PENINGTON INSTITUTE

AUSTRALIA'S ANNUAL OVERDOSE REPORT
2020

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1.   Foreword

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Australia's Annual Overdose Report 2020 (OD Report 2020) reveals that for the fifth year running, more than 2,000 Australians lost their lives to overdose in a single calendar year.

It is a grim landmark – and a brutal indictment of our governments' narrow focus on controlling the supply of substances while failing to care enough for those who are already consuming and at risk of multiple harms including fatal overdose.

Because of the careful but slow work of classifying drug-related deaths, the empirical effects of COVID-19 on our overdose toll will not be seen until the OD Report 2022 – and for several years beyond that. But, as evidence from overseas shows, COVID-19 is accelerating trends and exacerbating risk factors which are already detectable in this year's Report.

Vulnerable people risk losing the supports they rely on to stay connected and healthy. But these risk factors for overdose were present in Australia long before the pandemic.

People turn to drugs for many reasons. Some are motivated by curiosity, pleasure or the promise of new experiences. For many others, drug use is a response to mental or physical traumas, such as workplace, sport or road accidents. Mental health drivers are important, like anxiety and depression. Some people turn to drugs to distract them from despair or isolation, while some are people with little hope for their futures, including the financially insecure and those who have lost their jobs.

Drug use risks are driven by alcohol and pharmaceutical drugs as well as the illicit drugs that are the subjects of whispered conversations. All these drugs contribute to overdose and death.

The OD Report 2020 contains a wealth of findings that should prompt a shift in our approach, to drug policies which are based on evidence and respectful of the personal experiences of those living through the overdose epidemic in Australia.

There are no simple solutions. Real-time prescription monitoring has been claimed as a silver bullet and is an easy-to-understand supply side intervention. But a technological fix is not enough to solve this complex problem. Prescription monitoring can lead to people being excluded from the care they need, increasing overdose risk and curtailing access to essential pain care.

A comprehensive national overdose strategy would be a good start if it had clear indicators to end overdose, as would expanding the Take Home Naloxone Pilot from three states to every jurisdiction in Australia. There is much more to be done – but at a minimum, we need an overdose educated and empowered community.

Putting the OD Report 2020 together is a big job. I would like to convey my deepest thanks to the hard-working team at Penington Institute, the Advisory Committee whose thoughtful contributions improved the final product, and the Australian Bureau of Statistics for their assistance.

Thanks also are due to the courageous men and women who tell their own stories of overdose. Their pain is reflected in every number on every page of this report.

The OD Report 2020 tells the truth about fatal overdose – a tragedy we can prevent.

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 2018, with a snapshot of 2018 data provided in Figure 1.

Opioids continue to be the primary drug group associated with unintentional drug-induced deaths, though there have been substantial changes in the types of opioids since 2001. While deaths involving pharmaceutical opioids have constituted the majority of unintentional deaths due to opioids since 2004, there has been a dramatic rise in deaths involving heroin since 2012, resulting in heroin deaths overtaking those involving pharmaceutical opioids in 2018.

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 substantial 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. In contrast, the increase in deaths involving anti-depressants has been slower.

Deaths involving other prescription medications – such as anti-convulsant medications 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 both stimulants and anti-depressants.

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. For example, the data show that 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 has been 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.

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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.

Drugs and overdose also tend to be associated with urban areas; the data, however, reveal that the highest growth in unintentional drug-induced deaths has been occurring in regional settings, away from capital cities. This trend poses important challenges for addressing overdose in regional areas. It highlights the need to increase capacity in regional and rural areas through such approaches as enhanced provision of naloxone and greater resources for drug and alcohol treatment and support services.

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

Figure 1. Number and characteristics of unintentional drug-induced deaths in 2018

Figure 1a. Most recent one-year period 2018

2,070 Drug-induced deaths in Australia in 2018 of which **1,556** were unintentional.

Drug types contributing to unintentional overdoses

900 Opioids

684 Benzo-diazepines

128 Anti-convulsants

1,556

442 Stimulants

223 Anti-pyschotics

328 Cannabinoids

382 Anti-depressants
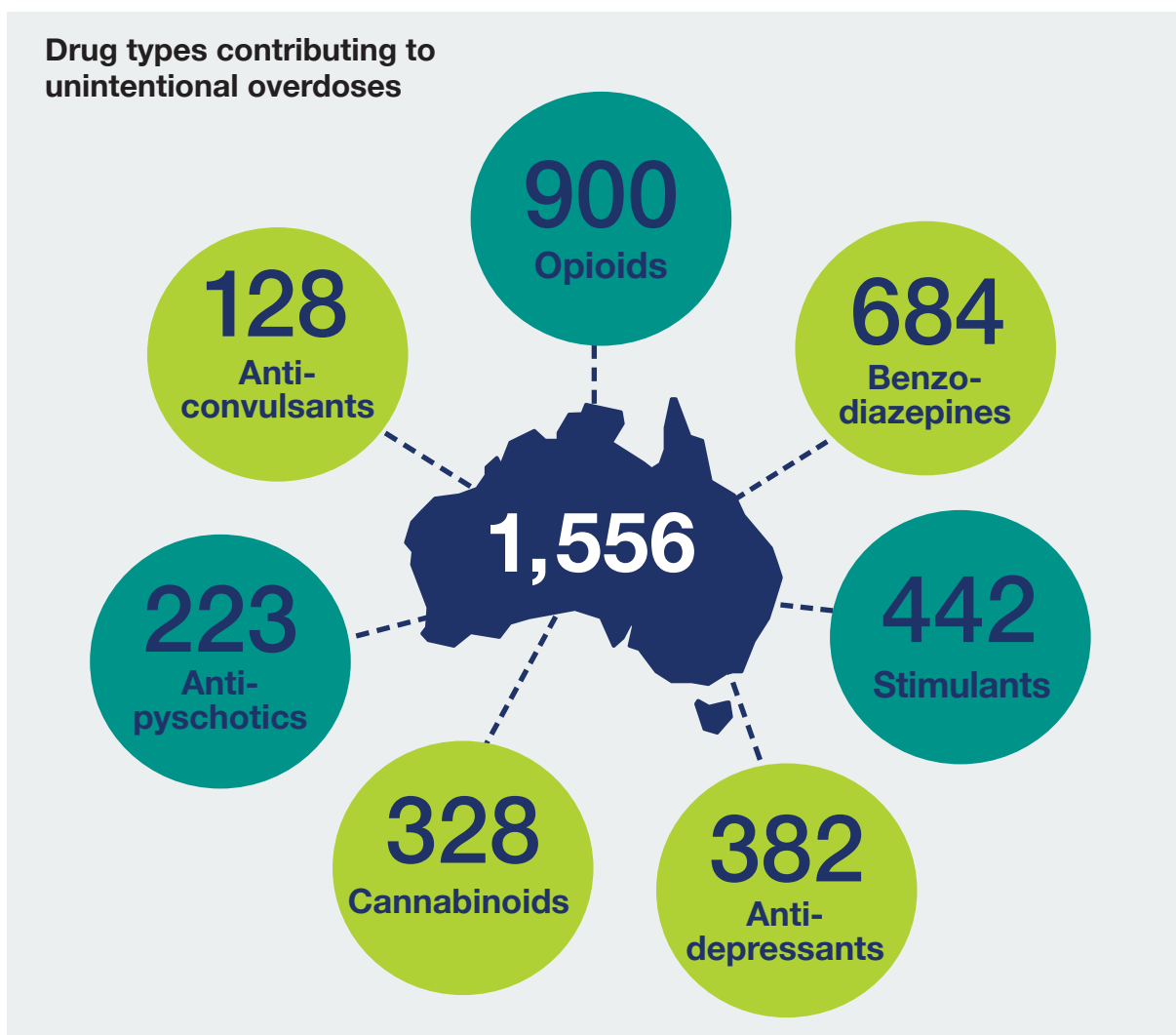
Figure 1b. Most recent one-year period 2018

Aboriginality

17
per 100,000

Aboriginal and Torres Strait Islander

6
per 100,000

Non-Aboriginal

Aboriginal and Torres Strait Islander people were almost three times as likely to die from an unintentional drug-induced death in **2018,** with a rate of deaths of **17.3** per 100,000 population, compared with **6.0** deaths per 100,000 population for **non-Aboriginal people.**

Regional vs city

7.3   **5.8**

Unintentional drug-induced deaths per 100,000 people

In every state and territory across Australia, the rate of unintentional drug-induced deaths was higher outside the capital city in **2018.**

Age

9.6%   **22.8%**   **26.9%**   **40.6%**

Aged under 30   Aged 30–39   Aged 40–49   Aged over 50

Figure 1c. Most recent five-year period 2014–2018

10,834 Australians lost their lives due to overdose in the five years between **2014 and 2018.**

123%

Poly-drug use

Deaths where four or more substances were detected increased **123%** from **261** in 2014 to **582** in **2018.**

4+

Opioid deaths, by sex

Between **2014** and **2018,** of the unintentional deaths involving opioids, heroin was involved in a higher share of deaths for men **(35.1%)** than women **(21.2%).** Women had a higher share of deaths involving pharmaceutical opioids **(57.2%)** than men **(47.5%).**

