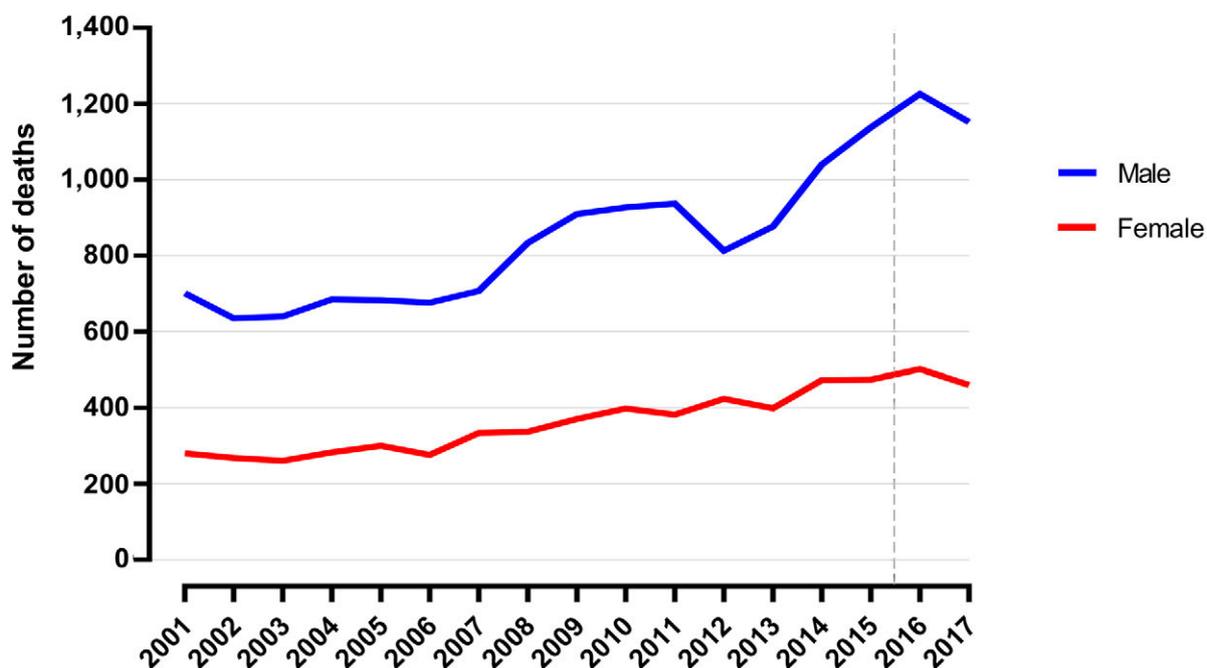
Note: 2016 and 2017 data are preliminary, and likely to rise

The rate of unintentional drug-induced death remains higher for Aboriginal Australians than non-Aboriginal Australians (Figure 12). Rates of deaths for non-Aboriginal Australians have significantly and consistently increased from 2001-2017 (from 4.9 to 6.2 deaths per 100,000 population). For Aboriginal Australians, the rate of deaths showed an overall downward trend until 2009, but increased between 2009-2017 (from 10.3 to 19.2 deaths per 100,000 population), however, these rate calculations may be more volatile due to smaller overall numbers of Aboriginal deaths.

Figure 12: Unintentional drug-induced deaths by Indigenous status 2001-2017, as a rate per 100,000 population (data from NSW, Qld, SA, WA, NT)
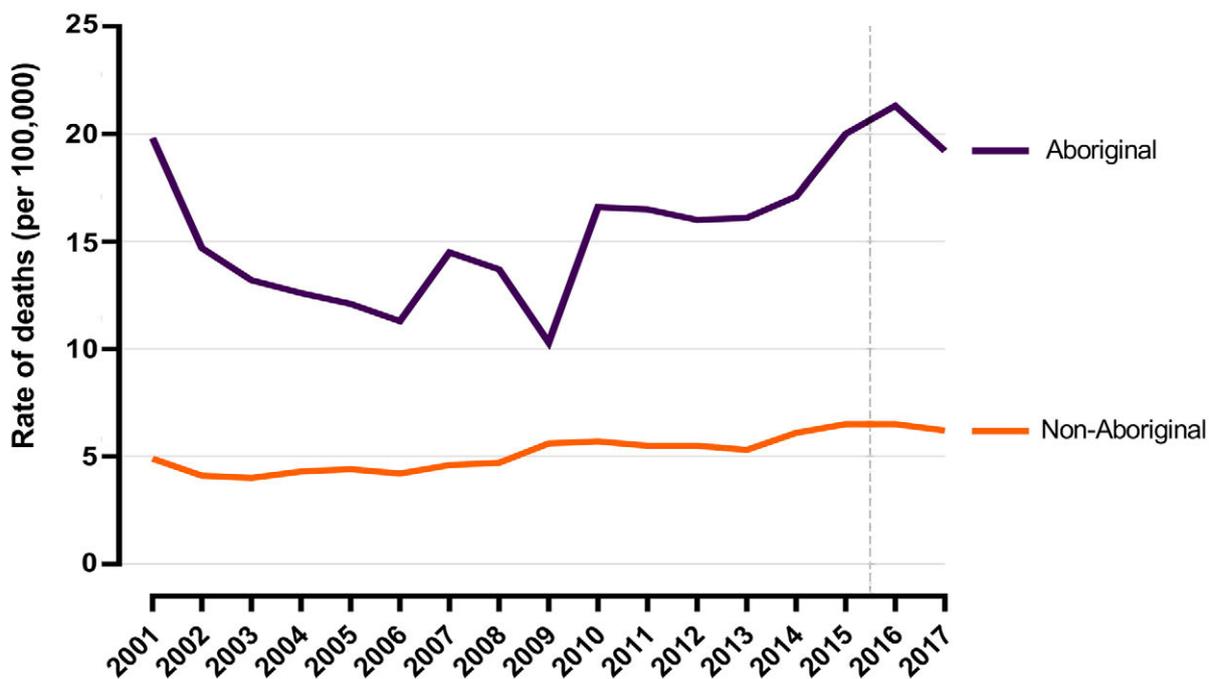
Note: 2016 and 2017 data are preliminary, and likely to rise

Unintentional drug-induced deaths occur in all socio-economic areas, as shown in Figure 13. In the aggregated data from 2013-2017, 1,026 unintentional drug-induced deaths occurred in the lowest socio-economic decile, compared to 607 deaths in the highest decile. There is a slight socio-economic gradient visible in unintentional drug-induced deaths, with 69% more deaths in the lowest socio-economic group than in the highest.

**Figure 13: Unintentional drug-induced deaths by socio-economic status, data aggregated from 2013-2017**
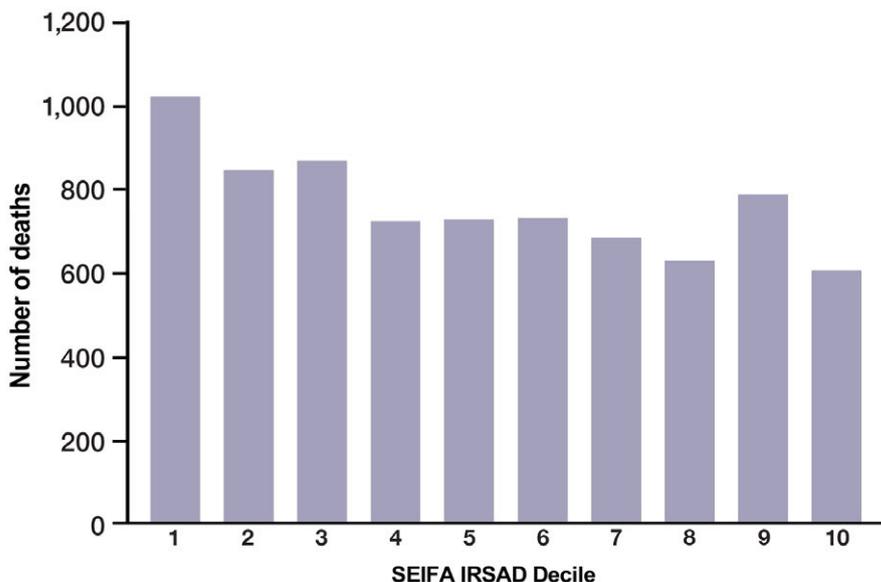
Note: Decile 1 is the most disadvantaged and Decile 10 is the most advantaged. SES: socio-economic status. SEIFA IRSAD: Socio-Economic Indexes for Areas (SEIFA) using the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD).

As shown in Figure 14, from 2001-2010, the rates of unintentional drug-induced deaths were very similar between the greater capital cities and the remainder of the states and territories. However, since 2010, the rate of unintentional drug-induced deaths in rural and regional Australia has increased by 24%, which is greater than the increase of 5% in capital cities; in 2017, there were 7.3 unintentional drug-induced deaths per 100,000 people in regional areas, compared with 6.3 per 100,000 in the capital cities. Greater detail on these spatial trends is provided in Chapter 7.

Figure 14: Unintentional drug-induced deaths by regionality 2001-2017, rate per 100,000 population
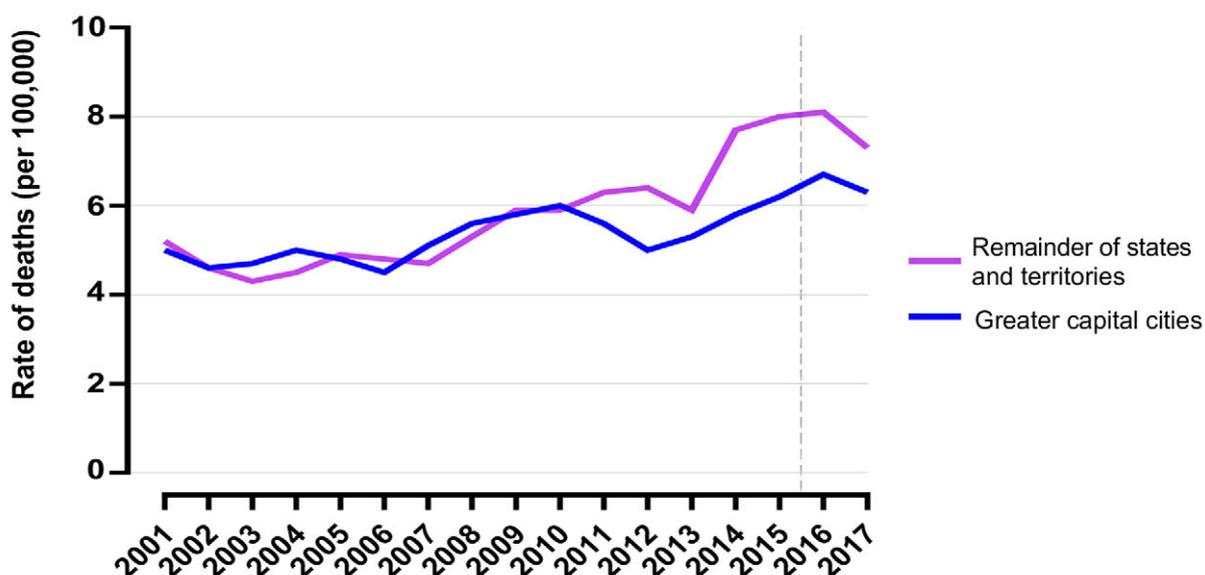
Note: 2016 and 2017 data are preliminary, and likely to rise.

5.2.   Poly-substance use in unintentional drug-induced deaths

The number of unintentional drug-induced deaths that involve four or more substances has almost trebled, from 163 in 2013 to 445 in 2017 (Figure 15). In comparison, deaths involving the detection of a single drug, or the detection of alcohol on its own, have not significantly increased over time. In 2017, for the first time since 2007, there are now more unintentional deaths involving four or more substances than single drugs. This may be due in part to the number of drugs that can be reliably detected using toxicological testing, but may also reflect increasing trends of poly-pharmacy use[1]. Additional data on poly-drug use relating to opioids are shown in Figure 21.

Figure 15: Unintentional drug-induced deaths by poly-substance and sole drug use, 2007-2017
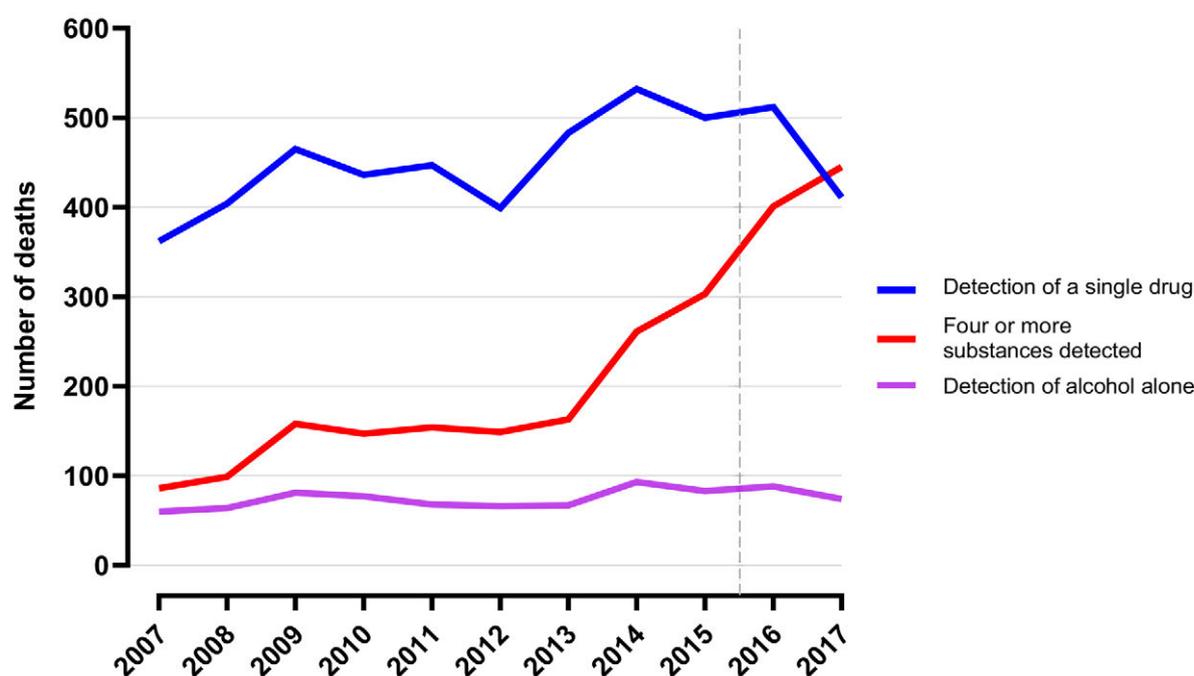
Note: 2016 and 2017 data are preliminary, and likely to rise. These groupings are provided by the ABS, and data on sole detection of all drug types are not available for inclusion in this report.

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[1] Page, A. T., Falster, M. O., Litchfield, M., Pearson, S. A., & Etherton-Beer, C. (2019). Polypharmacy among older Australians, 2006–2017: a population-based study. *Medical Journal of Australia*.

6. Analysis of specific drugs

This chapter provides a more detailed analysis of trends for specific drug groups; data are presented only for unintentional drug-induced deaths.

6.1. Opioids

This is a broad group that includes pharmaceutical opioids (that can be further differentiated into fentanyl / pethidine / tramadol, and oxycodone / morphine / codeine), heroin, methadone, and opium. Given that the type of opioid may be related to the characteristics of the people who died, where possible, demographic factors are presented by opioid type.

There were 904 unintentional drug-induced deaths involving opioids in 2017, equating to 56.1% of all unintentional drug-induced deaths. Opioids (collectively) are the group of drugs most commonly identified in unintentional drug-induced deaths, however, this is predominantly due to oxycodone / morphine / codeine, and heroin (Figure 16). In 2017, there were 358 unintentional drug-induced deaths involving heroin (representing 39.6% of unintentional drug-induced deaths involving opioids) and 344 involving oxycodone / morphine / codeine (38.1% of unintentional drug-induced deaths involving opioids). In contrast, in 2017 there were 198 unintentional drug-induced deaths involving fentanyl / pethidine / tramadol (21.9% of unintentional drug-induced deaths involving opioids), and 189 deaths involving methadone (20.9% of unintentional drug-induced deaths involving opioids). Opium results are not further analysed as a separate group due to low numbers (0 in 2017).

The number of drug-induced deaths involving opioids has nearly trebled in the last 12 years, increasing from 338 in 2006 to 904 in 2017. Over the same period, deaths involving heroin increased by 434% (from 67 to 358 in 2017), deaths involving oxycodone / morphine / codeine increased by 102% (from 170 to 344 in 2017), deaths involving fentanyl / pethidine / tramadol increased by over 1,000% (from 12 to 198 in 2017), and deaths involving methadone increased by 122% (from 85 to 189 in 2017).

Figure 16: Unintentional drug-induced deaths by opioid type, 2001-2017
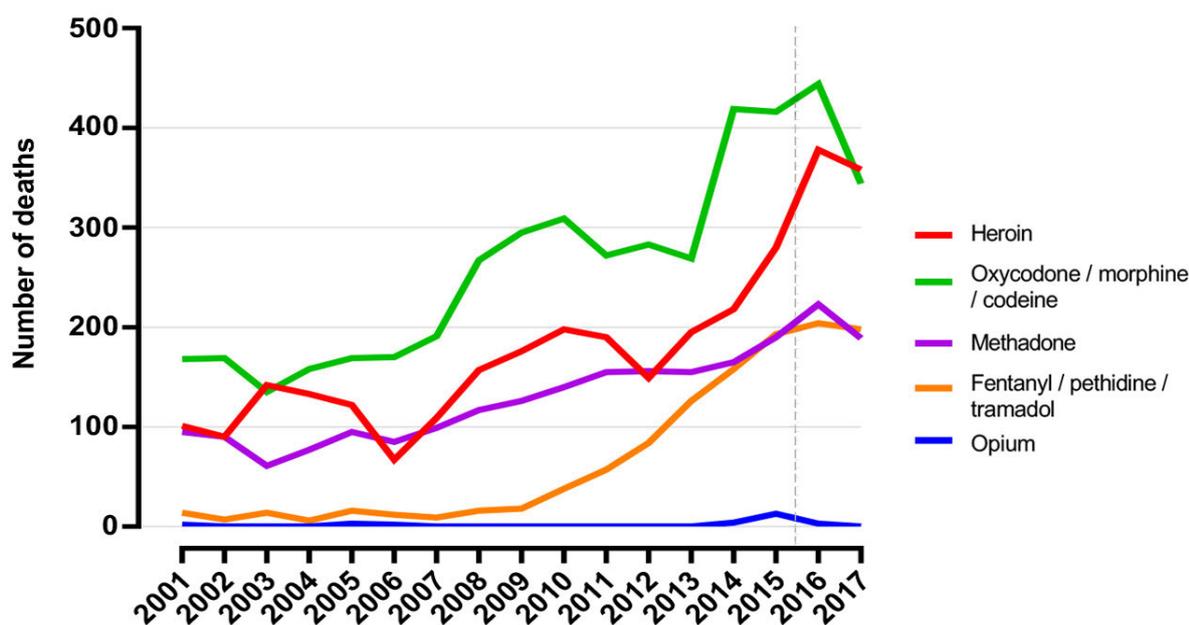
Note: 2016 and 2017 data are preliminary, and likely to rise

The states show markedly different trends, by opioid type (Figure 17). For heroin (Figure 17A), the highest rates of unintentional drug-induced deaths have predominantly occurred in Victoria, with a sharp increase from 2012 onwards, such that in 2017 the rate of drug-induced deaths involving heroin was 2.6 deaths per 100,000 population in Victoria.

For oxycodone / morphine / codeine (Figure 17B), Western Australia has had the highest rate of unintentional drug-induced deaths in recent years, and in 2017 the rate of unintentional drug-induced deaths involving oxycodone / morphine / codeine was 2.8 deaths per 100,000 population in Western Australia.

For methadone (Figure 17C), the overall trend is increasing in New South Wales, Victoria, Queensland and Western Australia, but with some volatility in the rates due to small numbers. The highest rates of unintentional drug-induced deaths involving methadone are currently observed in New South Wales and Victoria (0.9 deaths per 100,000 population in both states).

For fentanyl / pethidine / tramadol (Figure 17D), the highest rate of deaths in recent years have been in Queensland and Western Australia, and the sharp increases observed here from 2013 onwards are not as apparent in other states. In 2017, Queensland had a rate of 1.2 per 100,000 population for unintentional drug-induced deaths involving fentanyl / pethidine / tramadol, and in Western Australia this rate was 0.9 deaths per 100,000 population.

Figure 17: Unintentional drug-induced deaths by state for each opioid type, 2001-2017, shown as a rate per 100,000 population

Note: 2016 and 2017 data are preliminary, and likely to rise.

C. Methadone

D. Fentanyl / pethidine / tramadol
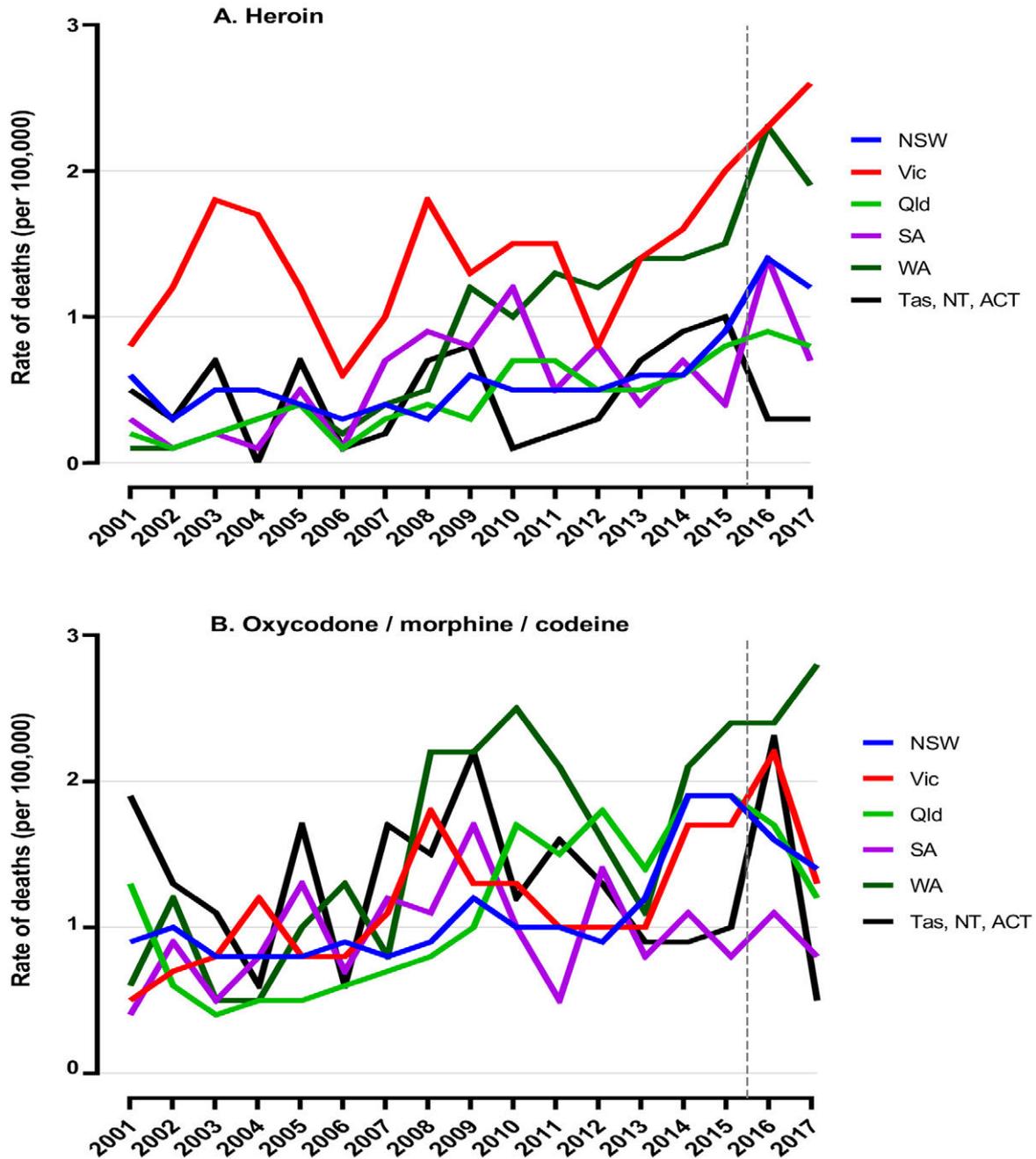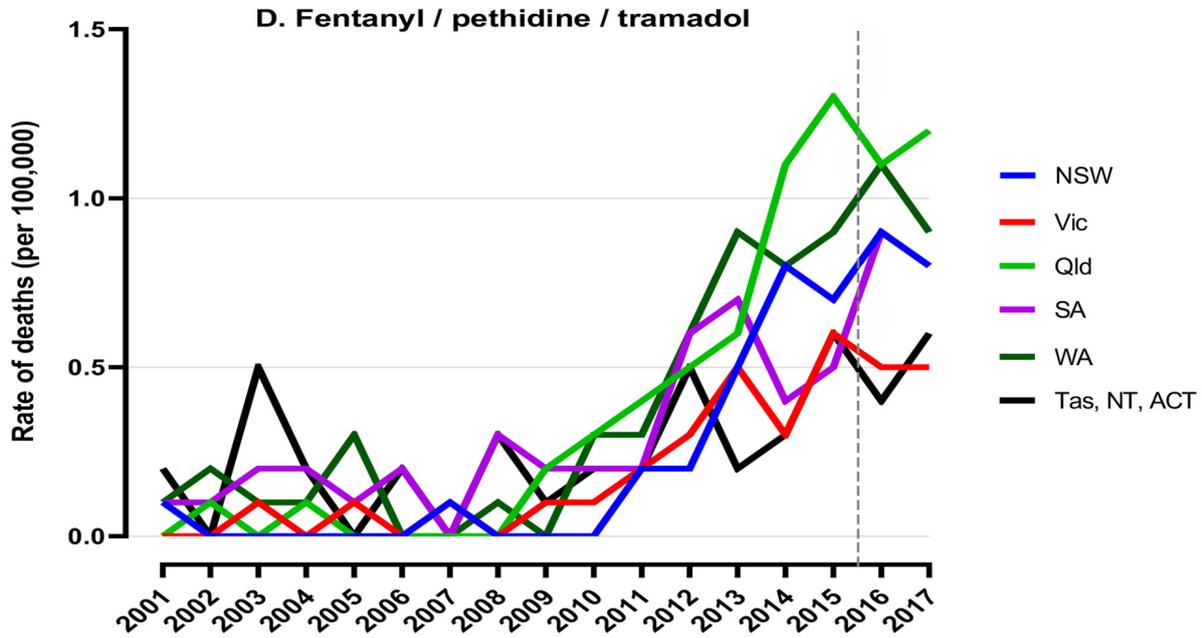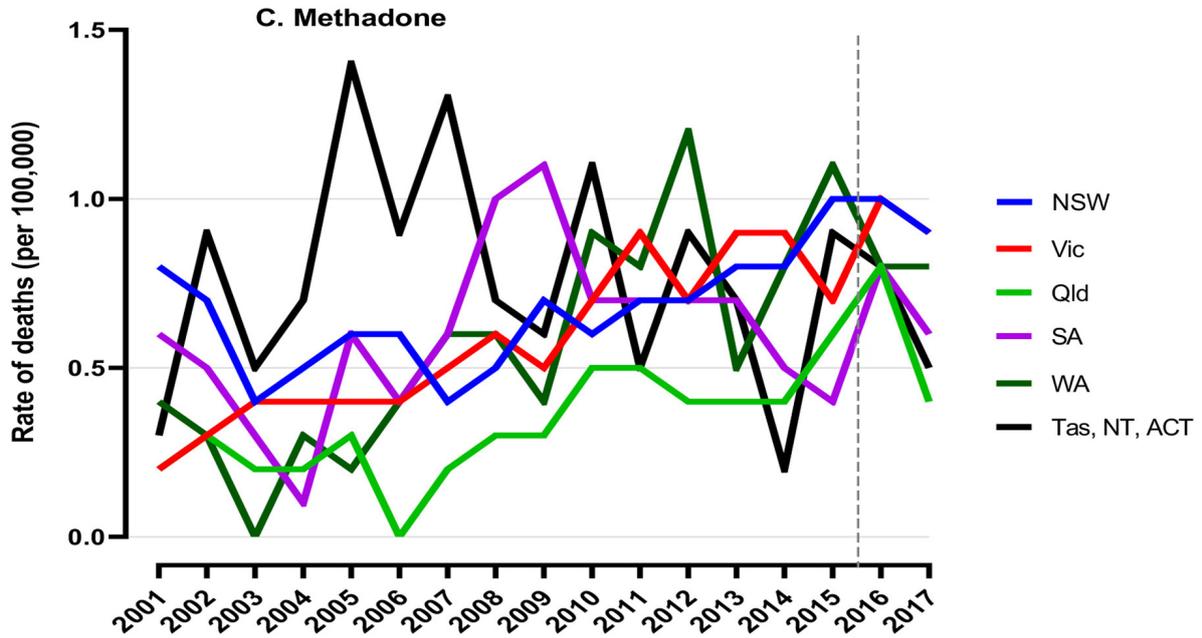
Note: 2016 and 2017 data are preliminary, and likely to rise.

Older age groups are more prevalent in unintentional drug-induced deaths involving pharmaceutical opioids than those involving heroin (Figure 18). In the period 2013-2017, the most common age group for unintentional deaths involving heroin was 30-39 (with 519 deaths, or 36.3% of unintentional drug-induced deaths involving heroin), compared to 40-49 for pharmaceutical opioids (with 817 deaths, or 32.4% of unintentional deaths involving these drugs).

Figure 18 – Unintentional drug-induced deaths, by opioid type and age group, 2013-2017 data aggregated
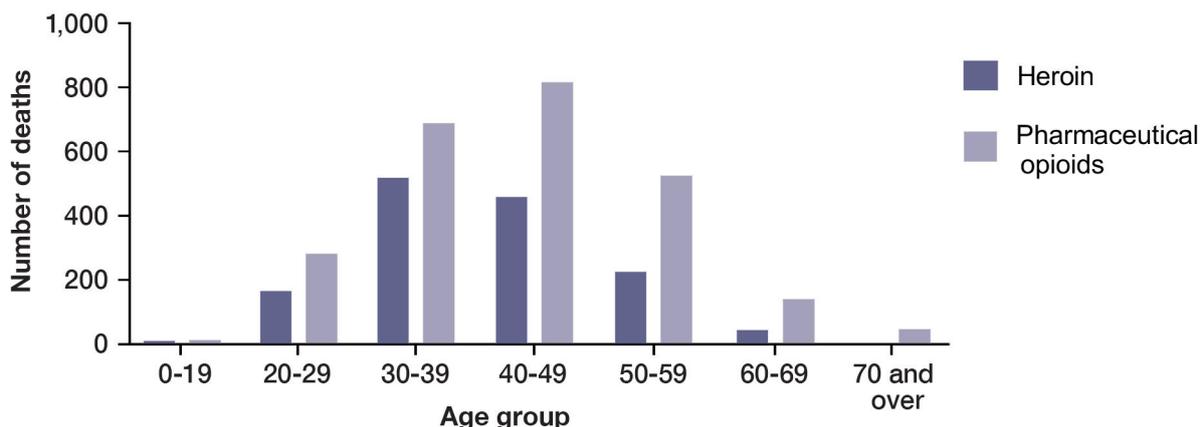
As shown in Figure 19 (data are aggregated over the period 2013-2017), among both males and females, the most common type of opioids associated with unintentional drug-induced deaths were pharmaceutical opioids, involved in 49.1% of unintentional drug-induced deaths involving opioids among males and 58.0% of unintentional drug-induced deaths involving opioids among females. Males had a higher proportion of unintentional drug-induced deaths involving heroin than females (33.1% among males, compared with 20.3% among females), whereas females had a higher proportion of unintentional drug-induced deaths involving pharmaceutical opioids. For both groups, methadone was associated with about one-in-five unintentional drug-induced deaths involving opioids (17.7% for males and 21.7% for females).

Figure 19: Unintentional drug-induced deaths by opioid type and sex, 2013-2017 data aggregated
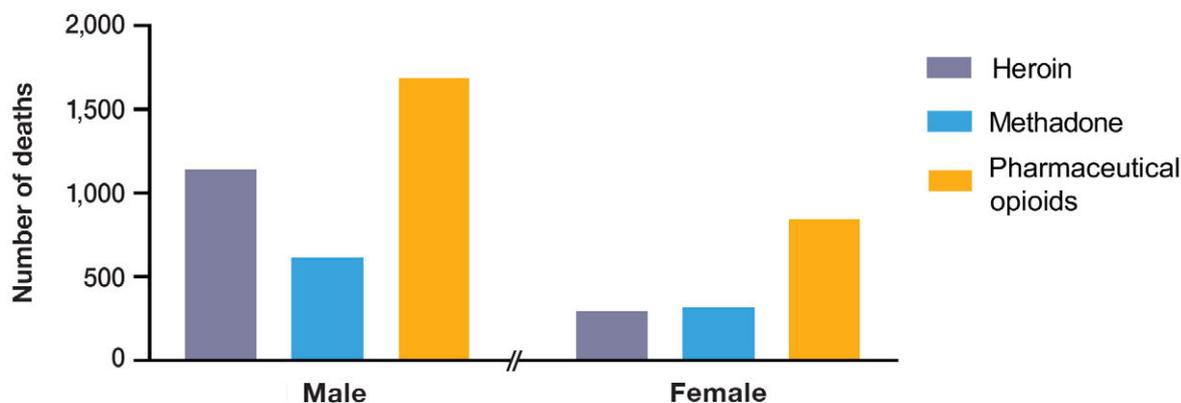
Unintentional drug-induced deaths involving opioids are increasing overall, however, there are differences between regional / rural and metropolitan areas in the most common types of opioid involved (Figure 20).

In the capital cities (Figure 20A), the number of drug-induced deaths involving heroin has increased dramatically since 2014 (from 156 to 271 deaths in 2017), and in 2016 overtook the number of deaths involving oxycodone / morphine / codeine (221 deaths in 2017).

In rural and regional areas, drug-induced deaths involving opioids have been dominated by oxycodone / morphine / codeine (123 deaths in 2017). The number of deaths involving fentanyl / pethidine / tramadol in regional and rural areas has increased substantially since 2010 (from 17 to 101 deaths in 2017), with these opioids now accounting for the second-highest number of drug-induced deaths involving opioids. Compared to the patterns seen in the capital cities, the number of unintentional drug-induced deaths involving heroin in regional and rural areas have increased more markedly since 2013 (from 24 to 87 deaths in 2017) but remain low relative to the other pharmaceutical opioids.

Figure 20: Unintentional drug-induced deaths by opioid type, 2001-2017, within (A) and outside of (B) capital cities
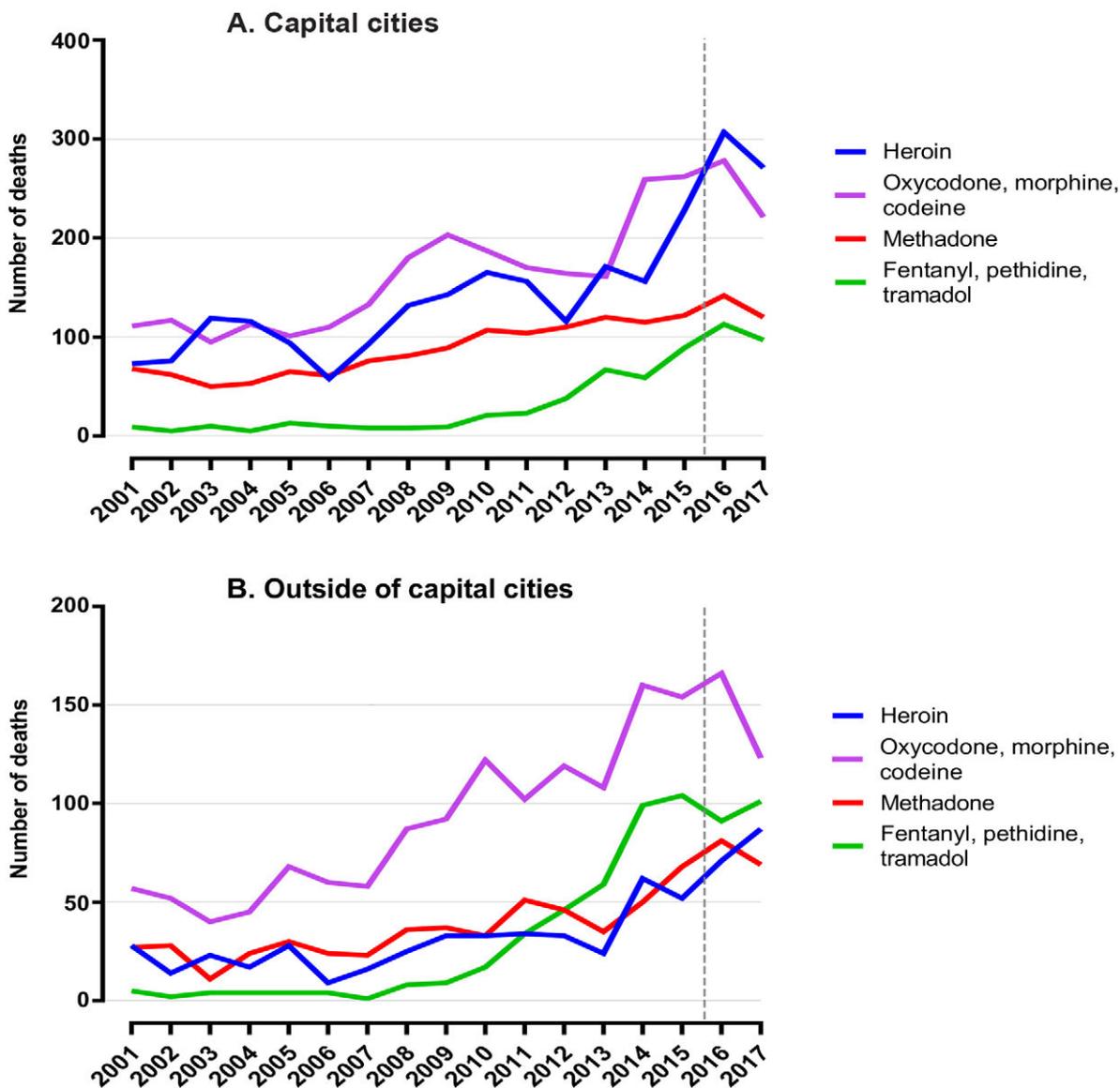
Note: 2016 and 2017 data are preliminary, and likely to rise.

Unintentional drug-induced deaths involving opioids predominantly occur in a poly-drug context, as shown in Figure 21. The most common combination of drugs is opioids with benzodiazepines, and this category of poly-drug use is significantly increasing, having more than trebled from 160 deaths in 2007 to 497 in 2017. Until 2014, the combination of opioids with other pharmaceuticals (includes anti-convulsants, anti-psychotics, sedatives and hypnotics, and anaesthetics, but excludes opioid analgesics and benzodiazepines) was the least common combination of drugs identified in unintentional drug-induced deaths involving opioids. Since 2014, however, the number of deaths involving these drugs has increased almost ten-fold, with opioids with 'other pharmaceuticals' now accounting for the second-highest number of unintentional drug-induced deaths involving opioids (212 deaths in 2017). In contrast, the number of unintentional deaths has remained relatively stable for the sole use of heroin, the sole use of pharmaceutical opioids, or the combination of opioids with alcohol.

Figure 21: Unintentional drug-induced deaths involving opioids by sole-drug and poly-drug use categories, 2007-2017
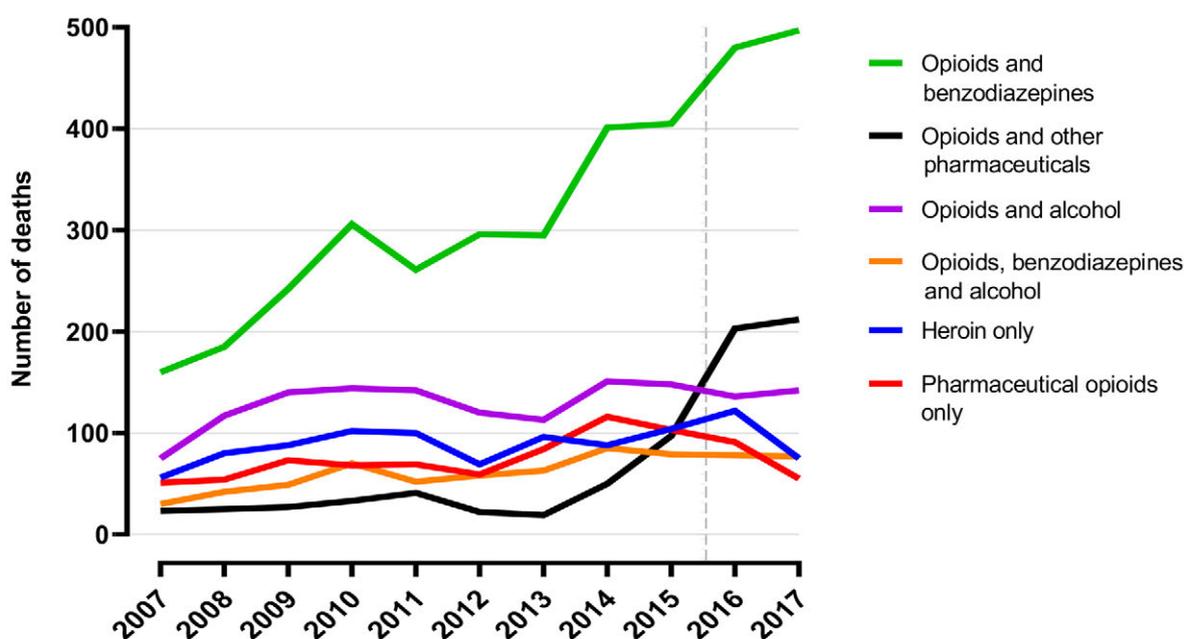
Note: 2016 and 2017 data are preliminary, and likely to rise.

6.2.   Benzodiazepines

There were 583 unintentional drug-induced deaths involving benzodiazepines in 2017, equating to 36.2% of all unintentional drug-induced deaths; this was the second-highest drug group identified, behind opioids. However, the involvement of benzodiazepines almost always occurred in a poly-substance context, with only 1.0% of these 583 deaths involving only benzodiazepines.

As shown in Figure 22, rates of unintentional drug-induced deaths involving benzodiazepines have risen sharply since 2013 in Western Australia (from 1.1 to 3.8 deaths per 100,000 population) and Victoria (from 1.8 to 3.1 deaths per 100,000 population), a trend which is not replicated in other states, though a more gradual increase is observed in New South Wales.

Figure 22: Unintentional drug-induced deaths involving benzodiazepines by state and territory 2001-2017, as a rate per 100,000 population
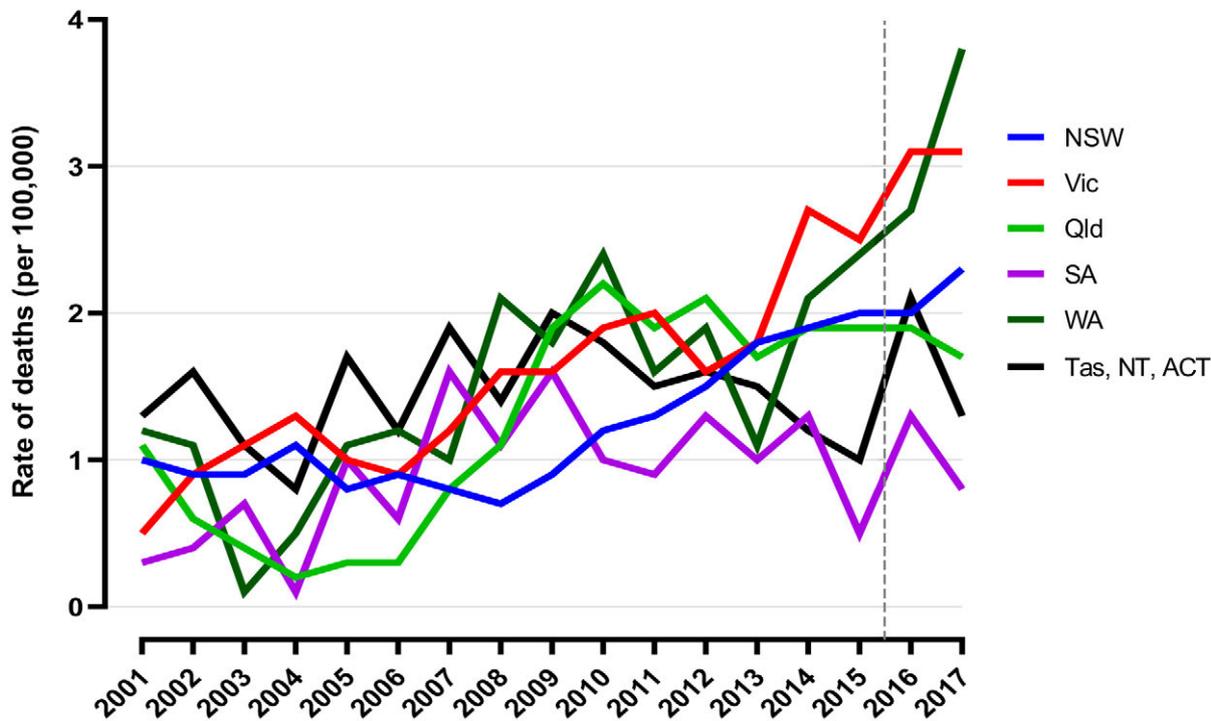
Note: 2016 and 2017 data are preliminary, and likely to rise.