47.5%   35.1%   17.4%

57.2%   21.2%   21.6%

Heroin   Methadone   Pharmaceutical Opioids

Figure 1d. Most recent five-year period 2014–2018

Sex

Of unintentional deaths involving Benzodiazepines

67% 33%

Of unintentional deaths involving Stimulants

76% 24%

Of unintentional deaths involving Anti-depressants

58% 42%
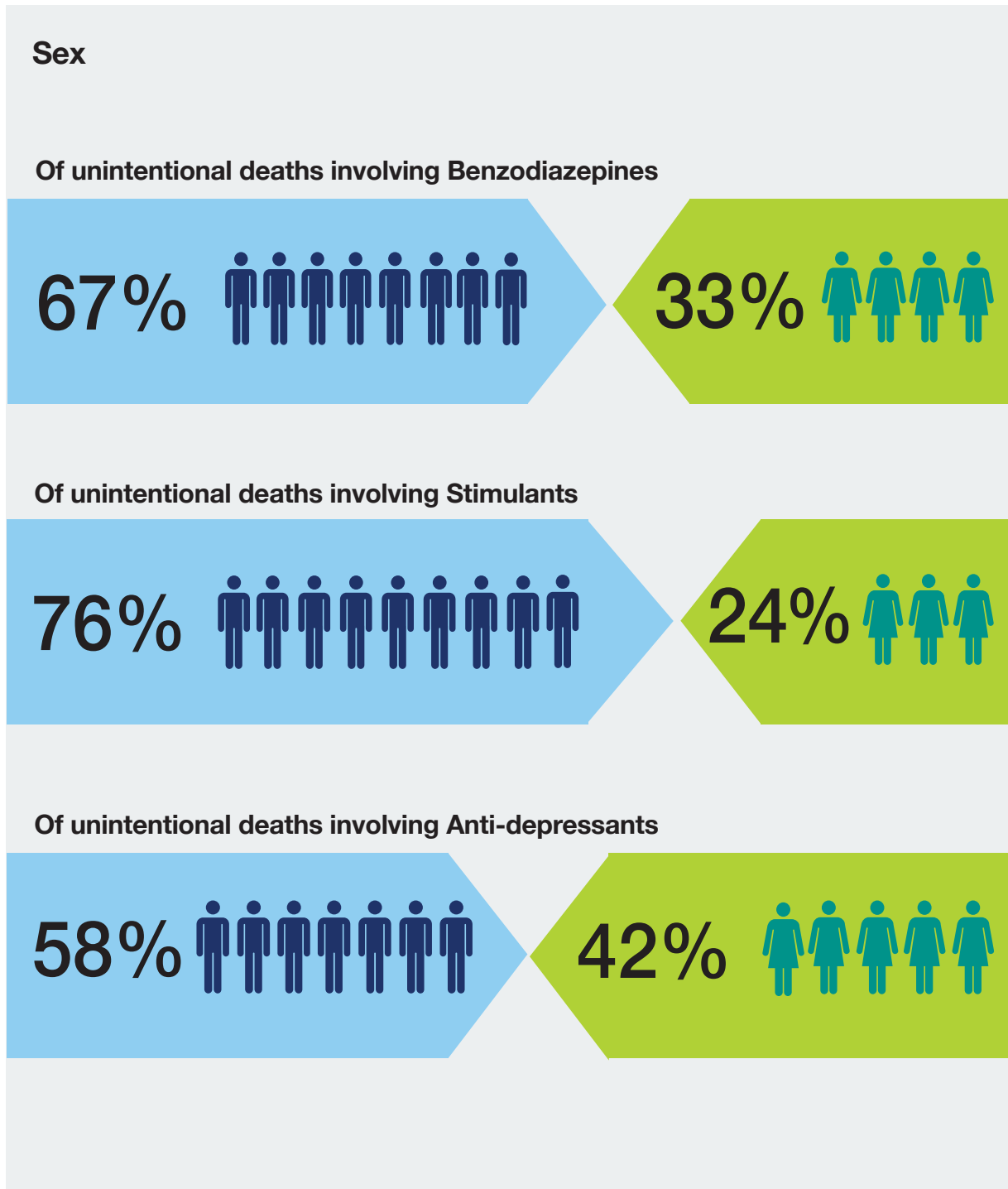
Figure 1e. Most recent five-year period 2014–2018: the top three drug types

Increase in drug-induced deaths over the five-year period 2014 to 2018

Stimulants

250 Deaths
2014

442 Deaths
2018

77%

Benzodiazepines

485 Deaths
2014

648 Deaths
2018

34%

Opioids

853 Deaths
2014

900 Deaths
2018

9%
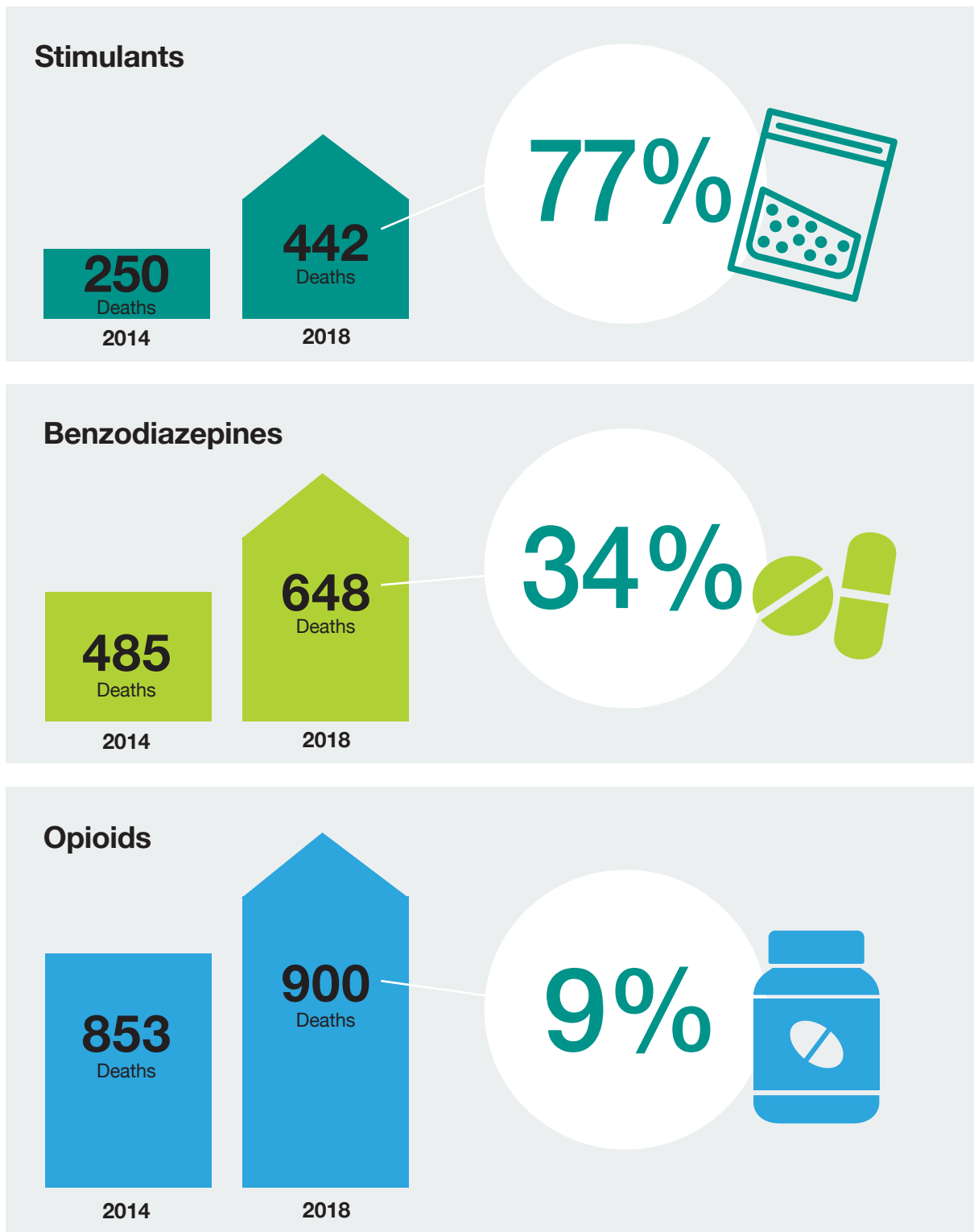
2.1.   Key findings

The key findings of the report are as follows:

There were 1,556 unintentional drug-induced deaths in Australia in 2018, accounting for more than three-quarters (75.2%) of all drug-induced deaths.

• This equates to more than four unintentional drug-induced deaths per day in 2018, or one death every 5.6 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 2018 (involved in 900 deaths), followed by benzodiazepines (involved in 648 deaths), pharmaceutical opioids (involved in 457 deaths) and stimulants (involved in 442 deaths).

• Unintentional deaths were most common among the 40-49 age group, which accounted for 26.9% of all unintentional drug-induced deaths in 2018. Fewer than one in ten (9.6%) deaths recorded was among those aged under 30.

• Males were almost three times as likely as females to suffer an unintentional drug-induced death in 2018, accounting for 71.5% of deaths.

• Aboriginal people were almost three times as likely to die from an unintentional drug-induced death in 2018, with a rate of deaths of 17.3 per 100,000 population, compared with 6.0 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 3.0% per year, based on trends from the 2001 to 2018 period. If nothing is done to alter this trend, it will equate to an additional 330 drug-induced deaths by 2023, of which 248 will likely be unintentional. In contrast, the road toll has decreased on average by 2.2% per year, equating to 128 fewer deaths by 2023 (Figure 2).

• In 2018, 1,556 people died from unintentional drug-induced overdoses in Australia, compared with 1,220 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 1,556 in 2018.

• From 2001 to 2018, the population of Australia increased by 29.9%. During the same period, the number of unintentional drug-induced deaths increased by 58.6% (Figure 5).

• 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 nearly trebled in the last 12 years (Figure 7).

• There are significant increases in deaths involving benzodiazepines, stimulants, cannabinoids, anti-depressants, anti-convulsants (used to treat epilepsy, mood disorders and neuropathic pain) and anti-psychotics (Figure 7). In the last 15 years, unintentional drug-induced deaths involving stimulants have increased seven-fold, while those involving benzodiazepines have increased four-fold. Deaths involving both anti-psychotic and anti-convulsant medications have increased dramatically in the last five years, although the number of deaths remains lower than for other drug types.

• 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 quadrupled, from 163 in 2013 to 582 in 2018. In comparison, deaths involving

the detection of a single drug, or the detection of alcohol on its own, have not significantly increased over time. Deaths involving the detection of two drugs have decreased slightly from a high of 277 in 2012, while those involving three drugs have slowly increased from 125 in 2008 to 207 in 2018.

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

- Since 2001, the number of unintentional drug-induced deaths has increased significantly among people aged 30-59 (from 540 to 1,111 in 2018, an increase of 105.7%), but has decreased among those aged under 30 (from 248 to 150 in 2018, a decrease of 39.5%) (Figure 8).

- Since 2012, the number of unintentional drug-induced deaths among males increased by 36.8%, while the number of deaths among females increased by 4.7% (Figure 9).