The number of unintentional drug-induced deaths involving benzodiazepines over the period 2013-2017 was highest among people aged 40-49 (accounting for 32.6% of deaths involving benzodiazepines), followed by those aged 30-39 (29.4% of deaths involving benzodiazepines), as shown in Figure 23.

Figure 23: Unintentional drug-induced deaths involving benzodiazepines by age group, 2013-2017 data aggregated
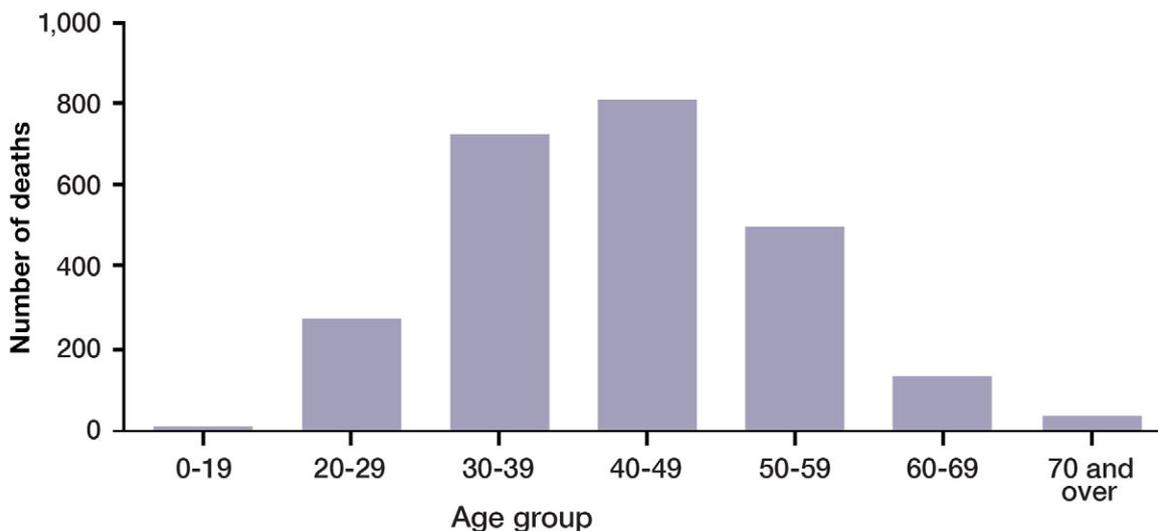
Note: Data are aggregated over the five-year period.

Males had almost double the number of unintentional drug-induced deaths involving benzodiazepines than females, with 1,630 deaths among males accounting for one-third of deaths involving benzodiazepines (66.1%), compared with 836 deaths among females, over the period 2013-2017, as shown in Figure 24.

Figure 24: Unintentional drug-induced deaths involving benzodiazepines by sex, 2013-2017 data aggregated
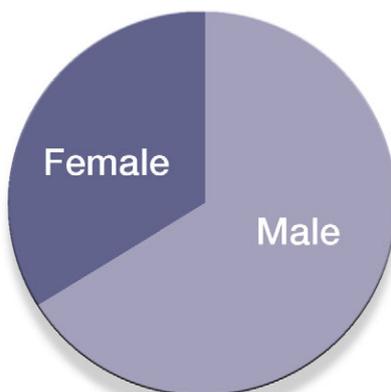
Note: Data are aggregated over the five-year period.

Unintentional drug-related deaths involving benzodiazepines are increasing both within and outside of capital cities, with rates comparable between them. In 2017, the rate of unintentional drug-induced deaths involving benzodiazepines was 2.3 deaths per 100,000 population in capital cities, compared to 2.4 deaths per 100,000 population outside of the capital cities (Figure 25).

Figure 25: Unintentional drug-induced deaths involving benzodiazepines by regionality, 2001-2017, as a rate per 100,000 population
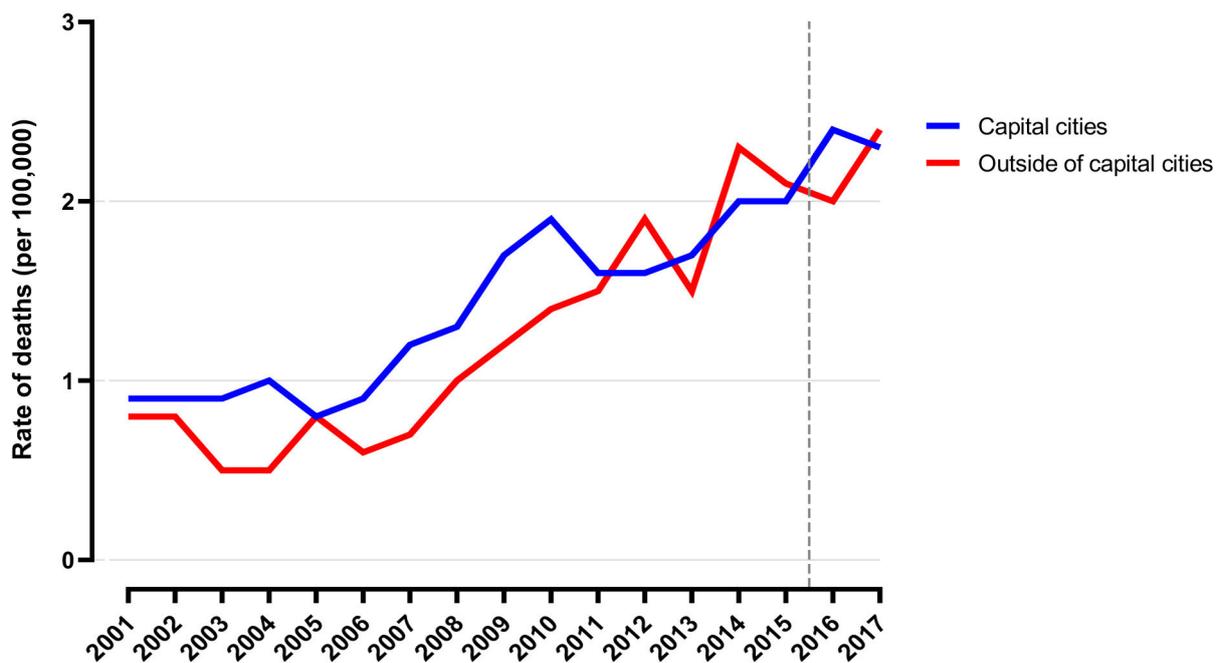
Note: 2016 and 2017 data are preliminary, and likely to rise.

6.3.   Stimulants

This group includes methamphetamine (including 'ice'), amphetamine, and ecstasy (MDMA). There were 417 unintentional drug-induced deaths involving stimulants in 2017, equating to 25.9% of all unintentional drug-induced deaths, compared to 5.4% of all unintentional drug-induced deaths in 2001.

Unintentional drug-induced deaths involving stimulants are increasing in all states and territories (Figure 26). Since 2013, the highest rates of death involving stimulants have been observed in Western Australia, increasing from 1.3 to 2.7 deaths per 100,000 population from 2013 to 2017.

Figure 26: Unintentional drug-induced deaths involving stimulants by state and territory 2001-2017, as a rate per 100,000 population
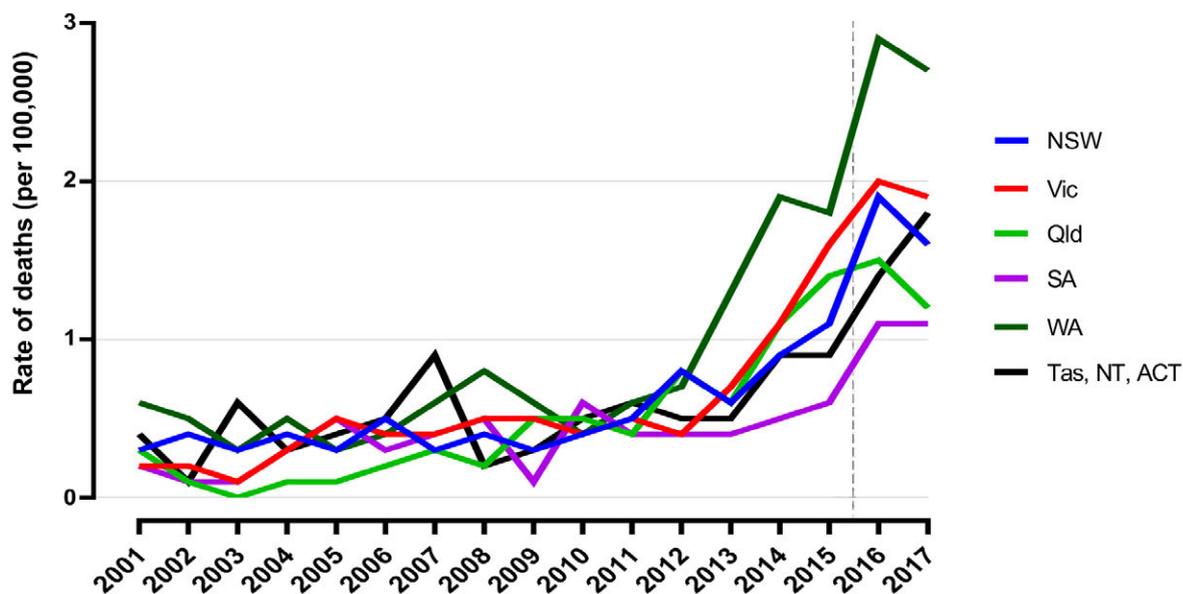
Note: 2016 and 2017 data are preliminary, and likely to rise.

The number of unintentional deaths involving stimulants over the period 2013-2017 was highest among people aged 30-39 (accounting for 34.9% of deaths involving stimulants), followed by those aged 40-49 (32.2% of deaths), as shown in Figure 27.

Figure 27: Unintentional drug-induced deaths involving stimulants by age group, 2013-2017 data aggregated
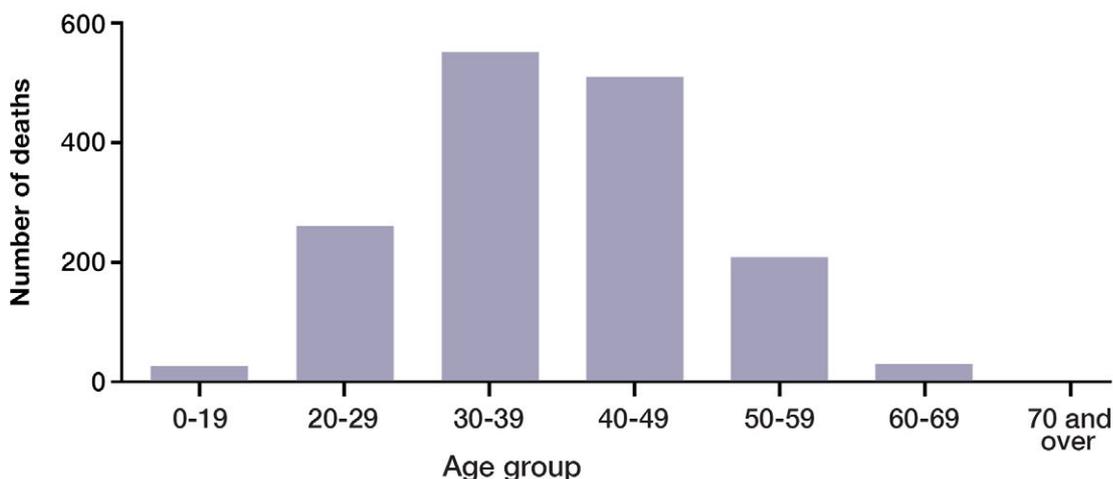
Note: Data are aggregated over the five-year period.

Males had over three times more unintentional drug-induced deaths involving stimulants than females, with 1,200 deaths among males accounting for three-quarters of deaths involving stimulants (75.8%), compared with 383 deaths among females, over the period 2013-2017 (Figure 28).

Figure 28: Unintentional drug-induced deaths involving stimulants by sex, 2013-2017 data aggregated
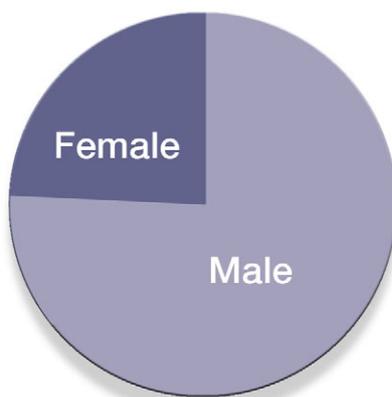
Note: Data are aggregated over the five-year period.

Unintentional drug-related deaths involving stimulants are increasing both within and outside of capital cities (Figure 29). While capital cities had noticeably higher death rates for several years from 2006 to 2010, the rates for the two types of areas have been tracking closely since 2011. The rates of unintentional drug-induced deaths involving stimulants, from 2011-2017, increased from 0.5 to 1.7 deaths
of the capital cities.

Figure 29: Unintentional drug-induced deaths involving stimulants by regionality, 2001-2017, as a rate per 100,000 population
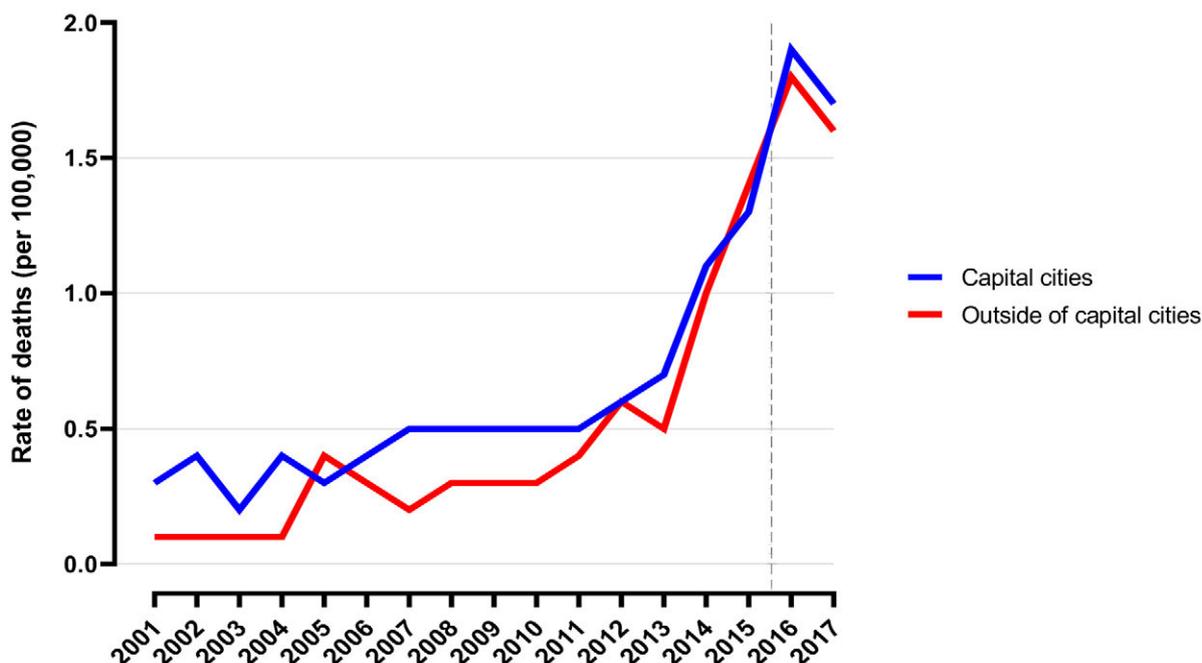
Note: 2016 and 2017 data are preliminary, and likely to rise.

6.4.   Anti-convulsants (neuropathic pain modulators)

This group of drugs includes pregabalin and gabapentin, though in terms of prescribing, pregabalin is more commonly prescribed in Australia than gabapentin, and prescribing rates for pregabalin are significantly increasing[1]. Though there are potentially multiple drugs within this group, pregabalin is the most commonly identified in coronial data. As these drugs were rarely prescribed before 2012, and rates of deaths were low, data are only presented from 2012 onwards. It is also important to note that though these drugs are classified in the coding system as anti-convulsants, they are commonly prescribed for chronic neuropathic pain.

While the overall number of unintentional drug-induced deaths involving anti-convulsants is low (67 deaths in 2017, representing just 4.2% of all unintentional drug-induced deaths), the number of unintentional drug-induced deaths involving anti-convulsants has increased markedly since 2015 (Figure 30). Indeed, between 2001 and 2014, there were no more than four unintentional deaths involving anti-convulsants each year. In 2015 this increased to 11 deaths, before rising to 61 deaths in 2016 and 67 in 2017.

This change has been driven by significant increases in Western Australia (rate in 2017 was 0.7 deaths per 100,000 population), Victoria (rate in 2017 was 0.4 deaths per 100,000 population), and Queensland (rate in 2017 was 0.4 deaths per 100,000 population). It is possible, however, that this change is also occurring in NSW; but it has not yet been identified, as post-mortem toxicological testing for pregabalin is not available in NSW as at 2018[2]. Despite the observed increases in some jurisdictions in the rate of unintentional drug-induced deaths involving anti-convulsants, the death rate remains far lower than for other drug types.

Figure 30: Unintentional drug-induced deaths involving anti-convulsants by state, 2012-2017, as a rate per 100,000 population
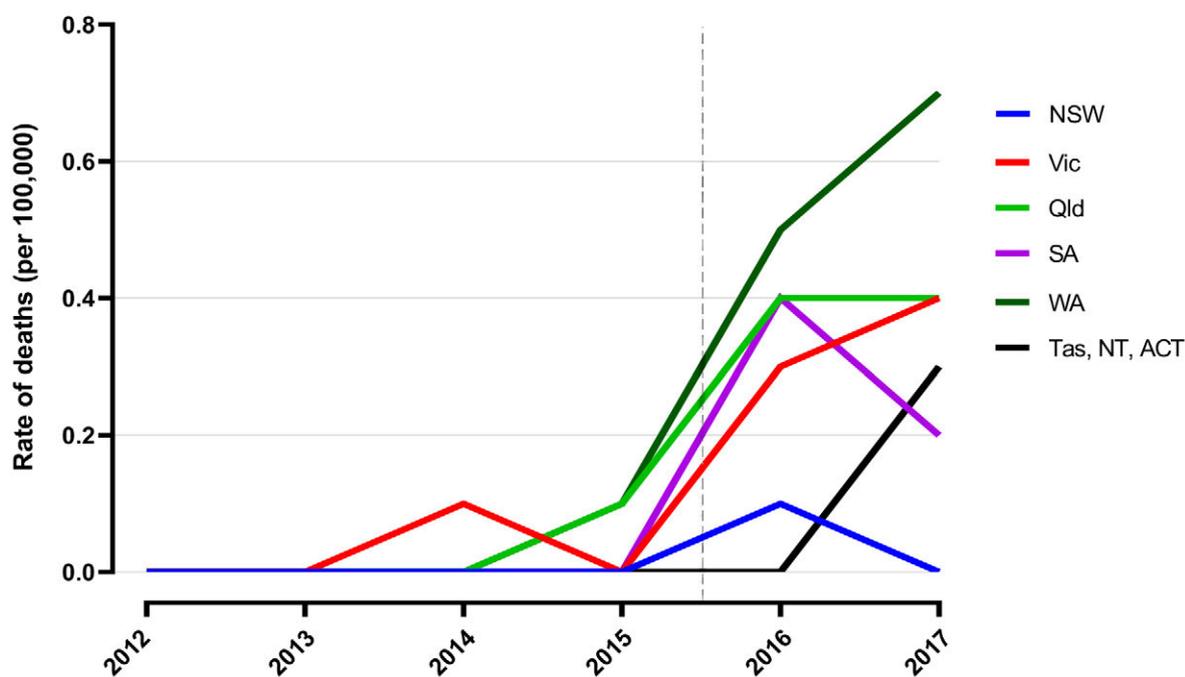
Note: 2016 and 2017 data are preliminary, and likely to rise.

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[1] Cairns, R., Schaffer, A. L., Ryan, N., Pearson, S. A., & Buckley, N. A. (2019). Rising pregabalin use and misuse in Australia: trends in utilization and intentional poisonings. *Addiction*, 114(6), 1026-1034.
[2] Ibid.

The 2015-2017 increase in unintentional drug-induced deaths involving anti-convulsants has occurred in both the capital cities and in regional / rural areas (Figure 31). The rate of deaths prior to 2015 was 0.0 in both metropolitan and regional / rural areas; in 2017 the rate of deaths in both was 0.3 per 100,000 population. While the rate itself is low, the increase is dramatic.

Figure 31: Unintentional drug-induced deaths involving anti-convulsants by regionality, 2012-2017, as a rate per 100,000 population
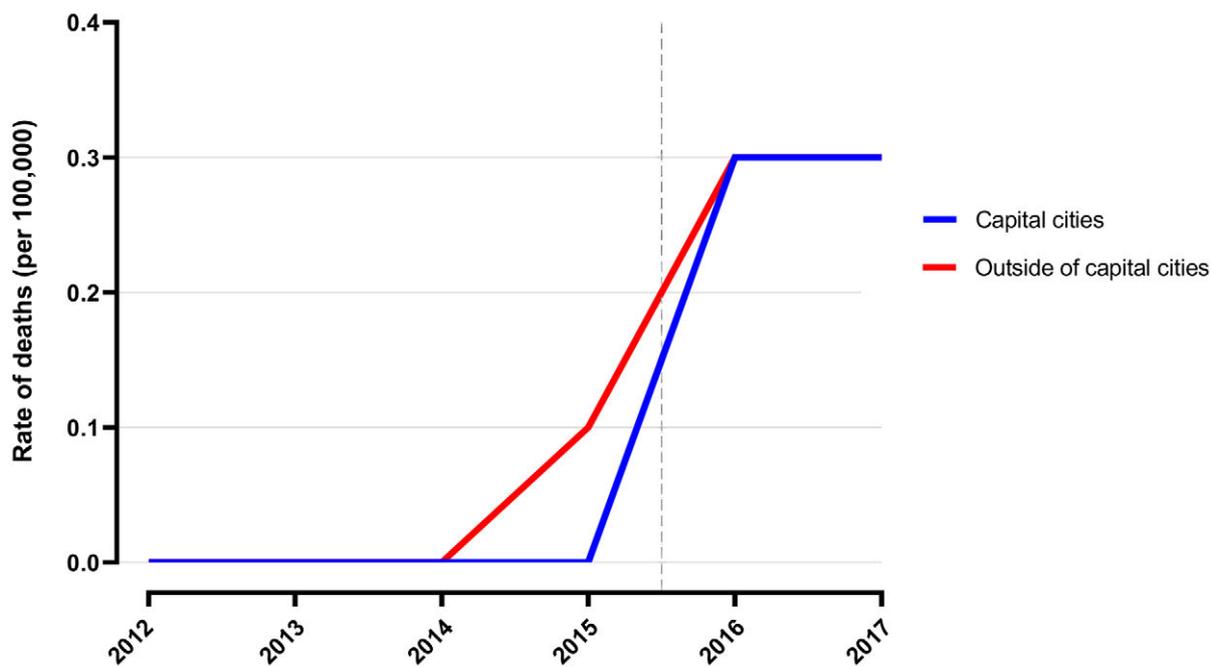
Note: 2016 and 2017 data are preliminary, and likely to rise.

6.5.   Anti-psychotics

This group includes drugs such as quetiapine, olanzapine, risperidone, paliperidone, amisulpride, and lithium; though quetiapine is most commonly identified in coronial data. There were 192 unintentional drug-induced deaths involving anti-psychotics in 2017, representing 11.9% of all unintentional drug-induced deaths. Rates of unintentional drug-induced deaths involving anti-psychotics have increased markedly since 2013 (Figure 32), potentially reflecting increases in the total number of prescriptions. In Australia, data collected from 2011-2015 show that prescription numbers of anti-psychotics has risen in recent years[1]. Earlier peaks and volatility in Tasmania, the Australian Capital Territory and the Northern Territory are likely due to small numbers being calculated as a rate with small populations, and should be interpreted cautiously.

Figure 32: Unintentional drug-induced deaths involving anti-psychotics by state, 2001-2017, as a rate per 100,000 population
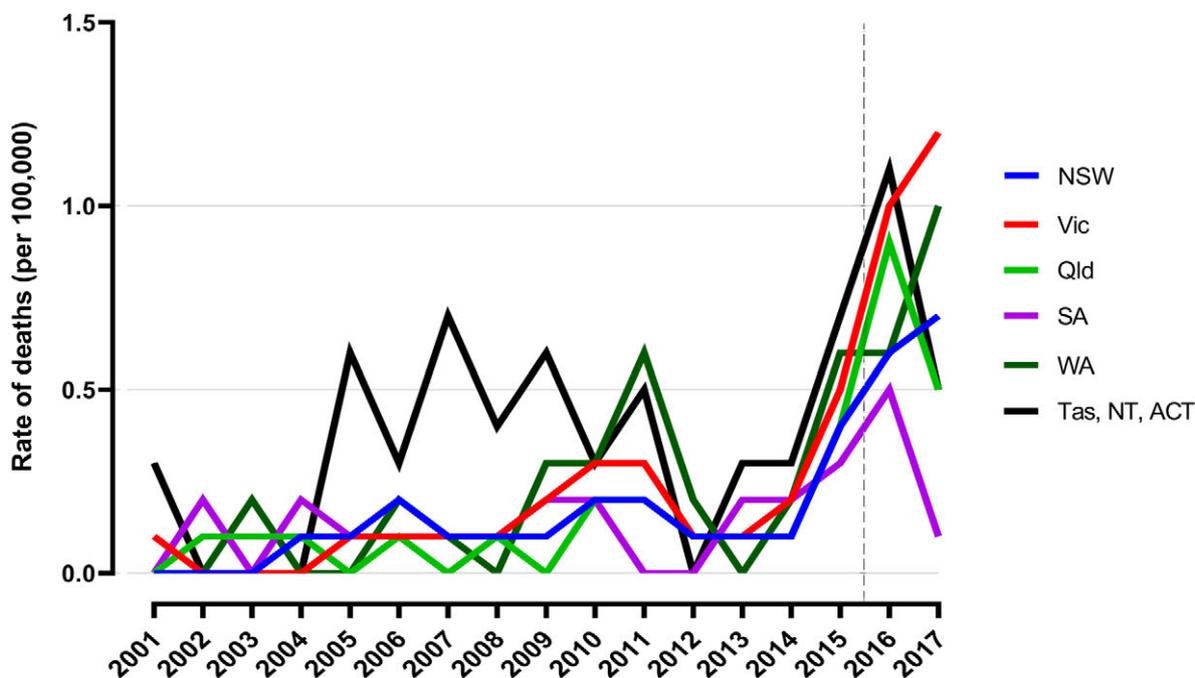
Note: 2016 and 2017 data are preliminary, and likely to rise.

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[1] Pharmaceutical Benefits Scheme (2016) Anti-psychotic medicines: 24 month review of quetiapine 25 mg:
http://www.pbs.gov.au/industry/listing/participants/public-release-docs/2016-09/antipsychotics-dusc-prd-2016-09-final.pdf

The 2014-2017 increase in unintentional drug-induced deaths involving anti-psychotics has occurred in both the capital cities and in regional / rural areas (Figure 33). The rate of unintentional drug-induced deaths involving anti-psychotics increased from 2014-2017, from 0.1 to 0.8 deaths per 100,000 population in the capital cities, and from 0.0 to 0.8 deaths per 100,000 population outside of the capital cities. As with anti-convulsants, the rate of death for these drugs remains lower than it is for other classes of drugs, including many of the opioids and stimulants.

Figure 33: Unintentional drug-induced deaths involving anti-psychotics by regionality, 2001-2017, as a rate per 100,000 population
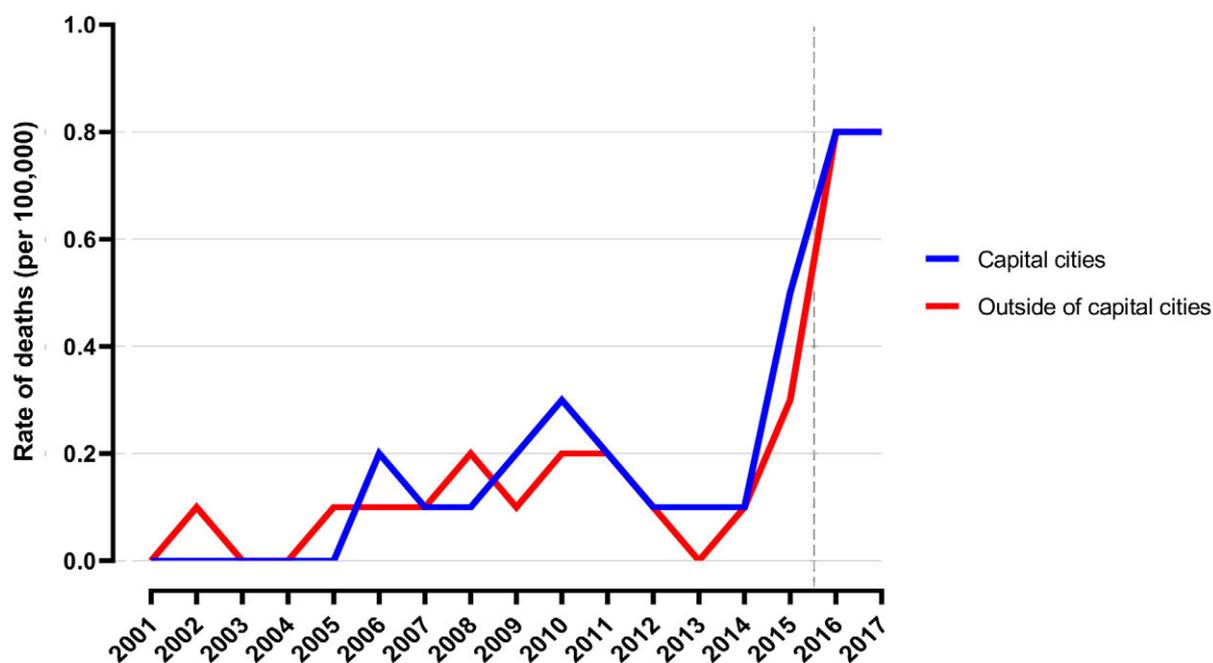
Note: 2016 and 2017 data are preliminary, and likely to rise.

7.   Spatial trends

This chapter presents data on unintentional drug-induced deaths, analysed by spatial variables including state, capital city classification, public health network, and local areas (Statistical Area, SA3). Detailed data are provided for New South Wales and Victoria, with fewer data presented for Queensland and Western Australia due to smaller numbers that did not allow for a more detailed analysis. Tasmania, Australian Capital Territory and the Northern Territory were not able to be analysed, due to small numbers. However, Table 8 provides data for all states and territories, with data aggregated into 5-year blocks, to provide sufficient numbers for reliable calculation of rates.

7.1.   New South Wales

Since 2010, regional and rural New South Wales has had a higher rate of unintentional drug-induced deaths than Greater Sydney, with 8.8 deaths per 100,000 population in regional and rural NSW in 2017 compared to 6.6 in Sydney (Figure 34).

In Greater Sydney, the rate of unintentional drug-induced deaths is currently highest for benzodiazepines (1.9 deaths per 100,000 population in 2017), though rates of death involving all drug types are trending upwards (Figure 35A).

In regional and rural New South Wales, benzodiazepines are showing a significant upward trend, overtaking pharmaceutical opioids in 2017 to have the highest rate of involvement in unintentional drug-induced deaths (3.3 deaths per 100,000 population in 2017) (Figure 35B). Importantly, rates in regional and rural New South Wales for these drug types are almost double the rates observed in Sydney.

These data are shown as numbers, rather than rates per 100,000 population, in Table 4 and Table 5.

Figure 34: Unintentional drug-induced deaths by regionality in New South Wales, 2001-2017, as a rate per 100,000 population
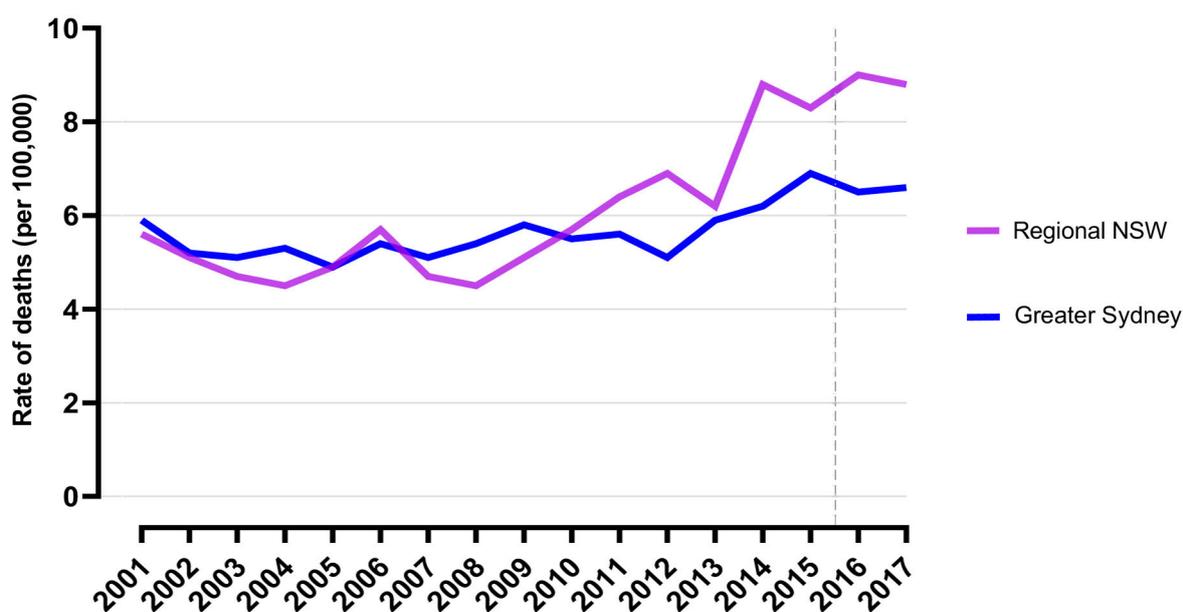
Note: 2016 and 2017 data are preliminary, and likely to rise.

Figure 35: Unintentional drug-induced deaths by drug type in greater Sydney and regional NSW, 2001-2017, as a rate per 100,000 population
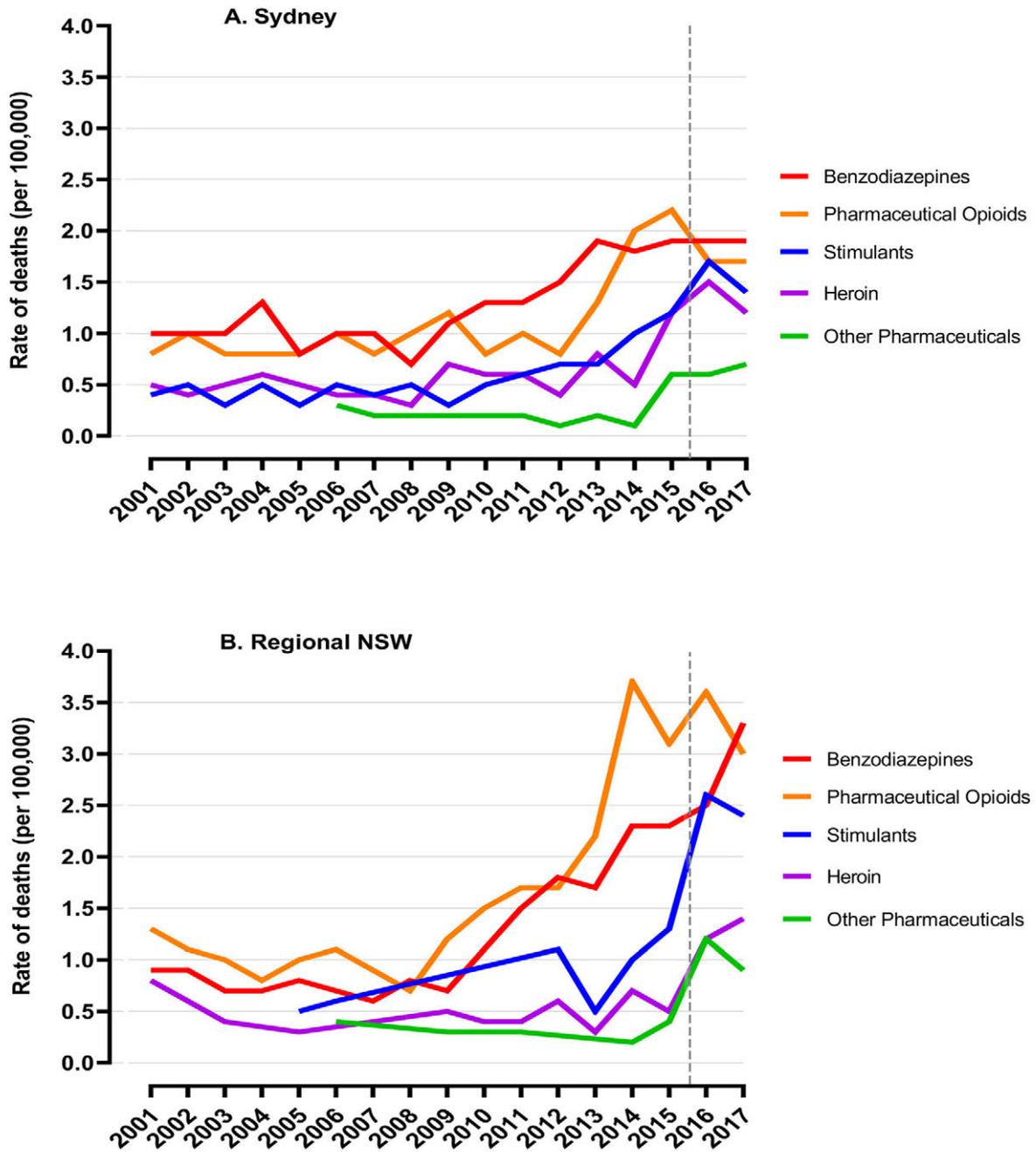
Note: 2016 and 2017 data are preliminary, and likely to rise.

Table 4: Number of unintentional drug-induced deaths, by drug group, Sydney, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	16	22	14	22	12	21	16	21	14	22	29	31	36	46	58	87	74
Benzodiazepines	42	42	43	55	35	43	45	33	49	62	61	71	90	85	96	96	98
Other Pharmaceuticals	4	2	1	4	3	15	7	7	9	9	9	7	9	7	31	31	38
Heroin	23	17	23	25	23	18	20	14	34	28	28	21	37	25	59	77	59
Pharmaceutical Opioids	33	43	35	33	33	41	34	45	57	39	45	39	64	95	109	86	85

Table 5: Number of unintentional drug-induced deaths, by drug group, regional NSW, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	3	7	5	5	10	12	7	5	4	5	6	24	11	24	28	57	55
Benzodiazepines	21	20	14	16	18	15	13	17	16	27	35	41	40	59	56	60	80
Other Pharmaceuticals	0	1	2	1	4	9	3	3	6	7	7	1	4	6	11	29	22
Heroin	17	3	8	5	7	3	6	5	11	8	8	13	6	18	11	28	33
Pharmaceutical Opioids	29	24	21	18	24	25	23	17	28	36	40	39	55	89	77	85	72

7.2.   Victoria

Since 2008, regional and rural Victoria has had a higher rate of unintentional drug-induced deaths than Melbourne (Figure 36). This gap is widening, with a greater increase since 2012 observed in regional and rural Victoria. In 2017, the rate of unintentional drug-induced deaths in regional and rural Victoria was 9.6 per 100,000 population, compared with 5.3 for Melbourne.

In Melbourne, the two drug types with the highest rates of involvement in unintentional drug-induced deaths are benzodiazepines (2.8 deaths per 100,000 population in 2017) and heroin (2.6 deaths per 100,000 population in 2017) (Figure 37A). In regional and rural Victoria, however, benzodiazepines are the highest (4.8 deaths per 100,000 population in 2017) and heroin (3.1 deaths per 100,000 population in 2017) has become slightly higher than pharmaceutical opioids as of 2017, with all drug types showing a strong increase (Figure 37B). The steep increase in the death rate from pharmaceutical opioids seen in regional and rural Victoria since 2011 is more pronounced than that seen in Melbourne.

As of 2017, regional and rural Victoria's rate of unintentional drug-induced deaths involving heroin is higher than Melbourne's and rapidly increasing, though the overall numbers are higher in Melbourne. In 2017 there were 125 unintentional drug-induced deaths involving heroin in Melbourne compared to 39 in regional and rural Victoria. These data are also provided as numbers, rather than a rate per 100,000 population, in Table 6 and Table 7.

Figure 36: Unintentional drug-induced deaths by regionality in Victoria, 2001-2017, as a rate per 100,000 population

Note: 2016 and 2017 data are preliminary, and likely to rise.
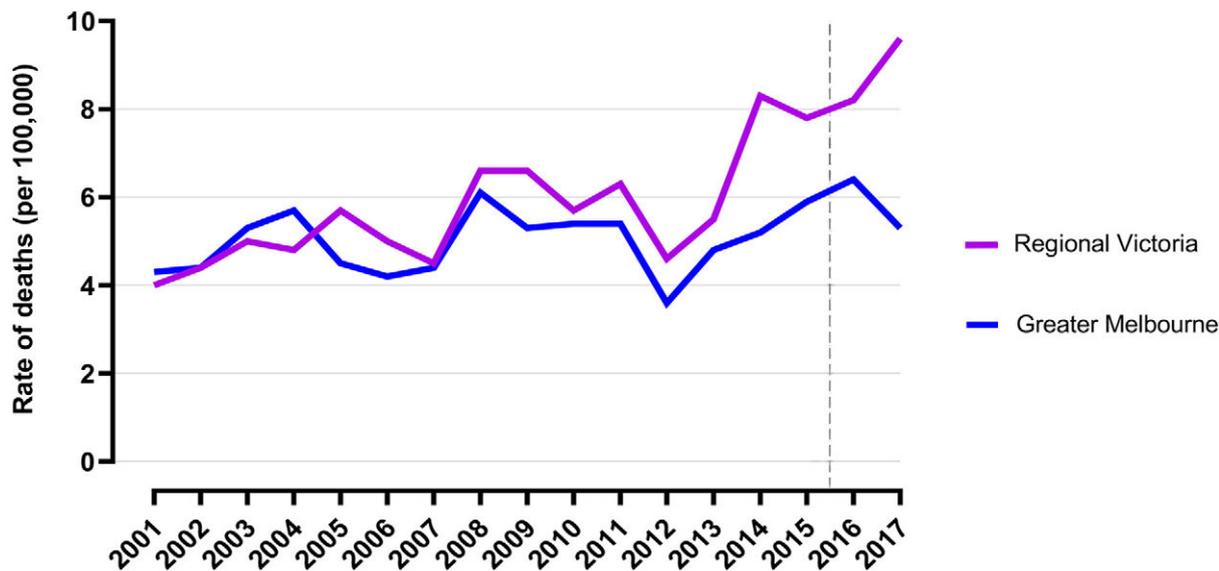
Figure 37: Unintentional drug-induced deaths by drug type in greater Melbourne, 2001-2017, as a rate per 100,000 population
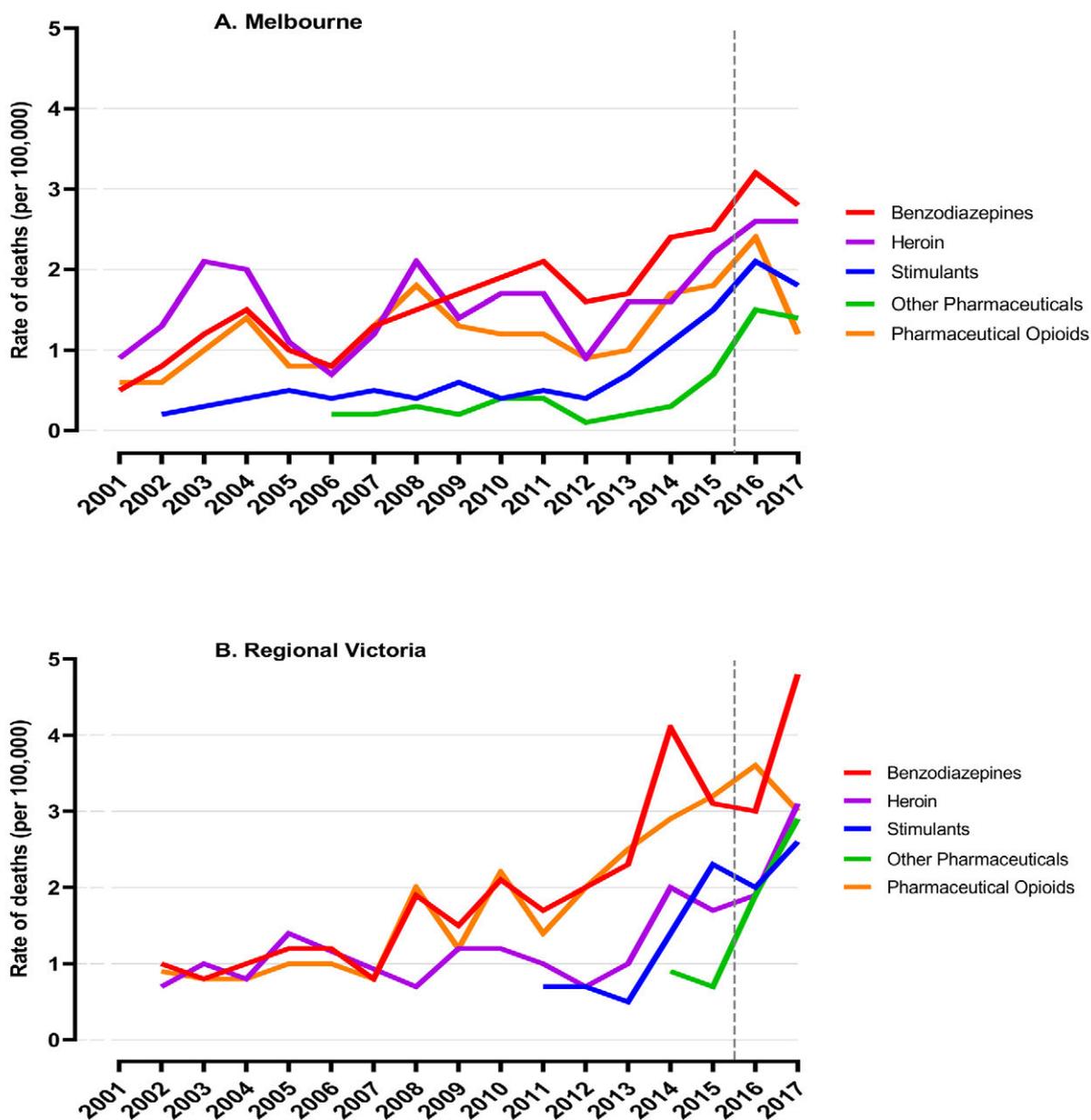
Note: 2016 and 2017 data are preliminary, and likely to rise.