- The rate of unintentional drug-induced death among Aboriginal people is far higher than the rate among non-Aboriginal people for the entire period examined in this report (2001 to 2018), and has been increasing since 2009. In 2018, the rate of unintentional drug-induced death among Aboriginal people was 17.3 per 100,000 people; in 2009 the rate was 9.5 per 100,000 people (Figure 11).

- 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 2018 the rate of unintentional drug-induced deaths in rural and regional Australia increased by 15.9%, while the rate in capital cities increased by only 3.6%.

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

- The number of unintentional drug-induced deaths involving opioids has nearly trebled in the last 12 years, increasing from 338 in 2006 to 900 in 2018 (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 402 – an increase of 106.2% – while the number of deaths involving oxycodone / morphine / codeine has increased from 269 to 321– a 35.7% increase.

- While unintentional drug-induced deaths involving heroin are most common among 30-39 year-olds (568 deaths from 2014 to 2018), deaths involving pharmaceutical opioids are most common in the 40-49 age group (851 deaths from 2014 to 2018) (Figure 18).

- Males had a higher proportion of unintentional drug-induced deaths involving heroin than females during the period from 2014 to 2018 (35.1% among males, compared with 21.2% among females), whereas females had a higher proportion of unintentional drug-induced deaths involving pharmaceutical opioids (47.5% among males, compared with 57.2% among females) (Figure 19).

- In the capital cities, the number of unintentional drug-induced deaths involving heroin has increased dramatically since 2014 (from 156 to 312 in 2018) and in 2016 overtook the number of deaths involving oxycodone / morphine / codeine (186 in 2018). In contrast, unintentional drug-induced deaths involving opioids outside of capital cities continue to be dominated by oxycodone / morphine / codeine (135 deaths in 2018) (Figure 20).

- The highest rates of unintentional drug-induced deaths involving heroin have predominantly occurred in Victoria, with a sharp increase from 2012 onwards, resulting in a rate of 2.4 deaths per 100,000 population in 2018. However, in 2018 Western Australia overtook Victoria to have the highest rate of heroin-related unintentional drug-induced deaths, with 2.8 per 100,000 population (Figure 17).

The number of unintentional drug-induced deaths involving benzodiazepines has continued 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 4.1 deaths per 100,000 population in 2018) and Victoria (from 1.8 to 2.8 deaths per 100,000 population) (Figure 22).

- The number of unintentional drug-induced deaths involving benzodiazepines over the period 2014 to 2018 was highest among people aged 40-49 (accounting for 33.0% of deaths involving benzodiazepines), followed by those aged 30-39 (28.2% of deaths involving benzodiazepines) (Figure 23).

- Males accounted for two-thirds (67.0%) of unintentional drug-induced deaths involving benzodiazepines in the period 2014 to 2018 (1,926 deaths) compared with 947 deaths among females (Figure 24).

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

- There were 442 unintentional drug-induced deaths involving stimulants in 2018, up from 87 in 2008 – an increase of more than 400%.

- From 2014 to 2018, males accounted for three-quarters of unintentional drug-induced deaths involving stimulants (1,470 deaths, 75.8%), compared with 469 deaths among females (Figure 28).

- From 2011 to 2018, the rates of unintentional drug-induced deaths involving stimulants increased from 0.5 to 1.8 deaths per 100,000 population in capital cities, compared with 0.4 to 1.6 deaths per 100,000 population outside of the capital cities (Figure 29).

The rate of unintentional drug-induced deaths involving anti-depressants has increased steadily in most states and territories since 2001.

- Unintentional drug-induced deaths involving anti-depressants were relatively low compared to other substances, yet are increasing in all states and territories (except South Australia), particularly in Western Australia, which has quadrupled from 0.7 in 2013 to 2.8 in 2018. (Figure 30).

- There is a slightly older age profile for unintentional drug-induced deaths involving anti-depressants than for those involving either benzodiazepines or stimulants, with the highest number of unintentional deaths during 2014 to 2018 among people aged 40-49 (accounting for 32.7% of deaths involving anti-depressants), followed by those aged 50-59 (24.5% of deaths) and those aged 30-39 (24.3% of deaths). More than one in ten (10.5%) unintentional deaths involving anti-depressants were observed among people aged 60 and over (Figure 31).

- There is a more even sex distribution for unintentional drug-induced deaths involving anti-depressants than for those involving other drug types, with 971 deaths among males (57.8% of deaths involving anti-depressants) and 709 deaths among females from 2014 to 2018 (Figure 32).

The rate of unintentional drug-induced deaths involving cannabinoids has increased steadily in all states and territories since 2013.

- The rates of unintentional drug-induced deaths involving cannabinoids were relatively low, yet are increasing in all states and territories, particularly in Western Australia, which increased from 0.5 deaths per 100,000 population in 2013 to 2.3 in 2018, and Victoria, which increased from 0.2 to 1.5 deaths per 100,000 population during the same period (Figure 34).

- From 2014 to 2018, males accounted for three-quarters of unintentional drug-induced deaths involving cannabinoids (880 deaths, 74.2%), compared with 306 deaths among females (Figure 36).

- After many years of almost identical rates of unintentional drug-induced deaths involving cannabinoids in both capital cities and rural and regional areas, preliminary data for 2018 show that rates outside of capital cities (1.5 deaths per 100,000 population in 2018) have diverged from those in the capital cities (1.2 deaths per 100,000 population) (Figure 37).

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 (128 deaths in 2018, representing 8.2% of all unintentional drug-induced deaths), the number has increased markedly since 2015, when there were only 11 deaths (Figure 38).

- Rates of unintentional drug-induced deaths involving anti-psychotics have increased markedly since 2013, (when there were 15 deaths involving anti-psychotics) to 223 such deaths in 2018, representing 14.3% of all unintentional drug-induced deaths (Figure 40).

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.[2] 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 April 2020. Full explanatory notes for the most recent cause of death data are available on the ABS website.[3]

3.2. Preliminary Data

In Australia, all suspected drug-induced deaths must be reported to a coroner. 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 2019 Overdose Report, the data for 2016 were revised, the data for 2017 data were preliminary, and the data for 2018 were not yet available. In the current 2020 report, data for 2016 are finalised, data for 2017 are revised, and data for 2018 are preliminary. This means that 2017 and 2018 data are likely to increase in subsequent reports, as cases progress. This also means that, in this report, the data for 2016 and 2017 will appear different from last year's Penington Institute report.

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

Current numbers for 2017 and 2018 should be considered preliminary. Based on past reporting, the number of deaths for 2017 and 2018 is expected to rise. Comparing data between the 2018, 2019 and 2020 reports, numbers have increased on average by approximately 8% as they move from preliminary to finalised, with the increase from preliminary to revised typically larger than the subsequent increase from revised to finalised.

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[2] ABS (2018). *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%20Australia~6.

[3] ABS (2019). *Causes of death, Australia, 2018*. Cat. No. 3303.0. Australian Bureau of Statistics: https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3303.0Explanatory%20Notes12018?OpenDocument.

These later inclusions, while adding a small number of deaths to the totals each year, do not have any substantive effect on the trends or the main findings of these reports.

In graphs depicting a time-series, data not yet finalised (2017 and 2018) are represented as being to the right of a dashed vertical line on the graph.

Table 1. Status of data, 2015-2018

2018 report		2015 - revised	2016 - preliminary		
	All drug-induced deaths	2,144	2,177		
	Unintentional drug-induced deaths	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	
2020 report			2016 - finalised	2017 - revised	2018 - preliminary
	All drug-induced deaths		2,244	2,274	2,070
	Unintentional drug-induced deaths		1,744	1,722	1,556

3.3. Definitions

These definitions are based on the data provided by the ABS, summarised as per ICD-10 coding.[4]

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.[5] 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

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[4] World Health Organisation (2016). *International statistical classification of diseases and related health problems 10th Revision*: https://icd.who.int/browse10/2016/en.

[5] It should be noted that coroners may not classify a death as intentional, even if it may have been; coronial practice likely varies from state to state and from coroner to coroner. There is thus a possibility that some deaths ruled unintentional may actually have been intentional.

surgical procedures, or where a harmful amount of drug is taken in error with therapeutic intent resulting 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).[6]

Anti-convulsants (including neuropathic pain modulators, in addition to traditional anti-convulsants) 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.[7]

Anti-depressants are medicines that are prescribed for the treatment of mental health disorders such as major depressive disorder and obsessive compulsive disorder.[8] This group includes tricyclic and tetracyclic anti-depressants, monoamine-oxidase-inhibitor anti-depressants, and other and unspecified anti-depressants, such as selective serotonin reuptake inhibitors.

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.[9] This group includes drugs such as quetiapine, olanzapine, risperidone, paliperidone, amisulpride, and lithium.

Benzodiazepines are medicines used to treat anxiety, relax people, treat some types of seizures and assist with sleep. The most commonly prescribed drugs in this group in Australia are diazepam and temazepam.[10] Long-term use of benzodiazepines can lead to the development of tolerance and physical and psychological

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[6] ABS (2018). *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%20Australia~6.

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

[8] ABS (2018). *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%20Australia~6.

[9] Montebello, M. E. and 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.

[10] 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.

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.[11] 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.

Cannabinoids refers to plants or drugs containing chemical compounds that act as agonists on 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 Cannabinoid Receptor Agonists or 'SCRAs' (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' includes naturally occurring cannabinoids such as THC, SCRAs and 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,[12] though it can be smoked, snorted or swallowed. As the sale of heroin is not regulated, it may be mixed with a range of harmful adulterants. Prescription diamorphine is used therapeutically in many parts of the world as a pain treatment and for the treatment of opioid dependence.

Methadone is a synthetic opioid not included in the pharmaceutical opioid category as it is captured separately in the data. It is primarily used as a treatment for opioid addiction as part of medically-assisted treatment for opioid dependence (MATOD), though it is also used in the treatment of chronic pain. While taking regular methadone in the context of MATOD greatly reduces a person's risk of overdose (by around half), methadone (like all opioids) 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 MATOD.

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 and fentanyl analogues are highly potent.