Table 6: Number of unintentional drug-induced deaths, by drug group, Melbourne, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	7	9	5	15	19	15	20	17	23	19	20	18	33	47	67	100	87
Benzodiazepines	19	31	44	56	38	32	51	62	70	79	89	69	75	110	113	150	136
Other Pharmaceuticals	5	1	5	3	5	8	9	11	9	17	18	6	9	16	33	69	65
Heroin	35	50	78	74	42	27	46	86	59	70	70	40	70	69	101	119	125
Pharmaceutical Opioids	21	22	36	51	31	32	51	74	55	51	51	39	45	77	83	111	58

Table 7: Number of unintentional drug-induced deaths, by drug group, regional Victoria, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	1	0	1	2	4	5	2	7	1	3	8	2	6	16	27	24	32
Benzodiazepines	1	11	9	6	14	14	9	22	18	25	20	23	28	51	38	39	60
Other Pharmaceuticals	4	2	3	1	3	4	5	3	2	5	3	5	2	12	9	24	38
Heroin	5	8	11	9	16	2	4	8	13	13	11	8	11	25	20	25	39
Pharmaceutical Opioids	5	10	9	10	12	12	9	24	15	28	17	24	31	37	39	48	39

7.3.   Queensland

Though regional and rural Queensland has had higher rates of unintentional drug-induced deaths than Brisbane from 2011 onwards, both areas have an equivalent rate of 5.5 deaths per 100,000 population in 2017, and the difference between the capital city and regional / rural areas is not as great as the differences observed in New South Wales and Victoria (Figure 38). There appears to be an overall levelling off, or even a decline in unintentional drug-induced deaths, particularly in Brisbane, from 2010 onwards, though rates are still higher than what was observed from 2003-2007.

This section does not include data as a rate per 100,000 for different drug types, because relatively low numbers in some drug groups for regional and rural Queensland makes calculation of rates less reliable.

Figure 38: Unintentional drug-induced deaths by regionality in Queensland, 2001-2017, as a rate per 100,000 population
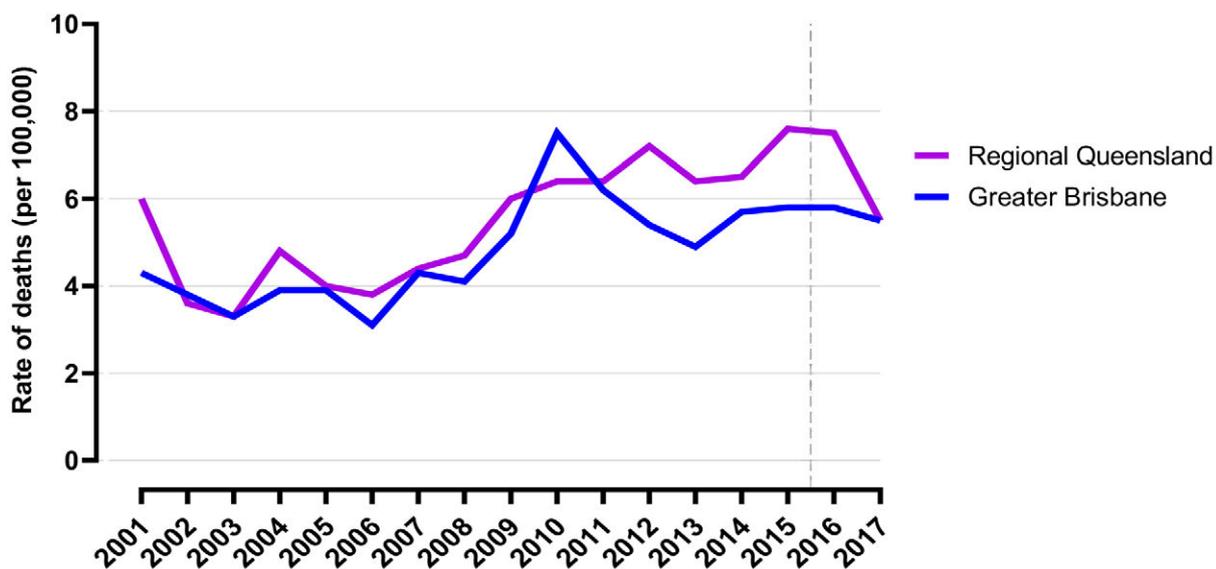
Note: 2016 and 2017 data are preliminary, and likely to rise.

## 7.4. Western Australia

Greater Perth and regional / rural Western Australia have both seen an overall increase in rates of unintentional drug-induced deaths since 2001 (Figure 39). In 2017, the rates of unintentional drug-induced deaths were 8.5 deaths per 100,000 population in Perth, compared to 6.8 deaths per 100,000 population in regional and rural Western Australia. However, the relatively small population living in regional and rural Western Australia means that small fluctuations in the number of unintentional drug-induced deaths can appear large when measured in terms of rates.

This section does not include data as a rate per 100,000 for different drug types, because relatively low numbers in some drug groups for regional and rural Western Australia makes calculation of rates less reliable.

Figure 39: Unintentional drug-induced deaths by regionality in Western Australia, 2001-2017, as a rate per 100,000 population
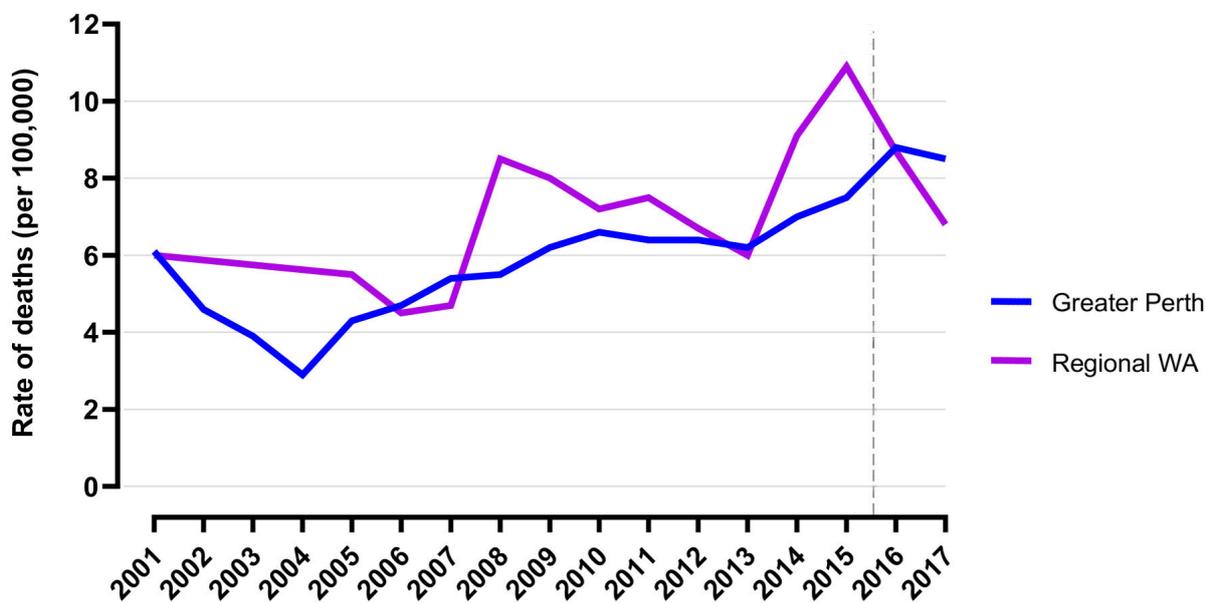
Note: 2016 and 2017 data are preliminary, and likely to rise.

7.5. Unintentional drug-induced deaths by state and territory

As shown in Table 8, the rate of unintentional drug-induced deaths per 100,000 population has increased across Australia for all drug types, when comparing the period 2003-2007 to 2013-2017. The ratio between the 2013-2017 rate and the 2003-2007 rate highlights the magnitude of changes during this time.

Queensland and Western Australia have some of the highest increases in the rates of unintentional drug-induced deaths. The largest increase in unintentional drug-induced deaths involving benzodiazepines is seen in Queensland, where the rate of deaths has increased by more than a factor of four between the two periods.

Queensland has also seen an eight-fold increase in the rate of unintentional drug-induced deaths involving stimulants, while Western Australia's rates of unintentional drug-induced deaths involving stimulants have increased by a factor of more than five. Victoria has also seen a substantial increase in unintentional drug-induced deaths involving stimulants; its ratio of rates of unintentional drug-induced deaths in 2013-2017 to those in 2003-2007 was 4.2.

Queensland and Western Australia again have the highest ratios for the change in rates of unintentional drug-induced deaths involving pharmaceutical opioids; 4.4 and 3.1 respectively.

Ratios of rates of unintentional drug-induced deaths involving 'other pharmaceuticals' are only available for NSW and Victoria, due to the small number of deaths in other jurisdictions involving these drugs in the 2003-2007 period. Although the rates are low, Victoria has seen a five-fold increase between the two periods.

Western Australia has seen the largest increase in the rate of unintentional drug-induced deaths involving heroin from 2003-2007 to 2013-2017, with a ratio between the two periods of 6.3. Queensland's ratio is second highest, at 2.9.

Table 8: Unintentional drug-induced deaths by state and territory and drug type, by number and rate per 100,000 population, 2003-2007 and 2013-2017

	2003-2007 number	2013-2017 number	2003-2007 rate	2013-2017 rate	Ratio
Benzodiazepines					
NSW	297	760	0.9	2.1	2.3
VIC	273	800	1.1	2.7	2.5
QLD	83	430	0.4	1.9	4.3
SA	61	83	0.8	1.1	1.3
WA	81	309	0.8	2.5	3.1
TAS	47	49	2.0	2.0	1.0
NT	9	9	np	np	np
ACT	7	26	np	1.3	np
Australia	858	2,466	0.9	2.1	2.5

Table 8 continued

	2003-2007 number	2013-2017 number	2003-2007 rate	2013-2017 rate	Ratio
Stimulants					
NSW	124	476	0.4	1.3	3.5
VIC	89	439	0.4	1.5	4.2
QLD	29	280	0.2	1.2	8.1
SA	22	62	0.3	0.8	2.5
WA	42	269	0.4	2.2	5.1
TAS	9	23	np	1.0	np
NT	4	9	np	np	np
ACT	8	25	np	1.2	np
Australia	325	1,583	0.3	1.4	4.2
Pharmaceutical Opioids					
NSW	287	817	0.9	2.2	2.6
VIC	253	568	1.0	1.9	1.9
QLD	108	577	0.6	2.5	4.4
SA	74	121	1.0	1.5	1.5
WA	91	356	0.9	2.8	3.1
TAS	32	37	1.3	1.5	1.1
NT	8	13	np	np	np
ACT	11	32	np	1.6	np
Australia	864	2,521	0.9	2.2	2.5
Other Pharmaceuticals					
NSW	50	188	0.2	0.5	3.4
VIC	43	277	0.2	0.9	5.4
QLD	9	155	np	0.7	np
SA	18	29	np	0.3	np
WA	13	108	np	0.9	np
TAS	9	18	np	np	np
NT	3	7	np	np	np
ACT	2	8	np	np	np
Australia	144	790	0.1	0.7	4.7

Table 8 continued

Heroin					
NSW	139	353	0.4	1.0	2.3
VIC	311	604	1.3	2.1	1.7
QLD	49	166	0.3	0.7	2.9
SA	29	59	0.4	0.7	1.8
WA	27	215	0.3	1.7	6.3
TAS	1	2	np	np	np
NT	0	0	—	—	—
ACT	17	30	np	1.5	np
Australia	573	1,429	0.6	1.3	2.2

Note: np (not available for publication) means that a value could not be calculated due to the low number of deaths, with a dash indicating that no rate was calculated because there were zero deaths.

7.6. Drug-induced deaths by Primary Health Network

Primary Health Networks (PHNs) are healthcare bodies coordinating primary health and other services for geographic catchments areas in Australia. There are 31 PHNs in Australia. Table 9 presents total drug-induced deaths and unintentional drug-induced deaths by PHN.

Table 9: All drug-induced deaths and unintentional drug-induced deaths, by PHN, numbers 2006-2017, and rates per 100,000 population for 2006-2010, 2011-2015, and 2016-2017 aggregated

	2006 no.	2007 no.	2008 no.	2009 no.	2010 no.	2011 no.	2012 no.	2013 no.	2014 no.	2015 no.	2016 no.	2017 no.	2006-2010 rate	2011-2015 rate	2016-2017 rate
PHN101 Central and Eastern Sydney															
Unintentional Drug-induced Deaths	100	96	95	107	99	86	82	117	114	130	134	129	6.9	6.9	8.1
Total Drug-induced Deaths	114	133	143	137	133	114	114	140	140	161	157	155	9.2	8.7	9.6
PHN102 Northern Sydney															
Unintentional Drug-induced Deaths	27	26	27	26	32	38	38	37	28	46	48	43	3.2	4.0	4.7
Total Drug-induced Deaths	33	41	45	44	46	52	56	54	37	60	60	51	4.9	5.6	5.7
PHN103 Western Sydney															
Unintentional Drug-induced Deaths	28	24	40	44	38	53	44	44	41	55	48	53	4.6	5.5	5.4
Total Drug-induced Deaths	34	32	55	52	49	63	60	59	51	69	58	61	5.8	7.0	6.4
PHN104 Nepean Blue Mountains															
Unintentional Drug-induced Deaths	12	18	23	16	21	29	23	22	21	24	38	28	5.5	6.8	9.1
Total Drug-induced Deaths	15	27	25	27	30	32	30	29	29	31	42	34	7.6	8.7	10.3
PHN105 South Western Sydney															
Unintentional Drug-induced Deaths	40	43	44	57	47	44	42	47	68	73	46	66	5.7	6.3	6.0
Total Drug-induced Deaths	49	55	53	72	59	60	60	53	90	83	53	76	7.1	8.0	6.8
PHN106 South Eastern NSW															
Unintentional Drug-induced Deaths	24	34	26	33	30	37	38	38	55	52	62	54	5.2	7.4	9.0
Total Drug-induced Deaths	35	44	50	45	47	59	57	52	67	66	79	67	7.8	10.0	11.5

7.6 continued

	2006 no.	2007 no.	2008 no.	2009 no.	2010 no.	2011 no.	2012 no.	2013 no.	2014 no.	2015 no.	2016 no.	2017 no.	2006-2010 rate	2011-2015 rate	2016-2017 rate
PHN107 Western NSW															
Unintentional Drug-induced Deaths	19	9	16	15	18	27	12	22	33	28	35	32	5.1	8.3	11.4
Total Drug-induced Deaths	21	14	20	17	21	28	15	27	40	31	40	38	6.2	9.5	13.2
PHN108 Hunter New England and Central Coast															
Unintentional Drug-induced Deaths	64	53	45	51	70	68	70	62	94	97	84	101	4.9	6.4	7.6
Total Drug-induced Deaths	76	80	75	81	86	89	107	93	126	128	115	142	6.9	9.0	10.3
PHN109 North Coast															
Unintentional Drug-induced Deaths	32	25	22	26	33	28	39	36	54	40	44	48	5.6	8.0	9.0
Total Drug-induced Deaths	37	54	38	47	49	32	50	45	72	55	61	62	9.3	10.1	11.6
PHN110 Murrumbidgee															
Unintentional Drug-induced Deaths	14	9	10	11	8	8	16	11	16	16	19	12	4.4	5.9	6.7
Total Drug-induced Deaths	14	13	13	11	14	14	22	15	17	24	25	15	5.5	8.3	8.7
PHN201 North Western Melbourne															
Unintentional Drug-induced Deaths	59	61	105	71	82	97	67	81	91	109	116	98	5.6	5.6	6.2
Total Drug-induced Deaths	77	81	125	118	107	126	99	104	119	139	144	132	7.5	7.5	8.0
PHN202 Eastern Melbourne															
Unintentional Drug-induced Deaths	43	50	66	67	58	59	35	70	65	70	71	80	4.3	4.2	5.0
Total Drug-induced Deaths	63	73	91	97	84	87	64	90	92	101	103	103	6.0	6.0	6.7
PHN203 South Eastern Melbourne															
Unintentional Drug-induced Deaths	58	64	78	83	89	76	55	62	81	92	114	84	5.7	5.1	6.4
Total Drug-induced Deaths	85	89	113	133	120	110	83	82	116	126	146	119	8.2	7.2	8.5

7.6 continued

	2006 no.	2007 no.	2008 no.	2009 no.	2010 no.	2011 no.	2012 no.	2013 no.	2014 no.	2015 no.	2016 no.	2017 no.	2006-2010 rate	2011-2015 rate	2016-2017 rate
PHN204 Gippsland															
Unintentional Drug-induced Deaths	7	12	14	23	17	14	9	17	27	19	29	14	6.5	6.9	8.7
Total Drug-induced Deaths	11	15	19	29	22	25	14	22	37	24	34	18	8.4	9.3	10.3
PHN205 Murray															
Unintentional Drug-induced Deaths	25	23	29	31	24	34	29	38	36	44	47	59	4.9	6.7	9.0
Total Drug-induced Deaths	29	34	37	41	30	50	45	55	53	59	63	70	6.2	9.4	11.2
PHN206 Grampians and Barwon South West															
Unintentional Drug-induced Deaths	35	26	42	35	35	35	25	20	46	42	41	55	6.1	5.6	7.9
Total Drug-induced Deaths	35	26	42	35	35	35	25	20	46	42	41	55	6.1	5.6	7.9
PHN301 Brisbane North															
Unintentional Drug-induced Deaths	29	43	36	43	65	55	56	45	53	62	64	50	5.2	5.8	5.7
Total Drug-induced Deaths	47	59	50	61	78	77	77	69	81	86	81	68	7.0	8.4	7.5
PHN302 Brisbane South															
Unintentional Drug-induced Deaths	23	36	38	49	76	64	55	49	69	52	55	71	4.6	5.4	5.6
Total Drug-induced Deaths	44	55	62	64	96	76	78	71	90	81	79	98	6.6	7.4	7.9
PHN303 Gold Coast															
Unintentional Drug-induced Deaths	17	19	19	26	24	36	39	31	40	48	42	44	4.2	6.9	7.2
Total Drug-induced Deaths	27	34	38	40	35	44	45	49	59	68	57	78	6.8	9.4	11.0
PHN304 Darling Downs and West Moreton															
Unintentional Drug-induced Deaths	13	14	19	37	27	28	25	28	23	41	33	23	4.8	5.7	5.3
Total Drug-induced Deaths	17	24	30	47	31	35	35	40	34	57	42	30	6.4	7.8	6.8

7.6 continued

	2006 no.	2007 no.	2008 no.	2009 no.	2010 no.	2011 no.	2012 no.	2013 no.	2014 no.	2015 no.	2016 no.	2017 no.	2006-2010 rate	2011-2015 rate	2016-2017 rate
PHN305 Western Queensland															
Unintentional Drug-induced Deaths	0	3	5	2	6	5	2	6	4	3	1	3	np	6.2	np
Total Drug-induced Deaths	1	2	5	3	7	5	5	6	4	6	4	4	np	7.4	np
PHN306 Central Queensland and Sunshine Coast															
Unintentional Drug-induced Deaths	26	32	38	46	63	52	64	65	66	58	65	47	5.6	7.7	7.3
Total Drug-induced Deaths	41	45	55	60	76	64	84	97	92	91	91	72	7.4	10.5	10.1
PHN307 Northern Queensland															
Unintentional Drug-induced Deaths	30	31	28	37	39	43	36	33	30	53	55	19	5.4	5.7	5.4
Total Drug-induced Deaths	42	42	35	46	47	62	50	44	42	69	67	35	6.9	7.8	7.4
PHN401 Adelaide															
Unintentional Drug-induced Deaths	45	73	76	86	77	52	84	46	68	51	88	82	6.3	5.0	6.9
Total Drug-induced Deaths	77	97	110	116	110	87	119	90	113	97	124	128	8.9	8.3	10.1
PHN402 Country SA															
Unintentional Drug-induced Deaths	17	20	21	28	17	21	20	19	15	26	23	18	4.2	3.9	3.9
Total Drug-induced Deaths	23	29	32	32	25	37	34	35	28	44	33	39	5.8	7.0	6.7
PHN501 Perth North															
Unintentional Drug-induced Deaths	17	20	21	28	17	21	20	19	15	26	23	18	4.2	3.9	3.9
Total Drug-induced Deaths	23	29	32	32	25	37	34	35	28	44	33	39	5.8	7.0	6.7
PHN502 Perth South															
Unintentional Drug-induced Deaths	33	41	44	34	55	60	49	55	77	73	91	84	5.2	6.8	9.2
Total Drug-induced Deaths	41	58	57	52	78	76	77	69	101	94	114	106	7.2	9.0	11.4

7.6 continued

	2006 no.	2007 no.	2008 no.	2009 no.	2010 no.	2011 no.	2012 no.	2013 no.	2014 no.	2015 no.	2016 no.	2017 no.	2006-2010 rate	2011-2015 rate	2016-2017 rate
PHN503 Country WA															
Unintentional Drug-induced Deaths	17	20	40	36	35	36	35	28	47	56	45	31	6.2	7.4	7.1
Total Drug-induced Deaths	21	27	46	43	42	43	45	33	60	69	60	40	7.5	9.2	9.3
PHN601 Tasmania															
Unintentional Drug-induced Deaths	30	32	27	40	28	36	28	27	37	31	48	30	6.1	5.9	7.3
Total Drug-induced Deaths	45	49	40	60	41	47	42	45	54	49	71	54	9.4	8.8	11.4
PHN701 Northern Territory															
Unintentional Drug-induced Deaths	15	20	12	12	16	9	17	11	10	15	9	16	8.3	6.1	5.7
Total Drug-induced Deaths	20	22	15	12	19	11	19	13	16	20	12	21	9.9	7.8	7.3
PHN801 Australian Capital Territory															
Unintentional Drug-induced Deaths	9	22	22	17	20	16	12	23	21	16	28	28	5.1	4.5	6.9
Total Drug-induced Deaths	14	28	28	30	25	22	17	27	31	24	33	43	7.1	6.2	9.3

7.7.   Unintentional drug-induced deaths by local areas

The following figures represent the rate (per 100,000 population) of unintentional drug-induced deaths by Statistical Area 3 (SA3), aggregated over the 2013-17 period. SA3s are geographic designations used by the ABS to provide a means for regional analysis. Most SA3s have a population of between 30,000 and 130,000 people, though in major cities they represent areas serviced by a major transport and commercial hub (and may have a population of greater than 130,000).

Darker shading indicates a higher rate of unintentional drug-induced death per 100,000 people. The darkest shading (red) indicates that an area has a rate (per 100,000 population) of unintentional drug-induced death greater than 10 deaths per 100,000 population. For areas with no shading (white), there were not sufficient data available to provide a reliable estimate of the population rate.

It is important to note that in the 2018 Annual Overdose Report, these heat maps quantified all drug-induced deaths, not just the unintentional drug-induced deaths. Therefore, comparison between the two reports cannot be made.

Figure 40: Australia: Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
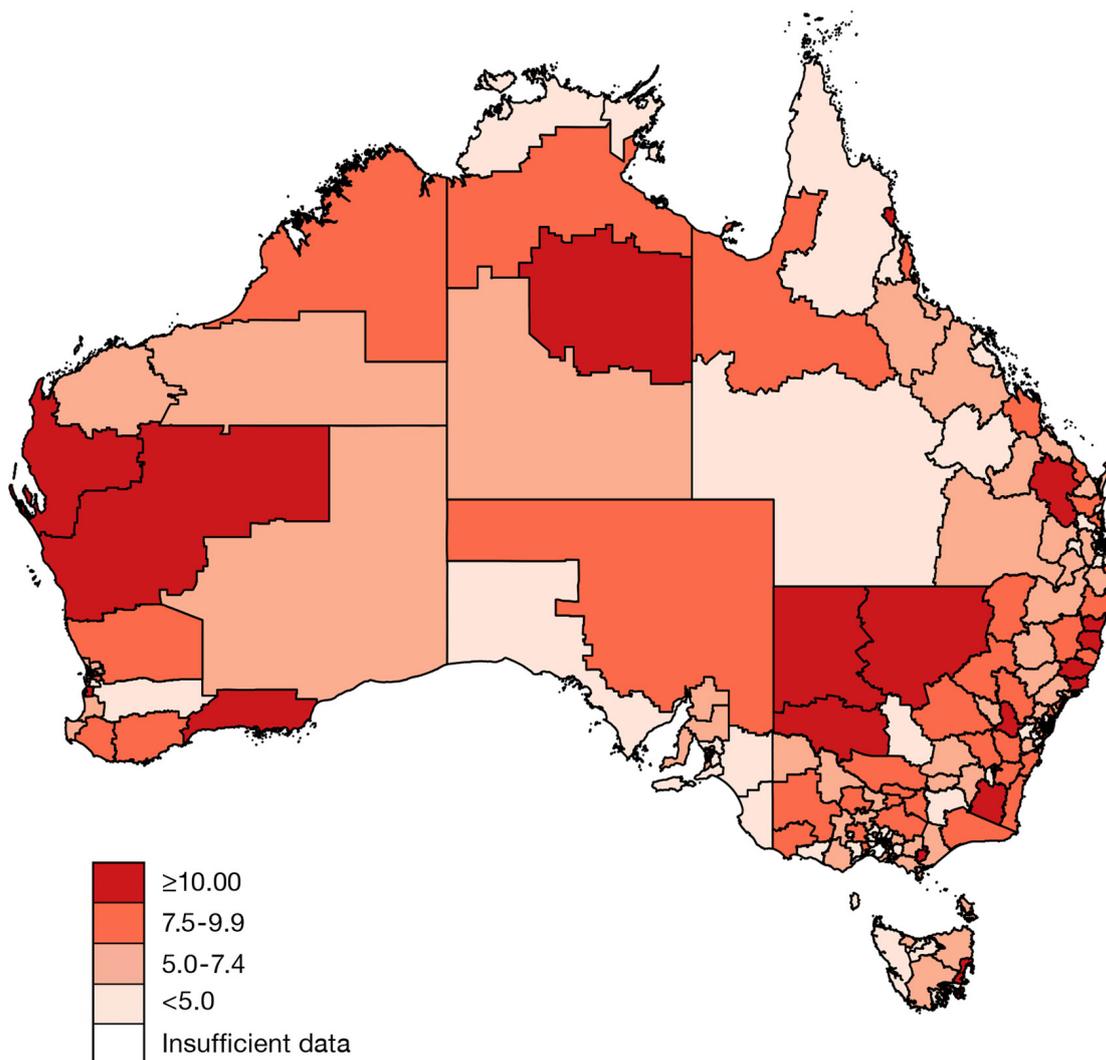
Figure 41 and Figure 42: Sydney and NSW, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
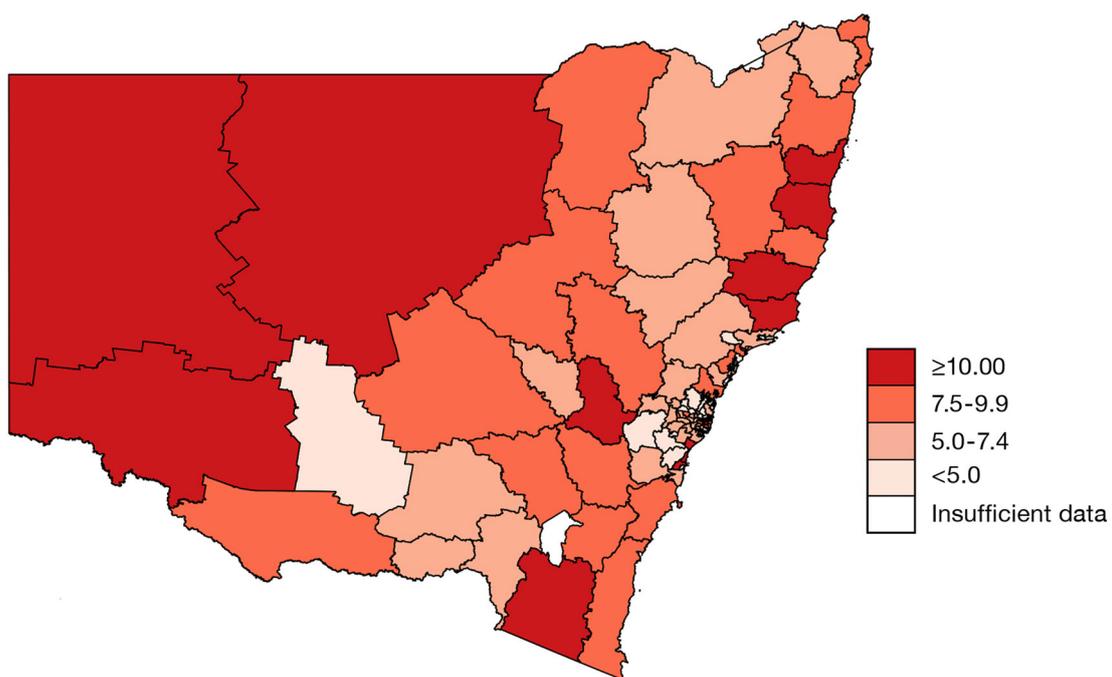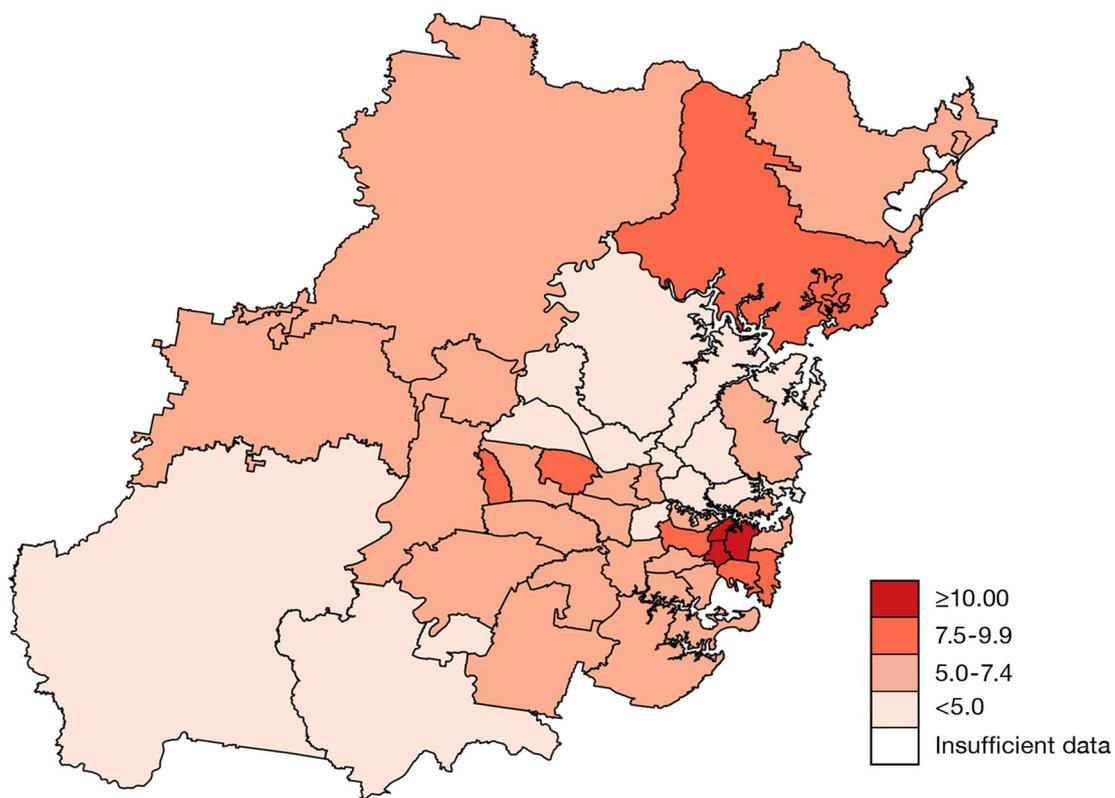
Figure 43 and Figure 44: Melbourne and Victoria, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
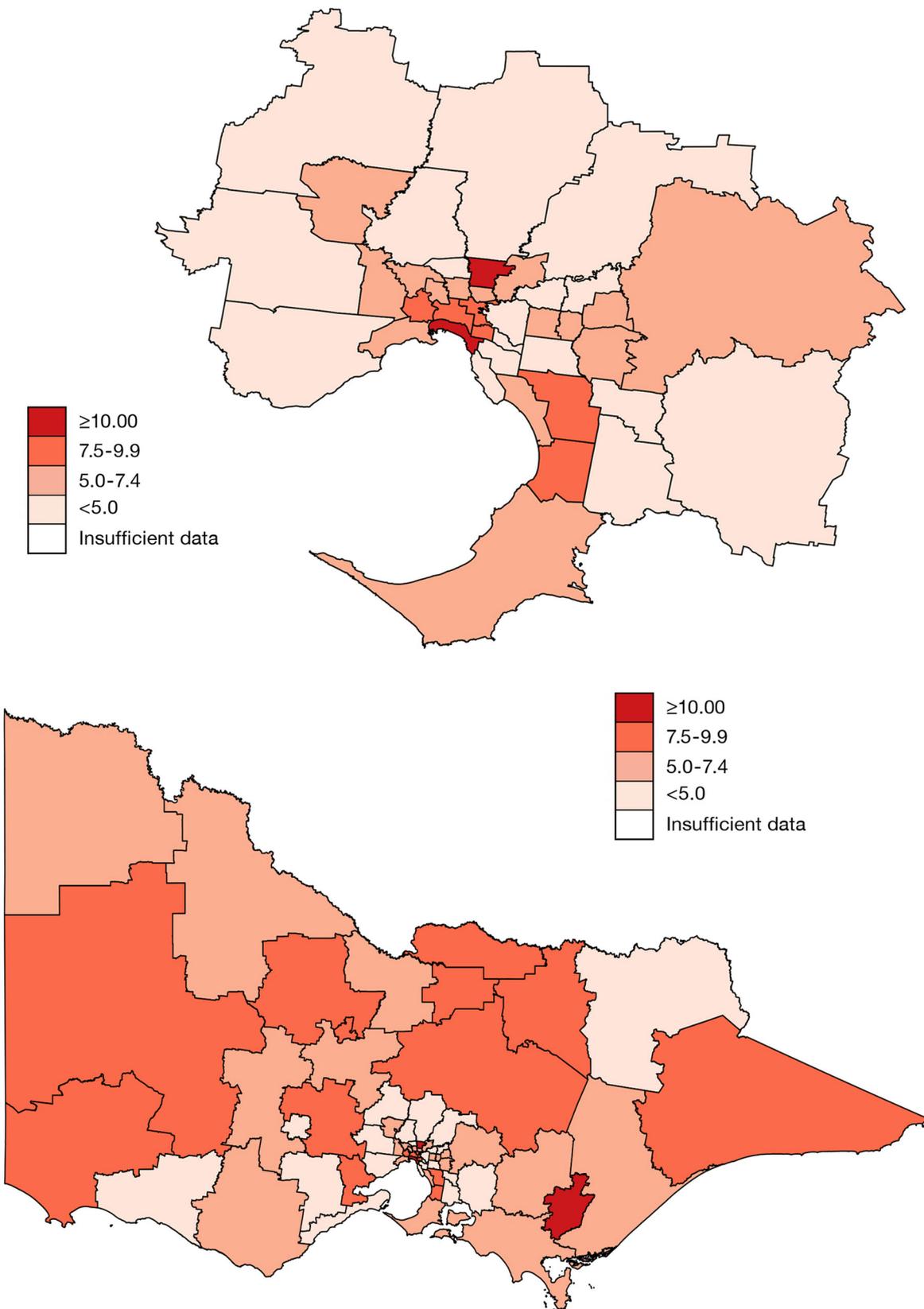
Figure 45 and Figure 46: Brisbane and Queensland, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
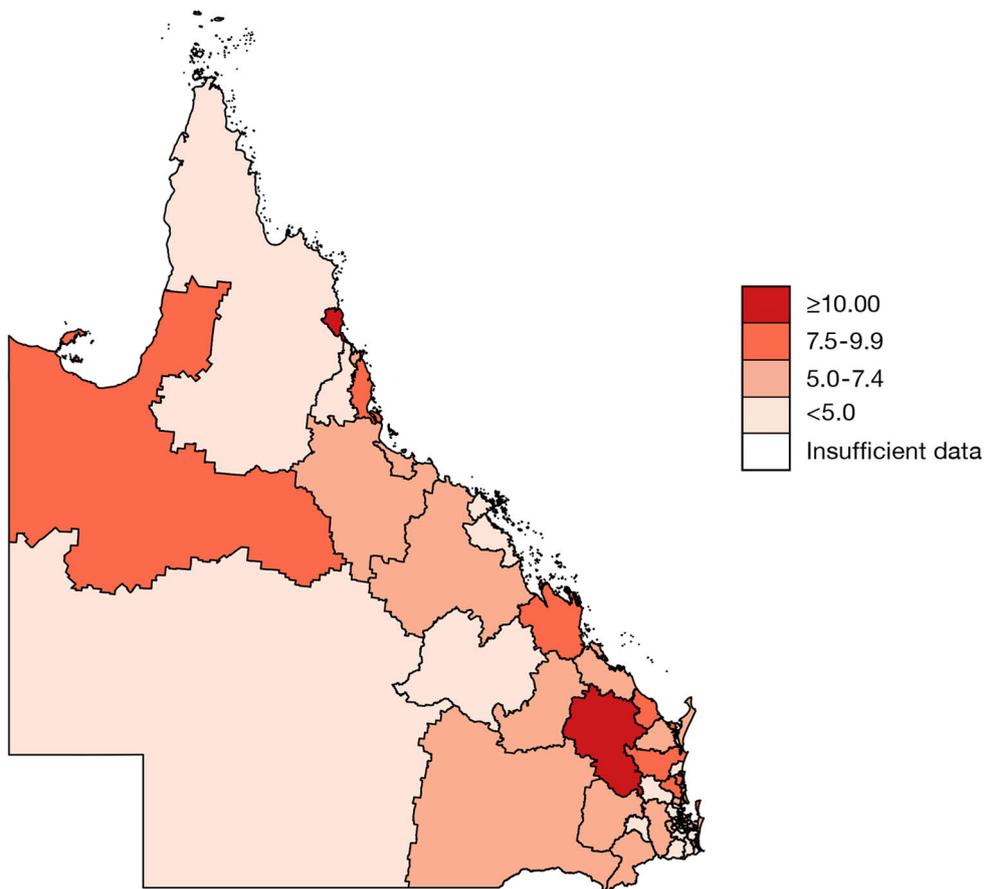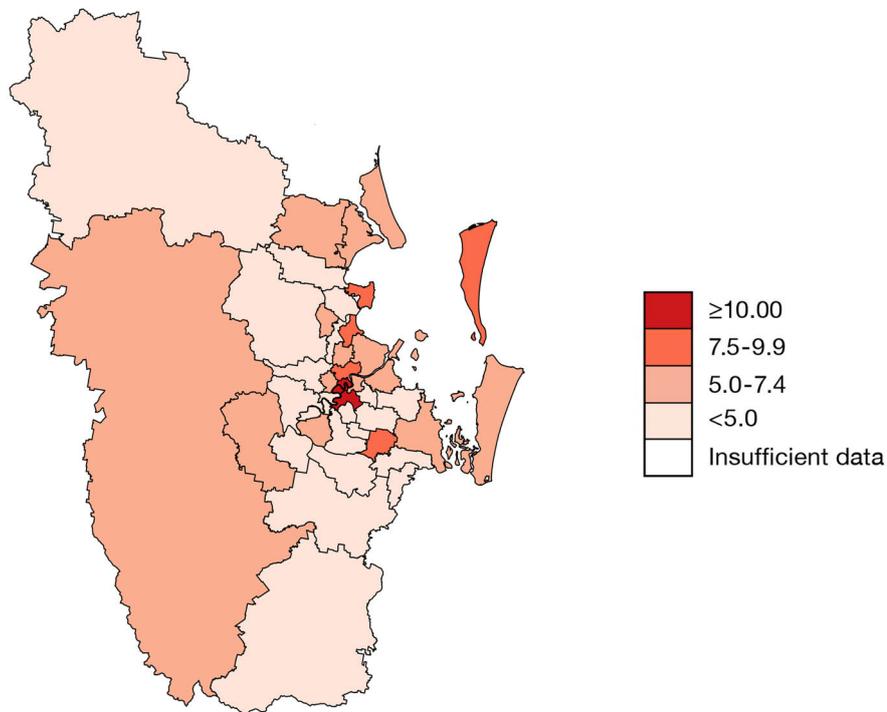
Figure 47 and Figure 48: Perth and WA, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
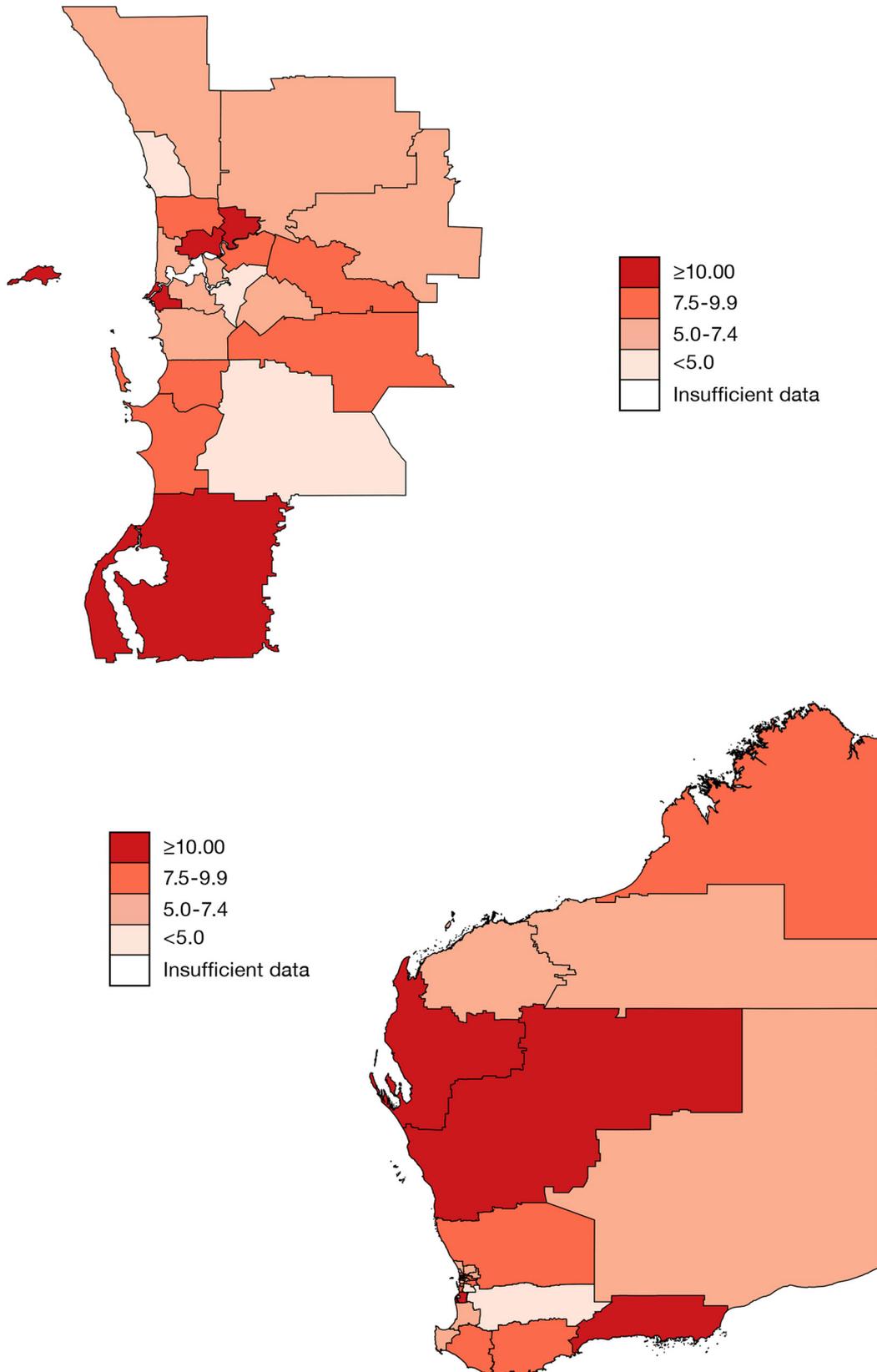
Figure 49 and Figure 50: Adelaide and SA, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
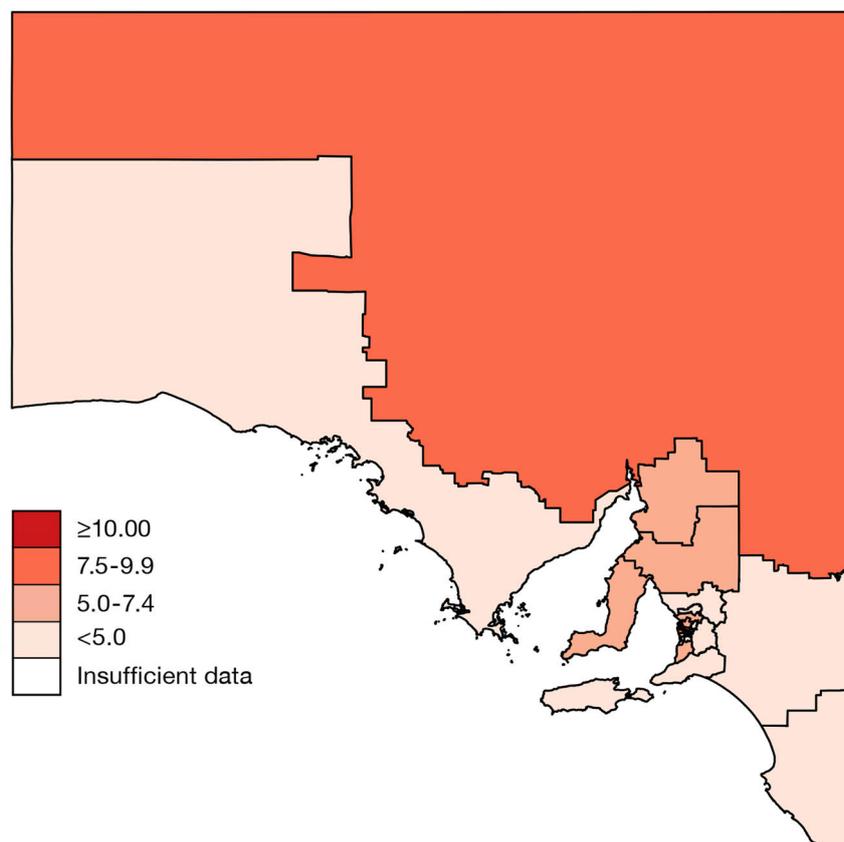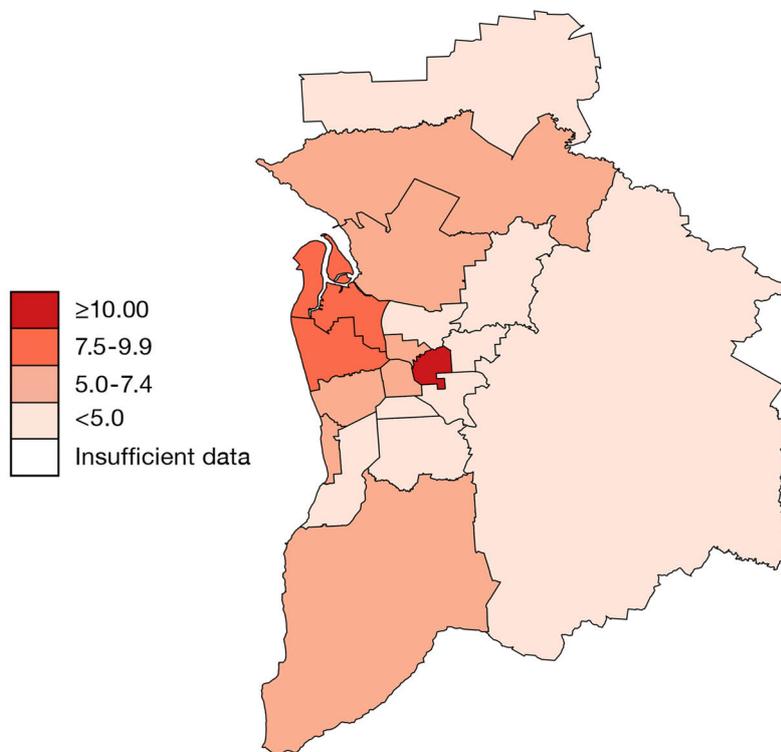
Figure 51 and Figure 52: Hobart and Tasmania, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
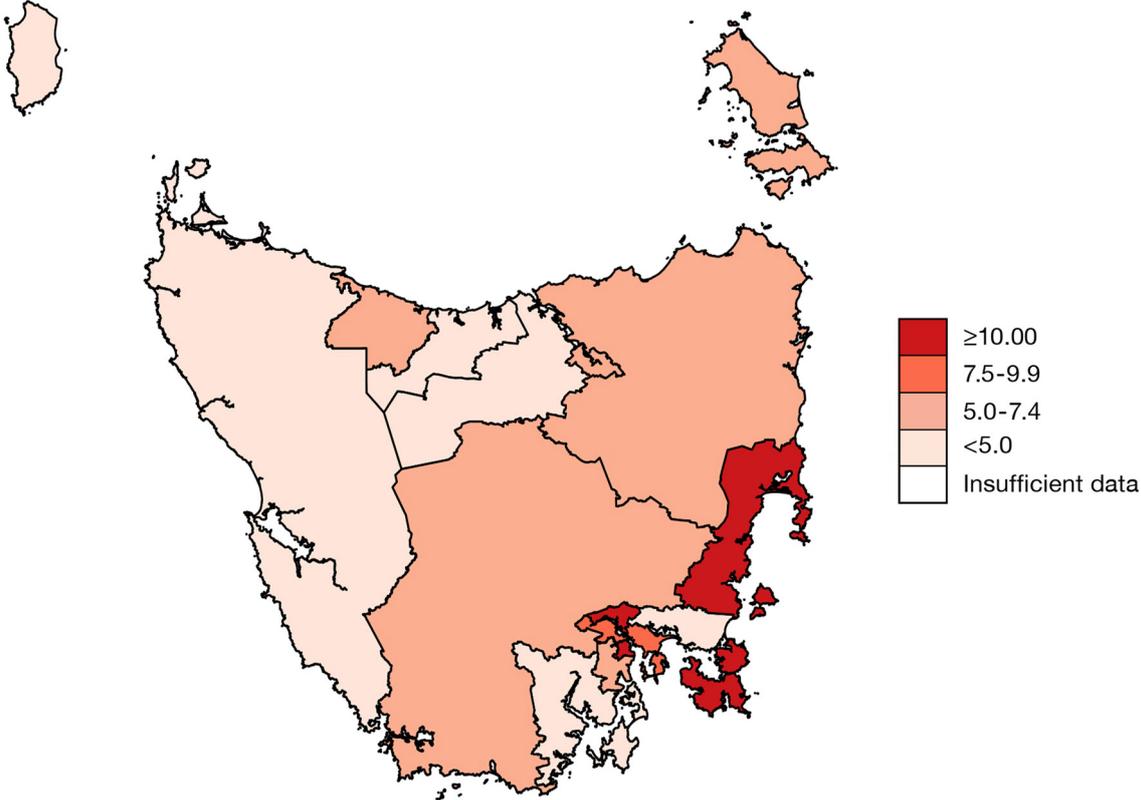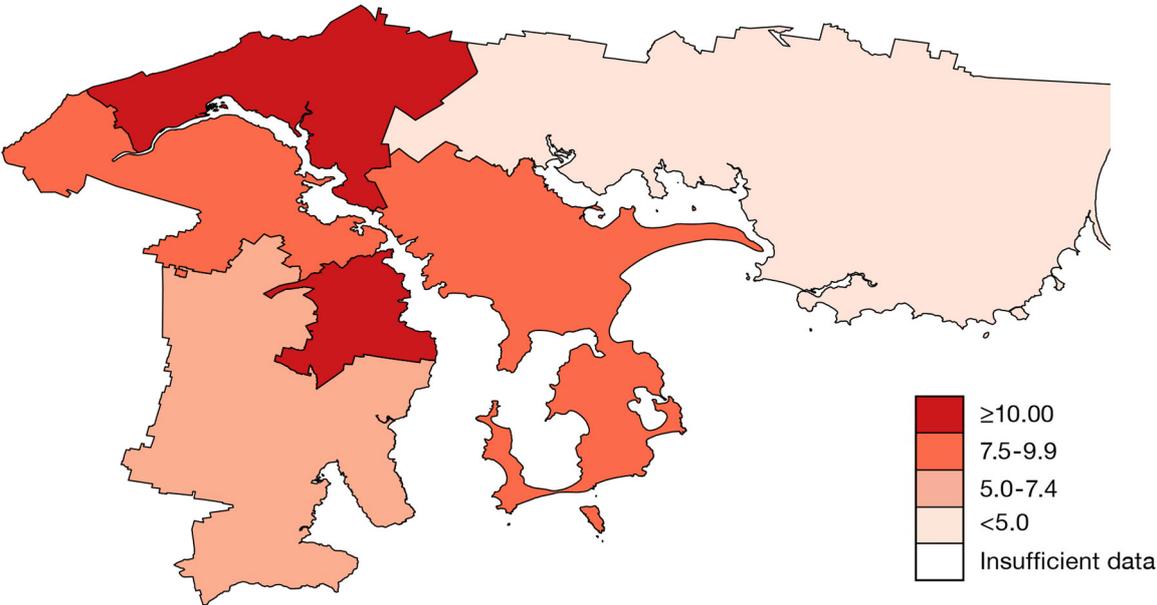
Figure 53 and Figure 54: Darwin and NT, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
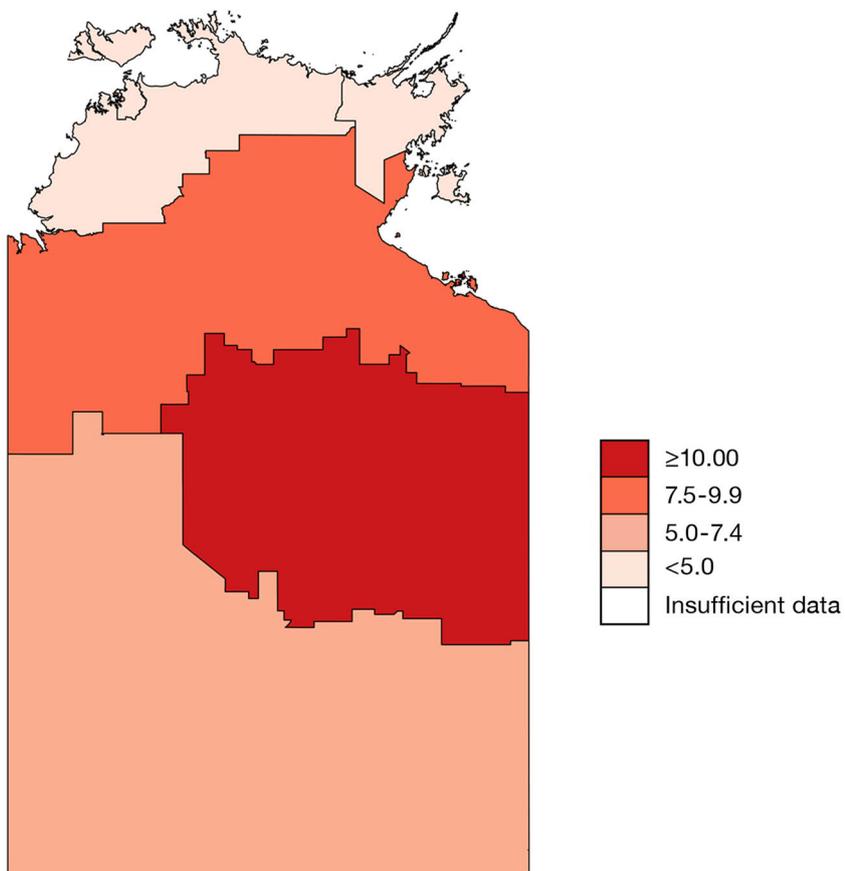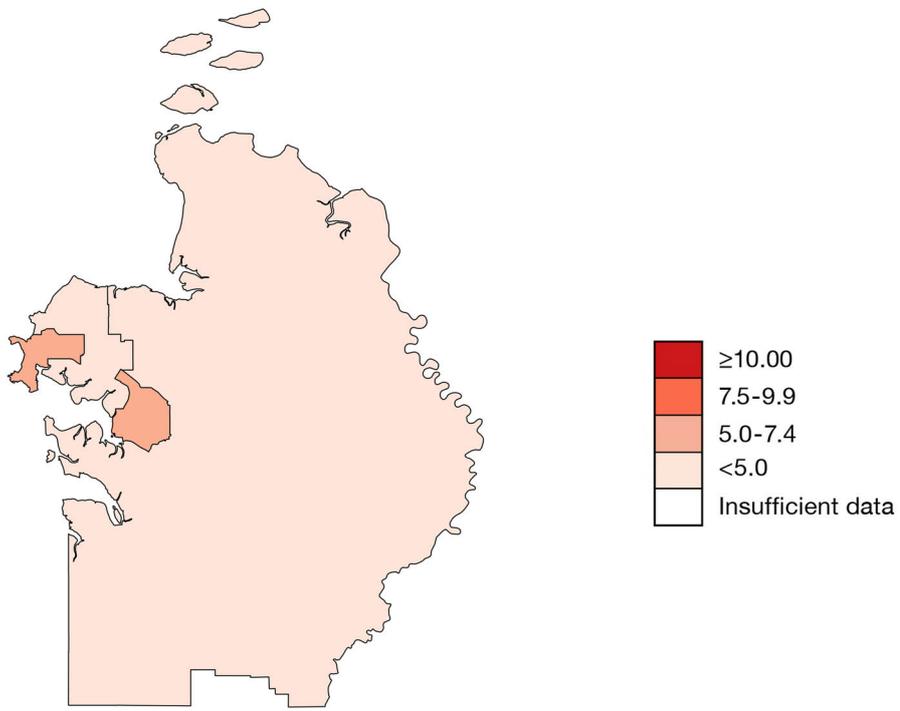
Figure 55: ACT, Unintentional drug-induced deaths 2013-2017 (Statistical Area 3), rate per 100,000 population
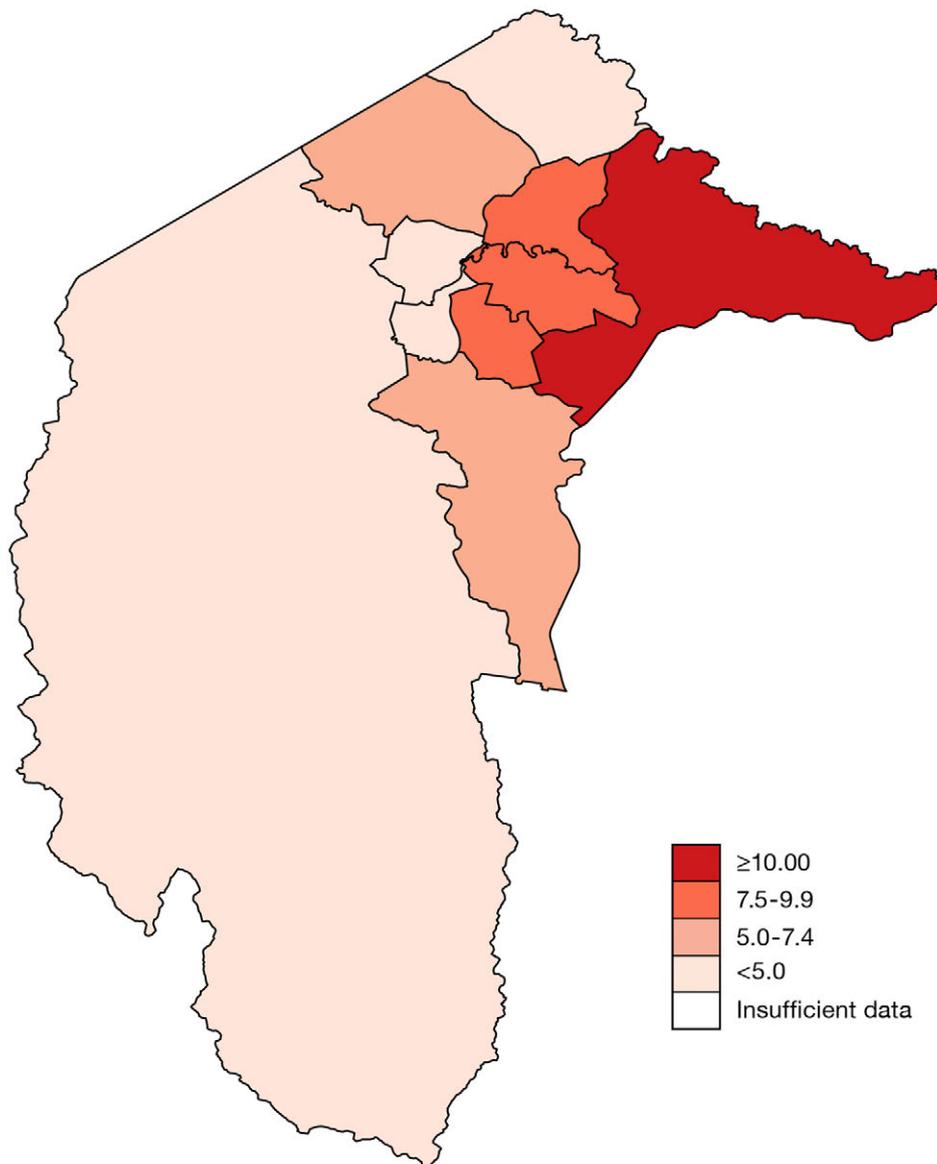
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9.   Appendix 1 – data cubes for figures