Other pharmaceuticals is a broad group that includes anti-convulsants, anti-depressants, 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 refers to opioids of a pharmaceutical origin including oxycodone, morphine, codeine, fentanyl, pethidine, tramadol, tapentadol, buprenorphine and hydromorphone. Pharmaceutical opioids can be

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[11] ABS (2018). *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%20Australia~6.

[12] Aitken, C., Lloyd, B. and 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.

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.

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.

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 the 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[13] ('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 who did not identify as Aboriginal or Torres Strait Islander or 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 are 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),[14] 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.

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[13] Methamphetamine is also known as 'methylamphetamine'.

[14] For a description of SEIFA and IRSAD, see ABS (2018). *Census of population and housing: Socio-economic indexes for areas (SEIFA), Australia, 2016*. Cat. No. 2033.0.55.001. Australian Bureau of Statistics: https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~IRSAD~20.

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 state or territory of usual residence of the deceased, regardless of where in Australia the death occurred. Deaths of persons usually resident overseas that 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 the Northern Territory, Tasmania and the Australian Capital Territory combined, in order to have sufficient numbers to calculate a rate.

- **Regionality:** greater capital city or regional area;[15] the Australian Capital Territory cannot be differentiated 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)[16] is a means of regional grouping used by the ABS. These areas 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,[17] based on the mid-year population. These data were either provided by the ABS, or were calculated using estimated resident population data from the ABS.[18] 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 2004-2008 (the reference period) and 2014-2018 (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 2014-18 as there were during 2004-2008; 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 2014-2018. Otherwise, numbers may be too small for meaningful analysis.

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[15] ABS definitions and boundaries of greater capital city statistical areas (GCCSAs) can be found at: https://www.abs.gov.au/geography.

[16] For a description of SA3, see ABS (2016). *Australian Statistical Geography Standard (ASGS): Volume 1 – Main structure and greater capital city statistical areas, July 2016*. Cat. No. 1270.0.55.001. Australian Bureau of Statistics:
https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.001~July%202016~Main%20Features~Statistical%20Area%20Level%203%20(SA3)~10015.

[17] 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.

[18] Australian estimated resident population data are available from ABS (2019). *Australian demographic statistics, Dec 2018* – Table 4. Cat. No. 3101.0. Australian Bureau of Statistics: https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Dec%202018?OpenDocument.

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.

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 2018 report by the Australian Bureau of Statistics indicates that multiple drugs were detected in over half (59%) of unintentional drug-induced deaths in 2016.[19]

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.

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.[20]

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[19] ABS (2018). *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%20Australia~6.

[20] Stam, N. C., Gerostamoulos, D., Pilgrim, J. L., Smith, K., Moran, L., Parsons, S. and 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 2001-2018

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 by examining all drug-induced deaths, and compares trends in drug-induced deaths to road traffic and car crashes.

In 2018, there were 2,070 drug-induced deaths in Australia. This equates to 64,659 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 2018 rate of all drug-induced deaths in Australia was 8.2 per 100,000 people, compared with 7.6 deaths per 100,000 people in England and Wales in 2018[21] and 20.7 per 100,000 people in the United States in 2018.[22] The current rate of deaths in Australia is equivalent to the rate of deaths in the United States in 2003.[23]

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,

Figure 2. Number of drug-induced deaths in Australia, compared with other causes of death, 2001-2018
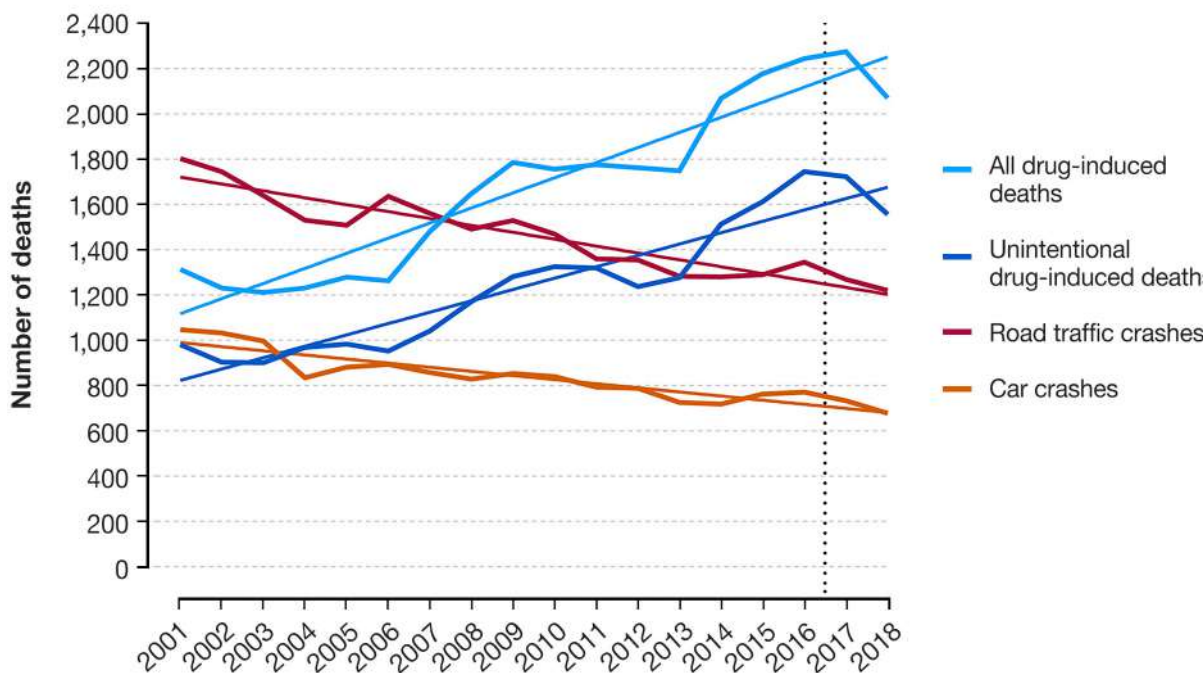
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[21] Office for National Statistics (2019). *Deaths related to drug poisoning in England and Wales: 2018 registrations.* https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/ deathsrelatedtodrugpoisoninginenglandandwales/2018registrations.

[22] Centers for Disease Control and Prevention (2020). *Most recent data on health topics*. https://www.cdc.gov/nchs/pressroom/ recent-data.htm.

[23] Hedegaard, H., Minino, A. and Warner, M. (2020). *NCHS data brief no. 356*: *Drug overdose deaths in the United States, 1999-2018*. Centers for Disease Control and Prevention: https://www.cdc.gov/nchs/data/databriefs/db356-h.pdf.

to 1,556 in 2018. Based on the current trends from 2001-2018, both drug-induced deaths and unintentional drug-induced deaths have been increasing on average by 3.0% per year. This would equate to an additional 330 drug-induced deaths in 2023; 248 will likely be unintentional. In contrast, the road toll has decreased on average by 2.2% per year, equating to 128 fewer deaths by 2023.

As shown in Figure 3, opioids continued to be the largest overall drug group identified in drug-induced deaths, followed by benzodiazepines, anti-depressants and stimulants (this includes methamphetamine, amphetamine and ecstasy). Drug-induced deaths involving opioids, benzodiazepines and anti-depressants 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 increased more slowly. 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 501 in 2018, while deaths involving anti-psychotics increased from 31 in 2013 to 318 in 2018.[24] Deaths involving anti-convulsants, assumed to be related in part to rising pregabalin prescribing, were rare in the decade prior to 2014. This is possibly due to limited prescribing of pregabalin in Australia prior to 2013.[25] These deaths increased from 24 in 2015 to 174 in 2018.

Figure 3. Number of drug-induced deaths in Australia, by drug type, 2001-2018
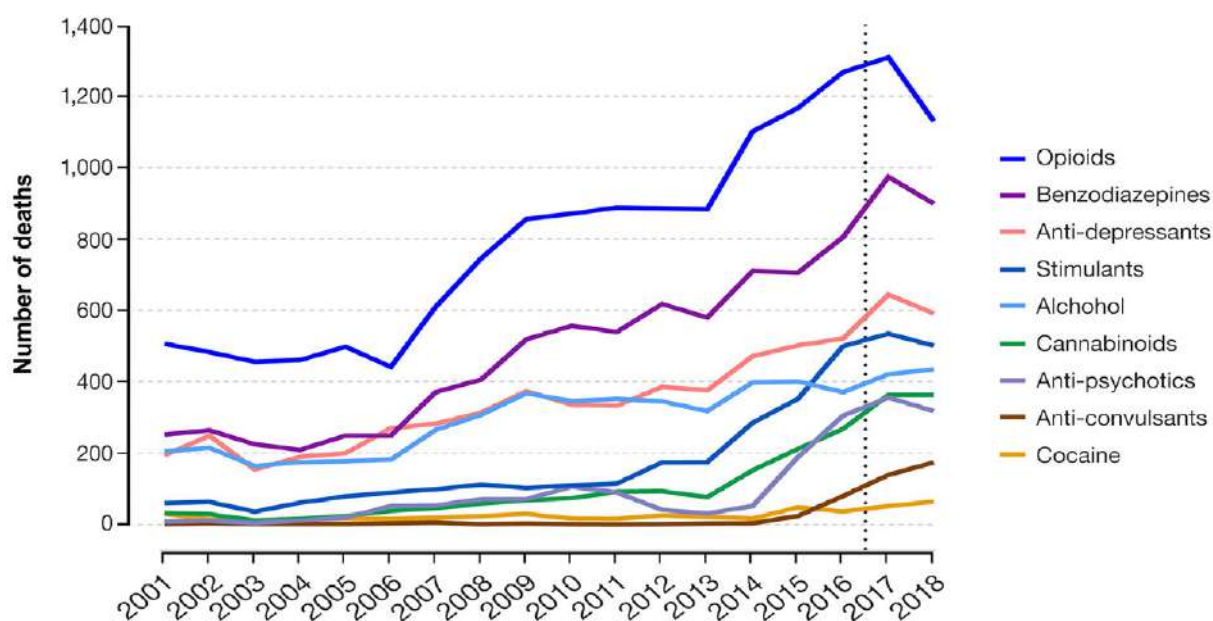
Note: 2017 and 2018 data are preliminary, and likely to rise. Smaller drug groups including other sedatives (including ketamine), and succinimides and oxazolidinediones are not shown on the figure above, due to low numbers.