9.1.   Data cubes for Chapter 4

Data for Figure 2: Number of drug-induced deaths in Australia, compared to other causes of death, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All drug-induced deaths	1,313	1,231	1,211	1,231	1,278	1,262	1,480	1,648	1,785	1,756	1,775	1,762	1,748	2,068	2,178	2,231	2,162
Unintentional drug-induced deaths	981	903	901	968	983	952	1,041	1,171	1,281	1,325	1,319	1,237	1,276	1,513	1,612	1,728	1,612
Road traffic crashes	1,802	1,745	1,639	1,530	1,508	1,635	1,561	1,491	1,529	1,468	1,360	1,355	1,282	1,280	1,289	1,342	1,246
Car crashes	1,047	1,032	997	835	881	894	858	829	853	840	793	788	726	718	762	770	725

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 3: Number of drug-induced deaths in Australia, by drug type, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	60	63	36	61	79	90	99	112	103	110	115	174	175	285	352	490	468
Cocaine	30	15	10	15	17	16	19	24	30	17	16	26	22	17	48	38	46
Benzodiazepines	252	264	225	209	249	249	371	406	519	557	540	618	580	710	706	777	829
Opioids	506	483	456	461	498	442	610	745	856	871	888	886	883	1,101	1,167	1,247	1,169
Cannabinoids	32	29	12	16	24	38	46	58	68	74	92	93	77	152	212	252	282
Alcohol	206	215	164	175	178	182	265	307	368	346	352	345	318	398	401	359	358
Anti-convulsants	2	4	2	2	2	4	6	1	3	1	0	1	3	4	24	73	101
Anti-psychotics	9	11	5	12	20	52	53	71	71	106	90	41	31	52	189	290	292

Note: 2016 and 2017 data are preliminary, and likely to rise. Smaller drug groups including other sedatives (including ketamine), and succinimides and oxazolidinediones are not included, due to low numbers.

Data for Figure 4: All drug-induced deaths in 2017 by drug type

	All drug-induced deaths	Unintentional drug-induced deaths
All opioids	1169	904
Benzodiazepines	829	583
Pharmaceutical Opioids	699	482
Oxycodone, morphine, codeine	534	344
Stimulants	468	417
Heroin	393	358
Alcohol	358	275
Antipsychotics	292	192
Cannabis and derivatives	282	252
Fentanyl, pethidine, tramadol	252	198
Methadone	215	189
Anti-convulsants	101	67
Specified anti-convulsants and sedatives	78	43
Cocaine	46	43
Other sedatives	9	6
Succinimides and oxazolidinediones	6	5

Data for Figure 5: Drug-induced deaths by drug type and Indigenous status, for NSW, Qld, SA, WA, NT, 2001-2017

Aboriginal

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	3	4	0	1	4	3	5	4	1	4	4	6	10	15	26	35	36
Cocaine	1	1	0	0	2	0	0	0	2	1	0	0	0	0	4	0	0
Benzodiazepines	8	6	5	3	4	9	9	19	8	19	11	25	12	22	22	19	34
Opioids	23	16	9	9	19	11	19	31	24	26	29	38	39	52	50	57	58
Cannabinoids	4	3	1	4	1	1	2	3	5	6	6	9	6	7	8	19	16
Alcohol	19	9	4	7	8	9	15	13	12	17	18	19	18	19	14	18	20
Anti-convulsants	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2
Anti-psychotics	0	0	0	0	0	2	3	0	0	2	2	4	3	0	4	7	4

Non-Aboriginal

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	43	42	26	39	41	58	55	67	64	72	71	123	116	185	215	296	270
Cocaine	29	12	10	12	14	13	16	16	23	12	14	19	16	10	30	25	37
Benzodiazepines	181	161	130	110	148	138	233	236	316	347	325	387	380	429	443	449	479
Opioids	345	312	255	271	310	264	393	432	546	557	562	591	579	698	786	779	726
Cannabinoids	23	18	6	8	15	19	28	40	48	47	49	57	53	103	119	132	142
Alcohol	133	138	104	98	110	116	170	196	242	234	216	246	215	259	284	220	219
Anti-convulsants	0	0	0	1	3	3	2	1	1	3	0	0	4	4	15	44	53
Anti-psychotics	5	7	2	10	11	36	24	44	38	53	51	25	13	27	124	170	156

NB: 2016 and 2017 data are preliminary, and likely to rise. Data for NSW, Qld, SA, WA, and NT are aggregated as these are the only jurisdictions that have a sufficient level of Indigenous identification to support this analysis.

Data for Figure 6: Drug-induced deaths by drug type and socio-economic status, shown as percentages within each SEIFA-IRSAD decile, 2013-2017 aggregated data

	1	2	3	4	5	6	7	8	9	10
Stimulants	13.6	9.8	11.6	9.8	8.9	10.6	10.5	8.5	9.6	7.2
Cocaine	11.3	2.4	6.0	5.4	9.5	8.9	10.1	11.9	16.1	18.5
Benzodiazepines	12.5	9.1	12.0	8.9	10.4	9.9	9.1	9.1	10.7	8.3
Heroin	9.9	7.8	8.8	7.5	9.5	10.4	12.5	11.1	14.0	8.6
Oxycodone / morphine / codeine	12.7	10.6	12.2	9.4	10.4	10.3	8.7	7.7	10.6	7.4
Methadone	16.2	10.0	11.5	8.4	9.4	9.1	8.3	8.8	10.6	7.6
Fentanyl / pethidine / tramadol	15.8	12.9	15.7	10.3	9.4	9.9	6.5	6.4	7.5	5.7
Cannabinoids	12.3	9.0	12.8	10.5	9.8	11.3	10.1	7.5	9.2	7.5
Alcohol	11.8	9.6	10.9	8.6	10.6	9.1	9.8	9.3	11.6	8.7
Anti-convulsants	9.4	8.9	13.3	6.4	12.3	11.3	11.8	8.4	12.8	5.4
Anti-psychotics	12.1	8.8	11.0	8.7	11.4	8.5	9.9	8.7	12.3	8.6

Note: Decile 1 is the most disadvantaged and Decile 10 is the most advantaged.