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[24] Laboratories have been increasingly able to detect some anti-psychotics as instrumentation has evolved to allow lower detection limits, particularly for the more potent analogues.

[25] Pharmaceutical Benefits Advisory Committee, Drug Utilisation Sub-committee (2014). Pregabalin: 12 month predicted versus actual analysis. Canberra: Department of Health. Available at: http://www.pbs.gov.au/info/industry/listing/participants/public-release-docs/2014-10/pregabalin-10-2014.

In 2018, preliminary data show that opioids, benzodiazepines, anti-depressants and stimulants (including methamphetamine, amphetamine and 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 60.7% to 95.3% unintentional. The drugs with the highest proportion of unintentional drug-induced deaths (compared with total drug-induced deaths) were cocaine (95.3%), methadone (92.0%), heroin (91.8%) and cannabinoids (90.4%). The drugs with the lowest proportions of drug-induced deaths that were unintentional were 'specified anti-epileptics and sedatives' (60.7%), anti-depressants (64.6%) and oxycodone / morphine / codeine (66.3%).

Figure 4. Number of drug-induced deaths in 2018 by drug type: all deaths and unintentional deaths
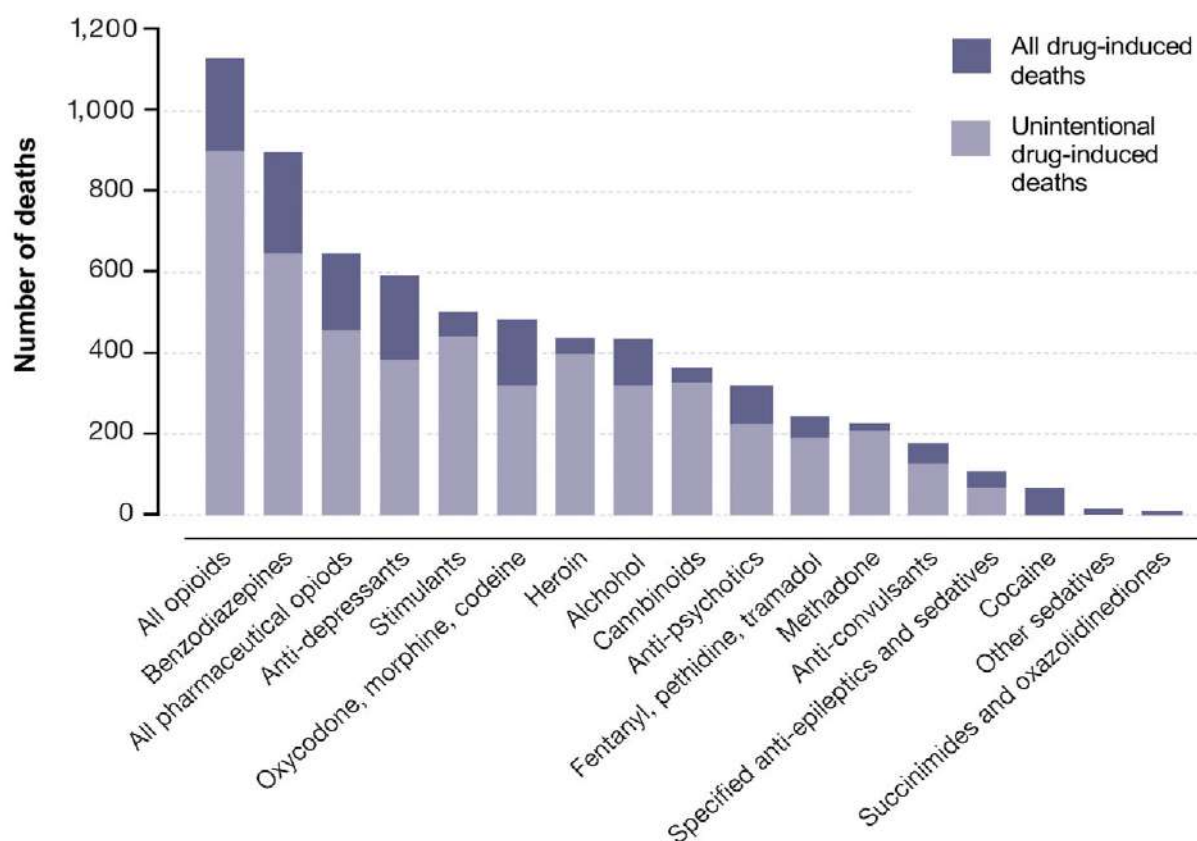
Note: All opioids includes opium, heroin, methadone, oxycodone, morphine, codeine, fentanyl, pethidine, tramadol, buprenorphine, hydromorphone. All pharmaceutical opioids includes the groups oxycodone / morphine / codeine and fentanyl / pethidine / tramadol. Opium is not shown on the graph as a single bar as there were zero deaths involving opium.

Unintentional drug-induced deaths comprise approximately three-quarters of all drug-induced deaths (Figure 5), and this proportion has remained relatively constant between 2001 and 2018 (ranging from 70% to 79%, with an average of 74%). Both are continuing to trend upwards and are increasing more rapidly than the population is growing. From 2001 to 2018, the population of Australia increased by 29.9% (from 19,386,461 persons in December 2001 to 25,180,234 persons in December 2018).[26] In comparison, the number of all drug-induced deaths has increased by 57.7%, and unintentional drug-induced deaths have increased by 58.6% over the same period.

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

Figure 5. Unintentional drug-induced deaths compared with all (total) drug-induced deaths, 2001-2018
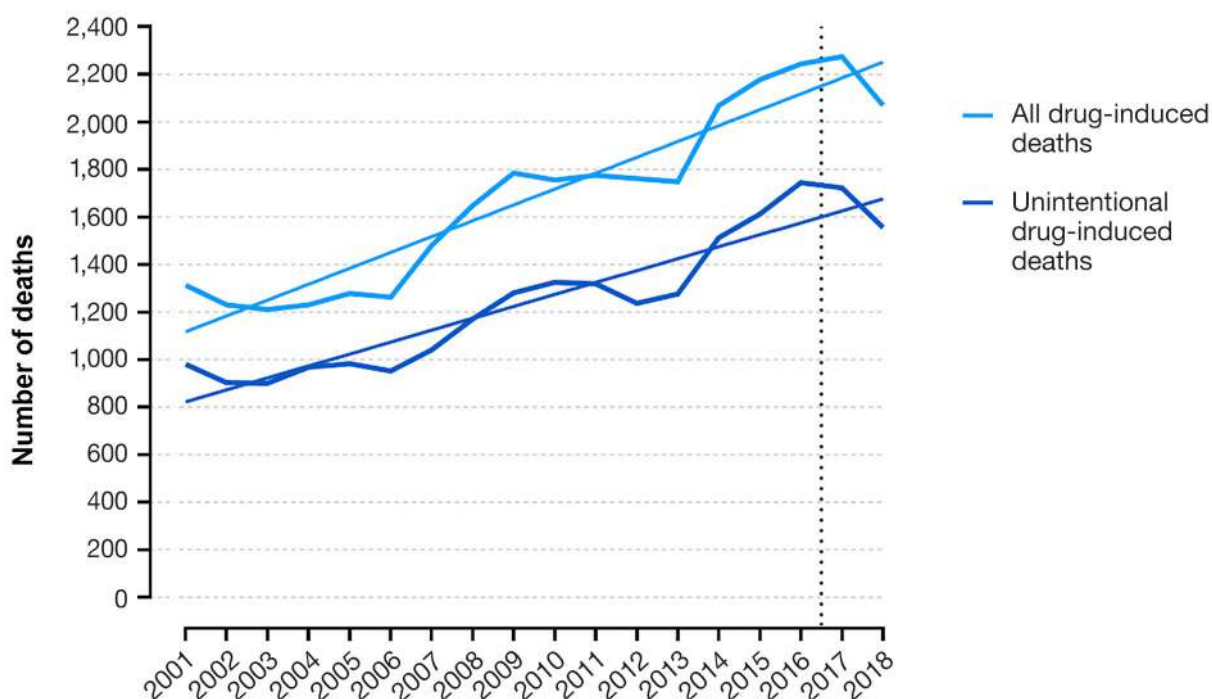
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[26] Australian estimated resident population data are available from ABS (2019). *Australian demographic statistics, Dec 2018* – Table 4. Cat. No. 3101.0. Australian Bureau of Statistics: https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Dec%202018?OpenDocument.

5. Unintentional drug-induced deaths 2001-2018

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" is defined as drug-induced deaths determined to be unintentional by legal rulings, and excludes suicide, homicide or deaths with undetermined intent.

As shown in Figure 6, the most notable changes in the rates of unintentional drug-induced deaths are the statistically significant increases[27] 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 8.8 per 100,000 in 2018 in Western Australia. These data are also provided as numbers of unintentional drug-induced deaths, rather than rates, in Table 2.

Figure 6. Unintentional drug-induced deaths by state, 2001-2018, presented as a rate per 100,000 population
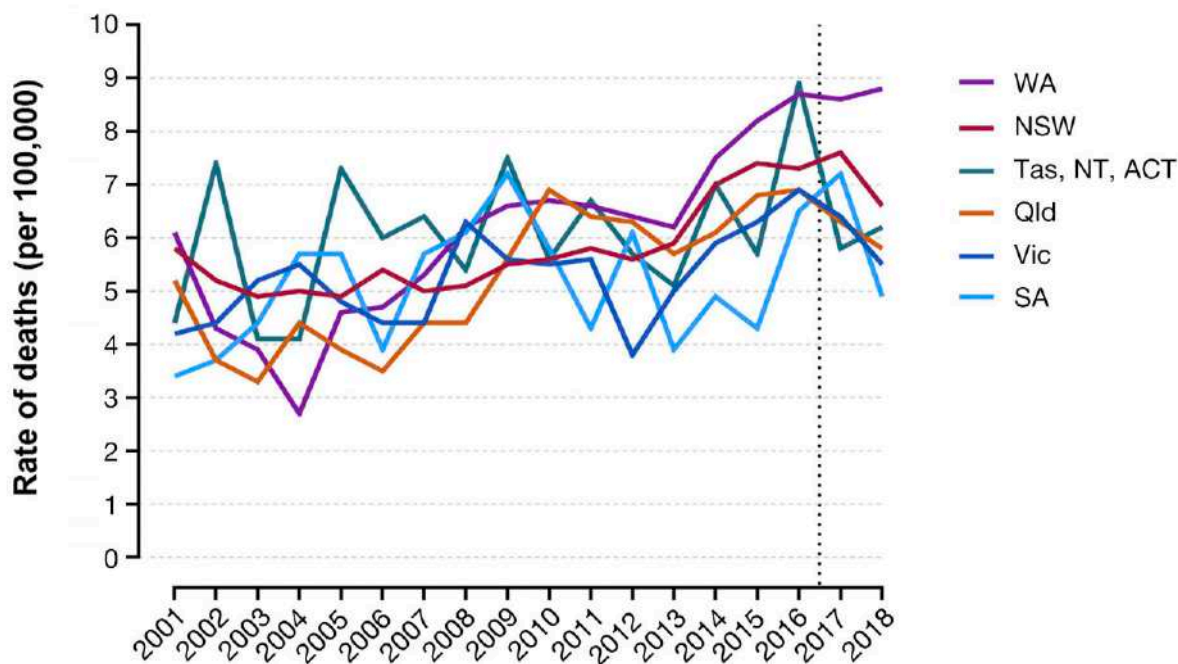
Note: 2017 and 2018 data are preliminary, and likely to rise. Numbers of deaths cannot be reliably converted to rates per 100,000 in Tasmania, Northern Territory, and Australian Capital Territory, due to low numbers and are therefore presented as an aggregate.

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[27] For New South Wales, Queensland, and Western Australia, $p < .001$; for Victoria, $p = .011$.

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Table 2. Number of unintentional drug-induced deaths by state or territory, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NSW	379	343	328	337	332	370	349	357	397	404	426	412	448	533	568	573	600	524
Vic	203	216	255	276	243	226	231	335	306	303	315	217	288	349	377	421	401	355
Qld	182	134	123	166	153	140	179	184	243	302	286	287	261	286	318	329	303	288
SA	50	55	68	88	88	63	94	98	115	95	74	104	65	84	77	112	124	85
WA	116	82	75	53	91	96	111	135	150	153	157	155	152	190	207	222	218	227
Tas	21	35	20	21	36	30	32	28	40	28	36	30	27	38	31	47	32	34
NT	13	20	10	12	16	16	23	12	12	20	9	20	12	11	18	12	16	16
ACT	17	17	22	15	24	11	22	22	18	20	16	12	23	21	16	28	28	27

Note: 2017 and 2018 data are preliminary, and likely to rise.

When considering unintentional drug-induced deaths in 2018 by state/territory and residential location, the rate of deaths ranged from 4.7 to 9.3 deaths per 100,000 people (Table 3). In every jurisdiction, the rate of unintentional drug-induced deaths was higher outside the capital city. Across all states/territories, regional and rural Western Australia had the highest rate of unintentional drug-induced deaths in 2018 (9.3 per 100,000 people), followed by Perth and regional and rural New South Wales.

Table 3. Unintentional drug-induced deaths by usual residence in 2018

Region of usual residence	Number	Rate (per 100,000)
New South Wales		
Greater Sydney	308	6.0
Rest of New South Wales	216	7.9
Victoria		
Greater Melbourne	250	5.0
Rest of Victoria	105	7.6
Queensland		
Greater Brisbane	130	5.3
Rest of Queensland	158	6.3
South Australia		
Greater Adelaide	65	4.7
Rest of South Australia	20	5.8
Western Australia		
Greater Perth	178	8.7
Rest of Western Australia	49	9.3
Tasmania, Northern Territory, Australian Capital Territory (combined)		
Greater Hobart, Darwin, Australian Capital Territory	49	6.1
Rest of Tasmania and Northern Territory	28	7.5
Australia		
Greater capital cities total	980	5.8
Remainder of states total)	576	7.3

The trends in the number of unintentional drug-induced deaths (Figure 7) 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.[28] There is also an overall significant increase in the number of unintentional drug-induced deaths due to anti-depressants, although the rise has been steadier. 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 7. Unintentional drug-induced deaths by drug type, 2001-2018
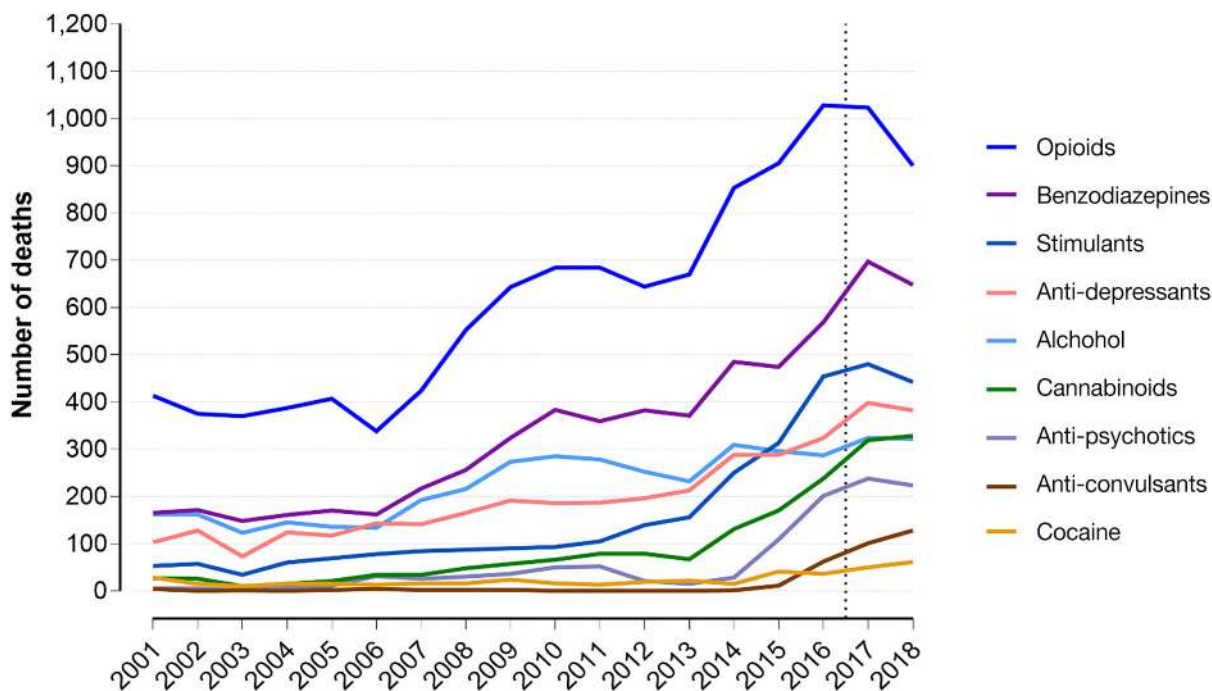
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[28] For opioids, cannabinoids, benzodiazepines, anti-depressants, anti-psychotics, stimulants and alcohol, $p < .001$; for cocaine and anti-convulsants, $p < .01$

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 8. Since 2001, deaths in the 20-29 age group have significantly decreased,[29] from 212 in 2001 to 137 in 2018, a decrease of 35.4%. In contrast, deaths in the 30-39, 40-49, and 50-59 age groups have all significantly increased,[30] with the greatest increase observed in those aged 50-59 (from 106 in 2001 to 337 in 2018, an increase of 217.9%). The highest number of deaths is seen in the 40-49 age group, with 419 unintentional drug-induced deaths in 2018, accounting for 26.9% of all unintentional drug-induced deaths in 2018 (an increase of 118.2% since 2001). Fewer than one in ten (9.6%) unintentional deaths recorded was among those aged under 30.

Figure 8. Unintentional drug-induced deaths by age group, 2001-2018
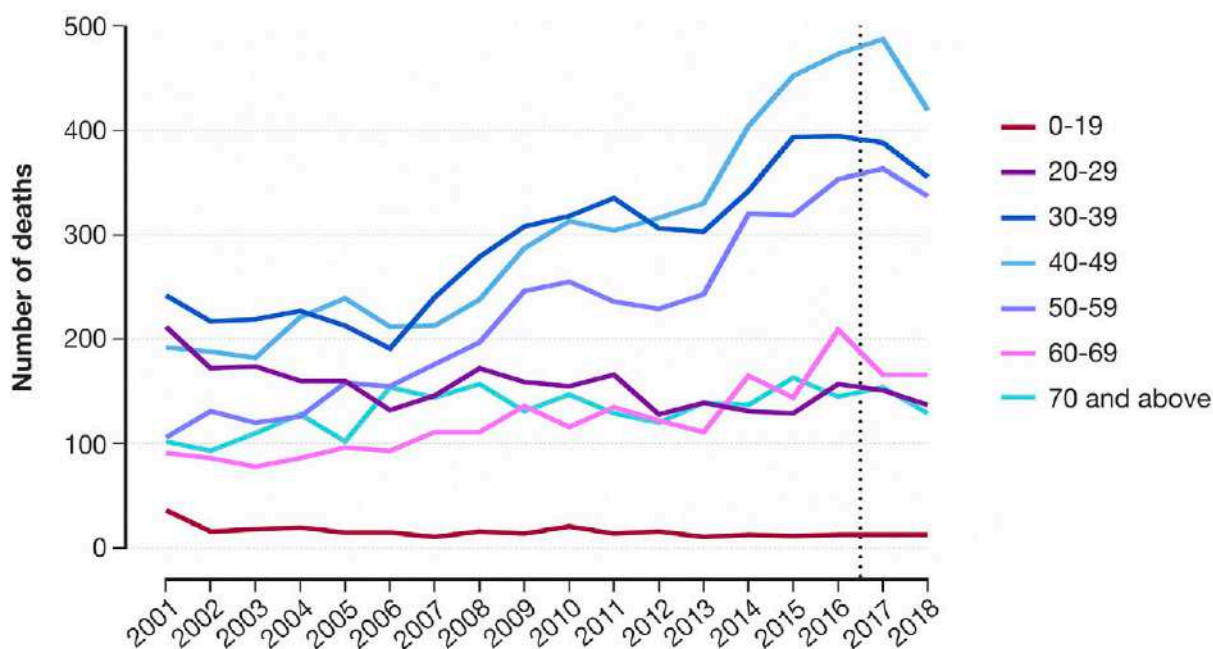
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[29] For the 20-29 age group, $p < .01$; for the 0-19 age group, $p = .011$.