Data for Figure 7: Unintentional drug-induced deaths compared to all drug-induced deaths, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All drug-induced deaths	1,313	1,231	1,211	1,231	1,278	1,262	1,480	1,648	1,785	1,756	1,775	1,762	1,748	2,068	2,178	2,231	2,162
Unintentional drug-induced deaths	981	903	901	968	983	952	1,041	1,171	1,281	1,325	1,319	1,237	1,276	1,513	1,612	1,728	1,612

Note: 2016 and 2017 data are preliminary, and likely to rise.

9.2. Data cubes for Chapter 5

Date for Figure 8: Unintentional drug-induced deaths by state, 2001-2017, presented as a rate per 100,000 population

State	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	5.8	5.2	5.0	5.1	5.0	5.5	5.1	5.1	5.6	5.7	5.9	5.6	6.1	7.1	7.5	7.4	7.3
Vic	4.3	4.5	5.2	5.6	4.9	4.5	4.5	6.4	5.7	5.5	5.7	3.8	5.0	5.9	6.3	6.7	6.2
Qld	5.1	3.7	3.3	4.3	3.9	3.5	4.4	4.4	5.6	6.9	6.4	6.3	5.6	6.1	6.7	6.6	5.3
SA	3.3	3.6	4.5	5.8	5.7	4.1	6.0	6.2	7.1	5.8	4.5	6.3	3.9	5.0	4.5	6.5	5.9
WA	6.1	4.3	3.8	2.7	4.5	4.7	5.3	6.2	6.7	6.7	6.7	6.4	6.1	7.5	8.1	8.7	8.1
Tas, NT, ACT	5.1	7.2	5.2	4.7	7.4	5.5	7.3	5.8	6.5	6.2	5.5	5.5	5.5	6.1	5.6	7.5	6.3

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 9: Unintentional drug-induced deaths by drug type, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	53	57	34	60	69	78	84	87	90	93	105	139	156	250	313	447	417
Cocaine	28	15	10	15	15	13	16	16	24	16	13	19	22	15	41	36	43
Benzodiazepines	165	171	148	161	170	162	217	256	324	383	359	382	371	485	474	553	583
Opioids	413	375	370	387	407	338	424	552	643	684	684	644	670	853	905	1,019	904
Cannabinoids	27	26	10	15	21	34	34	48	57	66	79	79	67	131	170	227	252
Alcohol	162	162	123	145	136	134	192	216	273	285	278	252	232	309	296	280	275
Anti-convulsants	4	0	1	0	2	4	2	2	2	0	0	0	0	1	11	61	67
Anti-psychotics	5	5	1	6	11	31	26	30	36	50	52	21	15	28	109	189	192

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 10: Unintentional drug-induced deaths by age group, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
0-19	36	16	18	20	15	15	11	16	14	21	14	16	11	13	12	12	12
20-29	212	172	174	160	160	132	146	172	159	155	166	128	139	131	129	155	139
30-39	242	217	219	227	213	191	240	279	308	318	335	306	303	342	393	389	368
40-49	192	188	182	221	239	212	213	238	287	313	304	316	330	404	452	468	450
50-59	106	131	120	126	158	155	176	197	246	255	236	229	243	320	319	351	336
60-69	91	86	78	86	96	93	111	111	136	116	135	122	111	165	144	208	155
70 and above	102	93	110	128	102	154	144	157	131	147	129	120	139	137	163	145	152

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 11: Unintentional drug-induced deaths by sex, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Male	701	635	640	685	683	676	707	834	910	927	937	813	877	1,040	1,138	1,226	1,152
Female	280	268	261	283	300	276	334	337	371	398	382	424	399	473	474	502	460

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 12: Unintentional drug-induced deaths by Indigenous status 2001-2017, as a rate per 100,000 population (data from NSW, Qld, SA, WA, NT)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Aboriginal	19.8	14.7	13.2	12.6	12.1	11.3	14.5	13.7	10.3	16.6	16.5	16.0	16.1	17.1	20.0	21.3	19.2
Non-Aboriginal	4.9	4.1	4.0	4.3	4.4	4.2	4.6	4.7	5.6	5.7	5.5	5.5	5.3	6.1	6.5	6.5	6.2

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 13: Unintentional drug-induced deaths by socio-economic status, data aggregated from 2013-2017

SEIFA IRSAD Decile	1	2	3	4	5	6	7	8	9	10
Number of deaths	1,026	848	870	726	729	733	686	631	790	607

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 14: Unintentional drug-induced deaths by regionality 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All greater capital cities	5.0	4.6	4.7	5.0	4.8	4.5	5.1	5.6	5.8	6.0	5.6	5.0	5.3	5.8	6.2	6.7	6.3
Remainder of states and territories	5.2	4.6	4.3	4.5	4.9	4.8	4.7	5.3	5.9	5.9	6.3	6.4	5.9	7.7	8.0	8.1	7.3

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 15: Unintentional drug-induced deaths by poly-substance and sole drug use, 2007-2017

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Detection of a single drug	362	404	465	436	447	399	483	532	500	512	411
Detection of alcohol alone	60	64	81	77	68	66	67	93	83	88	74
Four or more substances detected	86	99	158	147	154	149	163	261	303	401	445

Note: 2016 and 2017 data are preliminary, and likely to rise.

9.3.   Data cubes for Chapter 6

Data for Figure 16: Unintentional drug-induced deaths by opioid type, 2001-2017

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Opium	2	0	0	0	3	2	0	0	0	0	0	0	0	4	13	3	0
Heroin	101	90	142	133	122	67	109	157	176	198	190	149	195	218	280	378	358
Oxycodone / morphine / codeine	168	169	135	158	169	170	191	267	295	309	272	283	269	419	416	444	344
Methadone	95	90	61	77	95	85	99	117	126	140	155	156	155	165	190	223	189
Fentanyl / pethidine / tramadol	14	7	14	6	16	12	9	16	18	38	57	84	126	158	193	204	198

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 17: Unintentional drug-induced deaths by state for each opioid type, 2001-2017, shown as a rate per 100,000 population

Heroin

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	0.6	0.3	0.5	0.5	0.4	0.3	0.4	0.3	0.6	0.5	0.5	0.5	0.6	0.6	0.9	1.4	1.2
Vic	0.8	1.2	1.8	1.7	1.2	0.6	1.0	1.8	1.3	1.5	1.5	0.8	1.4	1.6	2.0	2.3	2.6
Qld	0.2	0.1	0.2	0.3	0.4	0.1	0.3	0.4	0.3	0.7	0.7	0.5	0.5	0.6	0.8	0.9	0.8
SA	0.3	0.1	0.2	0.1	0.5	0.1	0.7	0.9	0.8	1.2	0.5	0.8	0.4	0.7	0.4	1.4	0.7
WA	0.1	0.1	0.2	0.3	0.4	0.2	0.4	0.5	1.2	1.0	1.3	1.2	1.4	1.4	1.5	2.3	1.9
Tas, ACT, NT	0.5	0.3	0.7	0.0	0.7	0.1	0.2	0.7	0.8	0.1	0.2	0.3	0.7	0.9	1.0	0.3	0.3

Oxycodone / morphine / codeine

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	0.9	1.0	0.8	0.8	0.8	0.9	0.8	0.9	1.2	1.0	1.0	0.9	1.2	1.9	1.9	1.6	1.4
Vic	0.5	0.7	0.8	1.2	0.8	0.8	1.1	1.8	1.3	1.3	1.0	1.0	1.0	1.7	1.7	2.2	1.3
Qld	1.3	0.6	0.4	0.5	0.5	0.6	0.7	0.8	1.0	1.7	1.5	1.8	1.4	1.9	1.9	1.7	1.2
SA	0.4	0.9	0.5	0.8	1.3	0.7	1.2	1.1	1.7	1.0	0.5	1.4	0.8	1.1	0.8	1.1	0.8
WA	0.6	1.2	0.5	0.5	1.0	1.3	0.8	2.2	2.2	2.5	2.1	1.6	1.1	2.1	2.4	2.4	2.8
Tas, ACT, NT	1.9	1.3	1.1	0.6	1.7	0.6	1.7	1.5	2.2	1.2	1.6	1.3	0.9	0.9	1.0	2.3	0.5

Methadone

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	0.8	0.7	0.4	0.5	0.6	0.6	0.4	0.5	0.7	0.6	0.7	0.7	0.8	0.8	1.0	1.0	0.9
Vic	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.7	0.9	0.7	0.9	0.9	0.7	1.0	0.9
Qld	0.2	0.3	0.2	0.2	0.3	0.0	0.2	0.3	0.3	0.5	0.5	0.4	0.4	0.4	0.6	0.8	0.4
SA	0.6	0.5	0.3	0.1	0.6	0.4	0.6	1.0	1.1	0.7	0.7	0.7	0.7	0.5	0.4	0.8	0.6
WA	0.4	0.3	0.0	0.3	0.2	0.4	0.6	0.6	0.4	0.9	0.8	1.2	0.5	0.8	1.1	0.8	0.8
Tas, ACT, NT	0.3	0.9	0.5	0.7	1.4	0.9	1.3	0.7	0.6	1.1	0.5	0.9	0.7	0.2	0.9	0.8	0.5

Fentanyl / pethidine / tramadol

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.5	0.8	0.7	0.9	0.8
Vic	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.3	0.5	0.3	0.6	0.5	0.5
Qld	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.5	0.6	1.1	1.3	1.1	1.2
SA	0.1	0.1	0.2	0.2	0.1	0.2	0.0	0.3	0.2	0.2	0.2	0.6	0.7	0.4	0.5	0.9	0.8
WA	0.1	0.2	0.1	0.1	0.3	0.0	0.0	0.1	0.0	0.3	0.3	0.6	0.9	0.8	0.9	1.1	0.9
Tas, ACT, NT	0.2	0.0	0.5	0.2	0.0	0.2	0.0	0.3	0.1	0.2	0.2	0.5	0.2	0.3	0.6	0.4	0.6

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 18: Unintentional drug-induced deaths, by opioid type and age group, 2013-2017 data aggregated

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Heroin	11	166	519	462	225	44	2
Pharmaceutical opioids	13	283	689	817	527	144	47

Note: Data are aggregated over the five-year period.

Data for Figure 19: Unintentional drug-induced deaths by opioid type and sex, 2013-2017 data aggregated

	Male	Female
Heroin	1,136	293
Methadone	608	314
Pharmaceutical opioids	1,683	838

Note: Data are aggregated over the five-year period.

Data for Figure 20: Unintentional drug-induced deaths by opioid type, 2001-2017, within (A) and outside of (B) capital cities

Capital cities

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heroin	73	76	119	116	94	58	93	132	143	165	156	116	171	156	228	307	271
Oxycodone, morphine, codeine	111	117	95	113	101	110	133	180	203	187	170	164	161	259	262	278	221
Methadone	68	62	50	53	65	61	76	81	89	107	104	110	120	115	122	142	120
Fentanyl, pethidine, tramadol	9	5	10	5	13	10	8	8	9	21	23	38	67	59	89	113	97

Outside of capital cities

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heroin	28	14	23	17	28	9	16	25	33	33	34	33	24	62	52	71	87
Oxycodone, morphine, codeine	57	52	40	45	68	60	58	87	92	122	102	119	108	160	154	166	123
Methadone	27	28	11	24	30	24	23	36	37	33	51	46	35	50	68	81	69
Fentanyl, pethidine, tramadol	5	2	4	4	4	4	1	8	9	17	34	46	59	99	104	91	101

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 21: Unintentional drug-induced deaths involving opioids by sole-drug and poly-drug use categories, 2007-2017

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Heroin only	56	80	88	102	100	69	96	88	104	122	75
Pharmaceutical opioids only	51	54	73	68	69	59	84	116	103	91	55
Opioids and benzodiazepines	160	185	242	306	261	296	295	401	405	480	497
Opioids and alcohol	75	117	140	144	142	120	113	151	148	136	142
Opioids, benzodiazepines and alcohol	30	42	49	70	52	58	63	85	79	78	77
Opioids and other pharmaceuticals	23	25	27	33	41	22	19	50	97	203	212

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 22: Unintentional drug-induced deaths involving benzodiazepines by State 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	1.0	0.9	0.9	1.1	0.8	0.9	0.8	0.7	0.9	1.2	1.3	1.5	1.8	1.9	2.0	2.0	2.3
Vic	0.5	0.9	1.1	1.3	1.0	0.9	1.2	1.6	1.6	1.9	2.0	1.6	1.8	2.7	2.5	3.1	3.1
Qld	1.1	0.6	0.4	0.2	0.3	0.3	0.8	1.1	1.9	2.2	1.9	2.1	1.7	1.9	1.9	1.9	1.7
SA	0.3	0.4	0.7	0.1	1.0	0.6	1.6	1.1	1.6	1.0	0.9	1.3	1.0	1.3	0.5	1.3	0.8
WA	1.2	1.1	0.1	0.5	1.1	1.2	1.0	2.1	1.8	2.4	1.6	1.9	1.1	2.1	2.4	2.7	3.8
Tas, ACT, NT	1.3	1.6	1.1	0.8	1.7	1.2	1.9	1.4	2.0	1.8	1.5	1.6	1.5	1.2	1.0	2.1	1.3

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 23: Unintentional drug-induced deaths involving benzodiazepines by age group, 2013-2017 data aggregated

Age group	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Number of deaths	8	273	724	805	494	131	31

Note: Data are aggregated over the five-year period.

Data for Figure 24: Unintentional drug-induced deaths involving benzodiazepines by sex, 2013-2017 data aggregated

Sex	Male	Female
Number of deaths	1,630	836

Note: Data are aggregated over the five-year period.

Data for Figure 25: Unintentional drug-induced deaths involving benzodiazepines by regionality, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital cities	0.9	0.9	0.9	1.0	0.8	0.9	1.2	1.3	1.7	1.9	1.6	1.6	1.7	2.0	2.0	2.4	2.3
Outside of capital cities	0.8	0.8	0.5	0.5	0.8	0.6	0.7	1.0	1.2	1.4	1.5	1.9	1.5	2.3	2.1	2.0	2.4

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 26: Unintentional drug-induced deaths involving stimulants by State 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	0.3	0.4	0.3	0.4	0.3	0.5	0.3	0.4	0.3	0.4	0.5	0.8	0.6	0.9	1.1	1.9	1.6
Vic	0.2	0.2	0.1	0.3	0.5	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.7	1.1	1.6	2.0	1.9
Qld	0.3	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.5	0.5	0.4	0.8	0.6	1.1	1.4	1.5	1.2
SA	0.2	0.1	0.1	0.3	0.5	0.3	0.4	0.5	0.1	0.6	0.4	0.4	0.4	0.5	0.6	1.1	1.1
WA	0.6	0.5	0.3	0.5	0.3	0.4	0.6	0.8	0.6	0.4	0.6	0.7	1.3	1.9	1.8	2.9	2.7
Tas, ACT, NT	0.4	0.1	0.6	0.3	0.4	0.5	0.9	0.2	0.3	0.5	0.6	0.5	0.5	0.9	0.9	1.4	1.8

Note: 2016 and 2017 data are preliminary, and likely to rise

Data for Figure 27: Unintentional drug-induced deaths involving stimulants by age group, 2013-2017 data aggregated

Age group	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Number of deaths	24	260	552	510	208	29	0

Note: Data are aggregated over the five-year period.

Data for Figure 28: Unintentional drug-induced deaths involving stimulants by sex, 2013-2017 data aggregated

Sex	Male	Female
Number of deaths	1,200	383

Note: Data are aggregated over the five-year period.

Data for Figure 29: Unintentional drug-induced deaths involving stimulants by regionality, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital cities	0.3	0.4	0.2	0.4	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	1.1	1.3	1.9	1.7
Outside of capital cities	0.1	0.1	0.1	0.1	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.6	0.5	1.0	1.4	1.8	1.6

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 30: Unintentional drug-induced deaths involving anti-convulsants by state, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Vic	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.4
Qld	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4
SA	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2
WA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.7
Tas, ACT, NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 31: Unintentional drug-induced deaths involving anti-convulsants by regionality, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital cities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
Outside of capital cities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 32: Unintentional drug-induced deaths involving anti-psychotics by state, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
NSW	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.4	0.6	0.7
Vic	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.1	0.1	0.2	0.5	1.0	1.2
Qld	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.4	0.9	0.5
SA	0.0	0.2	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.2	0.2	0.3	0.5	0.1
WA	0.0	0.0	0.2	0.0	0.0	0.2	0.1	0.0	0.3	0.3	0.6	0.2	0.0	0.2	0.6	0.6	1.0
Tas, ACT, NT	0.3	0.0	0.0	0.0	0.6	0.3	0.7	0.4	0.6	0.3	0.5	0.0	0.3	0.3	0.7	1.1	0.5

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 33: Unintentional drug-induced deaths involving anti-psychotics by regionality, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital cities	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.5	0.8	0.8
Outside of capital cities	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.1	0.3	0.8	0.8

Note: 2016 and 2017 data are preliminary, and likely to rise.

9.4. Data cubes for Chapter 7

Data for Figure 34: Unintentional drug-induced deaths by regionality in New South Wales, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Greater Sydney	5.9	5.2	5.1	5.3	4.9	5.4	5.1	5.4	5.8	5.5	5.6	5.1	5.9	6.2	6.9	6.5	6.6
Regional NSW	5.6	5.1	4.7	4.5	4.9	5.7	4.7	4.5	5.1	5.7	6.4	6.9	6.2	8.8	8.3	9	8.8

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 35: Unintentional drug-induced deaths by drug type in greater Sydney and regional NSW, 2001-2017, as a rate per 100,000 population

Greater Sydney

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	0.4	0.5	0.3	0.5	0.3	0.5	0.4	0.5	0.3	0.5	0.6	0.7	0.7	1	1.2	1.7	1.4
Benzodiazepines	1	1	1	1.3	0.8	1	1	0.7	1.1	1.3	1.3	1.5	1.9	1.8	1.9	1.9	1.9
Other Pharmaceuticals	-	-	-	-	-	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.6	0.6	0.7
Heroin	0.5	0.4	0.5	0.6	0.5	0.4	0.4	0.3	0.7	0.6	0.6	0.4	0.8	0.5	1.2	1.5	1.2
Pharmaceutical Opioids	0.8	1	0.8	0.8	0.8	1	0.8	1	1.2	0.8	1	0.8	1.3	2	2.2	1.7	1.7

Regional NSW

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	-	-	-	-	0.5	0.6	-	-	-	-	-	1.1	0.5	1	1.3	2.6	2.4
Benzodiazepines	0.9	0.9	0.7	0.7	0.8	0.7	0.6	0.8	0.7	1.1	1.5	1.8	1.7	2.3	2.3	2.5	3.3
Other Pharmaceuticals	-	-	-	-	-	0.4	-	-	0.3	0.3	0.3	-	-	0.2	0.4	1.2	0.9
Heroin	0.8	-	0.4	-	0.3	-	-	-	0.5	0.4	0.4	0.6	0.3	0.7	0.5	1.2	1.4
Pharmaceutical Opioids	1.3	1.1	1	0.8	1	1.1	0.9	0.7	1.2	1.5	1.7	1.7	2.2	3.7	3.1	3.6	3

Note: 2016 and 2017 data are preliminary, and likely to rise. Where a rate could not be calculated due to low numbers, this is shown as a '-' in the table.

Data for Figure 36: Unintentional drug-induced deaths by regionality in Victoria, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Greater Melbourne	4.3	4.4	5.3	5.7	4.5	4.2	4.4	6.1	5.3	5.4	5.4	3.6	4.8	5.2	5.9	6.4	5.3
Regional Vic	4	4.4	5	4.8	5.7	5	4.5	6.6	6.6	5.7	6.3	4.6	5.5	8.3	7.8	8.2	9.6

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 37: Unintentional drug-induced deaths by drug type in greater Melbourne, 2001-2017, as a rate per 100,000 population

Melbourne

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	-	0.2	-	0.4	0.5	0.4	0.5	0.4	0.6	0.4	0.5	0.4	0.7	1.1	1.5	2.1	1.8
Benzodiazepines	0.5	0.8	1.2	1.5	1	0.8	1.3	1.5	1.7	1.9	2.1	1.6	1.7	2.4	2.5	3.2	2.8
Other Pharmaceuticals	-	-	-	-	-	0.2	0.2	0.3	0.2	0.4	0.4	0.1	0.2	0.3	0.7	1.5	1.4
Heroin	0.9	1.3	2.1	2	1.1	0.7	1.2	2.1	1.4	1.7	1.7	0.9	1.6	1.6	2.2	2.6	2.6
Pharmaceutical Opioids	0.6	0.6	1	1.4	0.8	0.8	1.3	1.8	1.3	1.2	1.2	0.9	1	1.7	1.8	2.4	1.2

Regional Victoria

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Stimulants	-	-	-	-	-	-	-	-	-	-	0.7	0.7	0.5	1.4	2.3	2	2.6
Benzodiazepines	-	1	0.8	-	1.2	1.2	0.8	1.9	1.5	2.1	1.7	2	2.3	4.1	3.1	3	4.8
Other Pharmaceuticals	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0.7	1.9	2.9
Heroin	-	0.7	1	0.8	1.4	-	-	0.7	1.2	1.2	1	0.7	1	2	1.7	1.9	3.1
Pharmaceutical Opioids	-	0.9	0.8	0.8	1	1	0.8	2	1.2	2.2	1.4	2	2.5	2.9	3.2	3.6	3

Note: 2016 and 2017 data are preliminary, and likely to rise. Where a rate could not be calculated due to low numbers, this is shown as a '-' in the table.

Data for Figure 38: Unintentional drug-induced deaths by regionality in Queensland, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Greater Brisbane	4.3	3.8	3.3	3.9	3.9	3.1	4.3	4.1	5.2	7.5	6.2	5.4	4.9	5.7	5.8	5.8	5.5
Regional Qld	6	3.6	3.3	4.8	4	3.8	4.4	4.7	6	6.4	6.4	7.2	6.4	6.5	7.6	7.5	5.5

Note: 2016 and 2017 data are preliminary, and likely to rise.

Data for Figure 39: Unintentional drug-induced deaths by regionality in Western Australia, 2001-2017, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Greater Perth	6.1	4.6	3.9	2.9	4.3	4.7	5.4	5.5	6.2	6.6	6.4	6.4	6.2	7	7.5	8.8	8.5
Regional WA	6	-	-	-	5.5	4.5	4.7	8.5	8	7.2	7.5	6.7	6	9.1	10.9	8.7	6.8

Note: 2016 and 2017 data are preliminary, and likely to rise. Where a rate could not be calculated due to low numbers, this is shown as a '-' in the table