[30] For the four age groups between 30 and 69, $p < .001$; for the 70 and above age group, $p < .01$.

Unintentional drug-induced deaths remain more common for males than females, though long-term trends are significantly increasing for both sexes (Figure 9).[31] 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 36.8%, from 813 in 2012 to 1,112 in 2018. During the same period, the number of deaths among females increased by 4.7%, from 424 to 444.

Figure 9. Unintentional drug-induced deaths by sex, 2001-2018
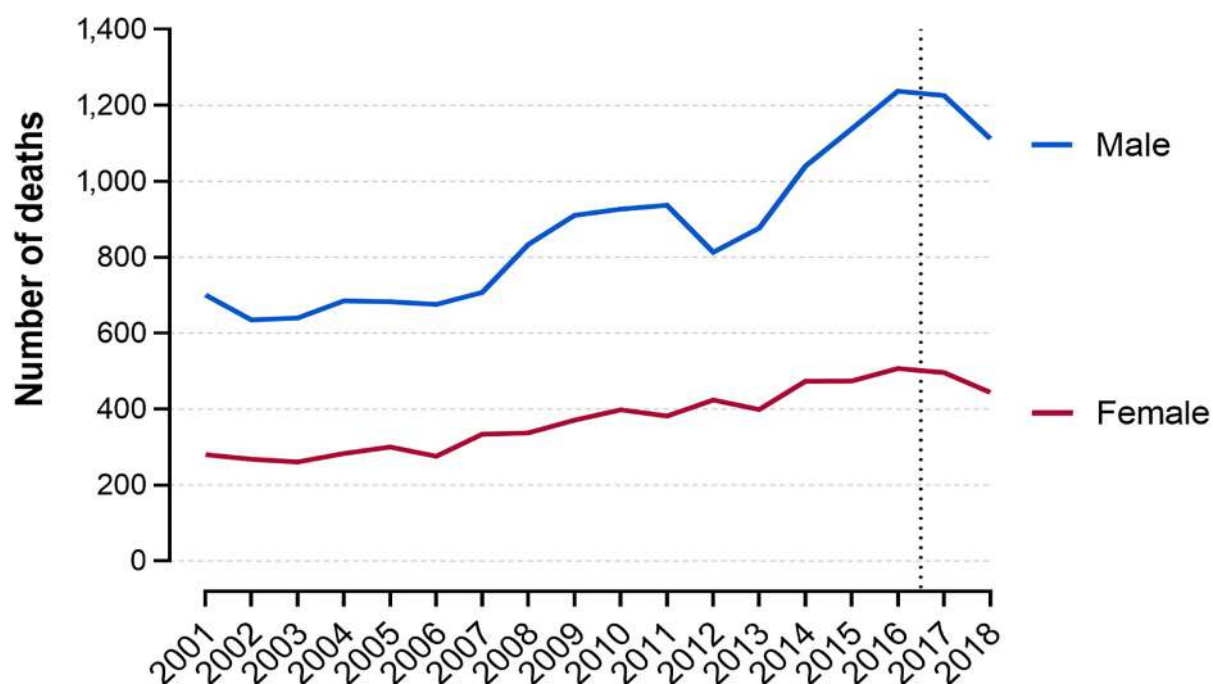
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[31] For both males and females, $p < .001$.

During the five years from 2014 to 2018, there were 473 unintentional drug-induced deaths among Aboriginal people and 5,321 among non-Aboriginal people in those states for which data are available (Figure 10). Opioids are the largest group of drugs identified in unintentional drug-induced deaths for both groups, accounting for more than half of these deaths among Aboriginal (51.6%) and non-Aboriginal (56.1%) people during the five years. However, there are some notable differences between the two cohorts. For Aboriginal people, the next most common drug involved in unintentional drug-induced deaths is stimulants, accounting for 30.9% of deaths, followed by benzodiazepines (24.3%). The reverse is observed among non-Aboriginal people: benzodiazepines are the next most common drug involved in unintentional drug-induced deaths during this period, accounting for almost one-third (32.2%) of all deaths, followed by stimulants (21.7%).

These data are presented aggregated across the five-year period, as many numbers were too small when differentiated into individual years for individual drug types to enable reliable calculations.

Figure 10. Unintentional drug-induced deaths by drug type and Indigenous status, 2014-2018 data aggregated (data from NSW, Qld, SA, WA, NT)
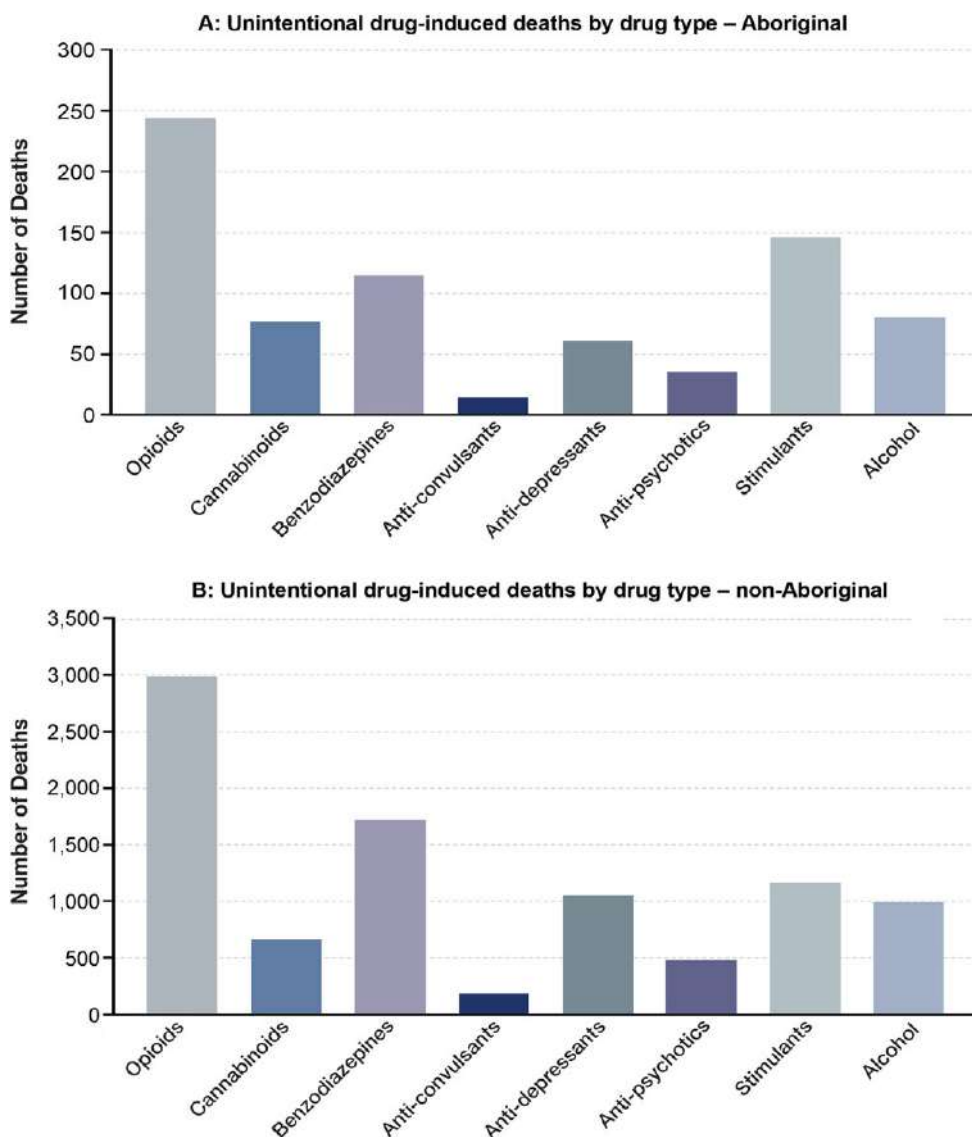
Note: Data for NSW, Qld, SA, WA, and NT are aggregated as these are the only jurisdictions that have a sufficient level of Indigenous identification to support this analysis.

The rate of unintentional drug-induced death remains higher for Aboriginal Australians than non-Aboriginal Australians (Figure 11). Rates of deaths for non-Aboriginal Australians have gradually increased from 2001 to 2018 (from 4.9 to 6.0 deaths per 100,000 population). For Aboriginal Australians, the rate of deaths showed a downward trend until 2009, but increased between 2009 and 2018 (from 9.5 to 17.3 deaths per 100,000 population). These rate calculations may, however, be more variable due to smaller overall numbers of Aboriginal deaths.

Figure 11. Unintentional drug-induced deaths by Indigenous status 2001-2018, as a rate per 100,000 population (data from NSW, Qld, SA, WA, NT)
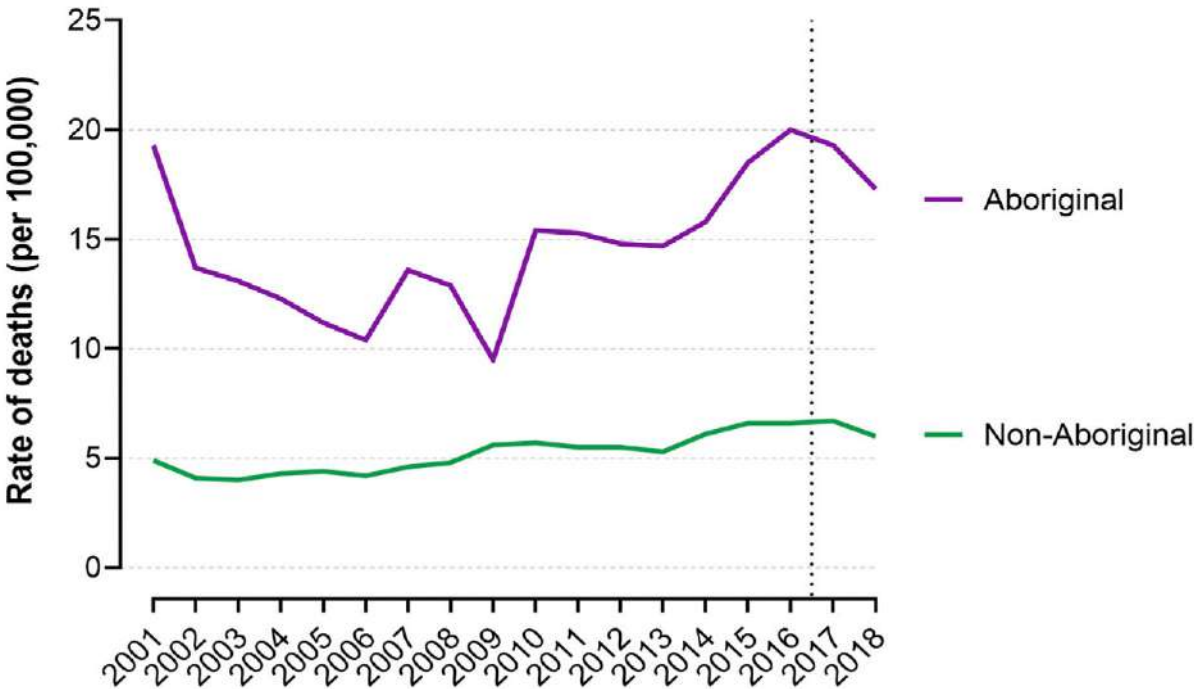
Note: 2017 and 2018 data are preliminary, and likely to rise. Data for NSW, Qld, SA, WA, and NT are aggregated as these are the only jurisdictions that have a sufficient level of Indigenous identification to support this analysis.

Unintentional drug-induced deaths occur in all socio-economic areas, as shown in Figure 12. In the aggregated data from 2014 to 2018, 1,110 unintentional drug-induced deaths occurred in the lowest socio-economic decile, compared with 592 deaths in the highest decile. There appears to be a socio-economic gradient visible in unintentional drug-induced deaths, with 88% more deaths in the lowest socio-economic group than in the highest.

Figure 12. Unintentional drug-induced deaths by socio-economic status, data aggregated from 2014-2018
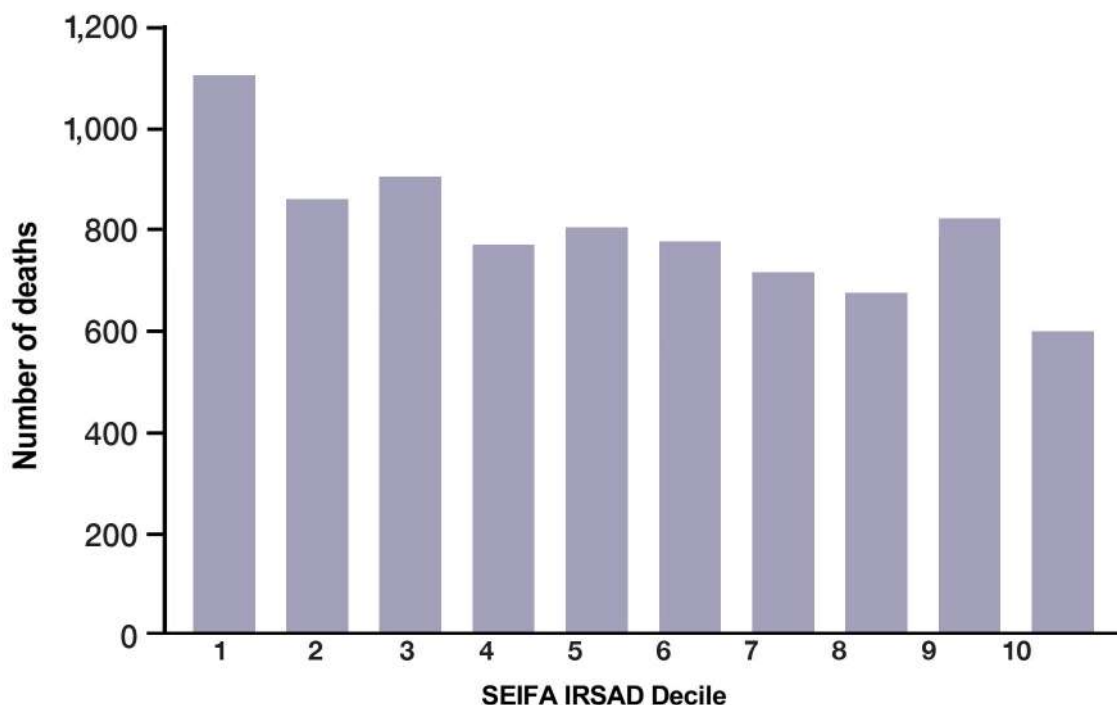
Note: Decile 1 is the most disadvantaged and Decile 10 is the most advantaged. SEIFA IRSAD: Socio-Economic Indexes for Areas (SEIFA) using the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD).

There are substantial differences across drug types in the relationship between drug-induced deaths and socio-economic status, as shown in Figure 13. Data are presented in quintiles, dividing the total into five equal groups.[32] Quintile 1 is the most disadvantaged in terms of socio-economic status, while Quintile 5 is the most advantaged.

There are several clear patterns of a relationship between drug-induced deaths and socio-economic status groups for certain drug types. For example, for cocaine, as socio-economic status increases from disadvantaged to advantaged, there is a concomitant increase in the proportion of drug-induced deaths involving cocaine in each quintile, with one-third (32.5%) of unintentional drug-induced deaths involving cocaine being observed in Quintile 5 (the highest socio-economic status). Conversely, for fentanyl/pethidine/tramadol, 28.2% of deaths occurred in the lowest socio-economic group (Quintile 1) but only 12.7% in the highest (Quintile 5). For some drug types, there appears to be no clear pattern of deaths in different socio-economic status groups; this is seen especially for alcohol and heroin.

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[32] This means that the lowest quintile (Quintile 1) aggregates data for SEIFA IRSAD Deciles 1 and 2, Quintile 2 aggregates data for SEIFA IRSAD Deciles 3 and 4, and so on.

Figure 13. Unintentional drug-induced deaths by drug type and socio-economic status, percentage distribution across quintiles, 2014-2018 aggregated
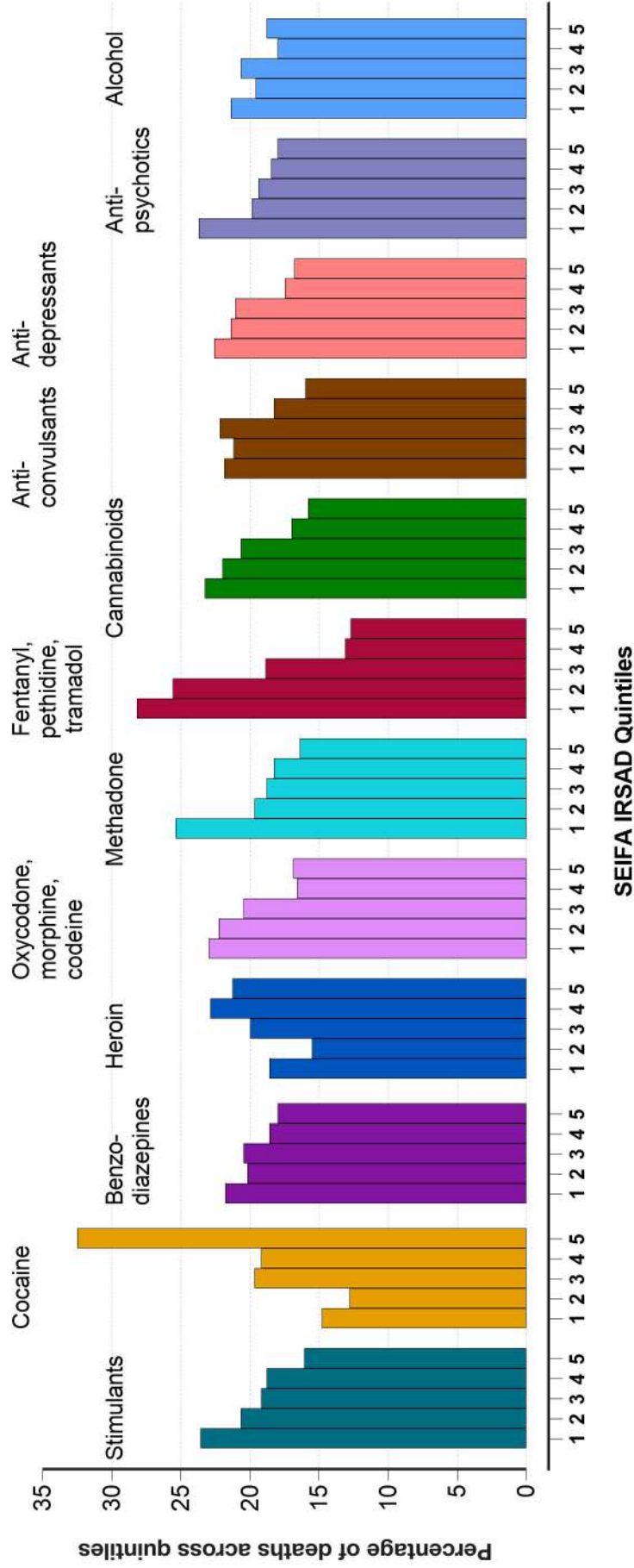
Note: Quintile 1 is the most disadvantaged and Quintile 5 is the most advantaged. SEIFA IRSAD: Socio-Economic Indexes for Areas (SEIFA) using the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD).

As shown in Figure 14, from 2001 to 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 2011, when the rates began to diverge, the rate of unintentional drug-induced deaths in rural and regional Australia has increased by 15.9%, while the rate in capital cities has increased by only 3.6%: in 2018, there were 7.3 unintentional drug-induced deaths per 100,000 people in rural and regional areas, compared with 5.8 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 2001-2018, rate per 100,000 population
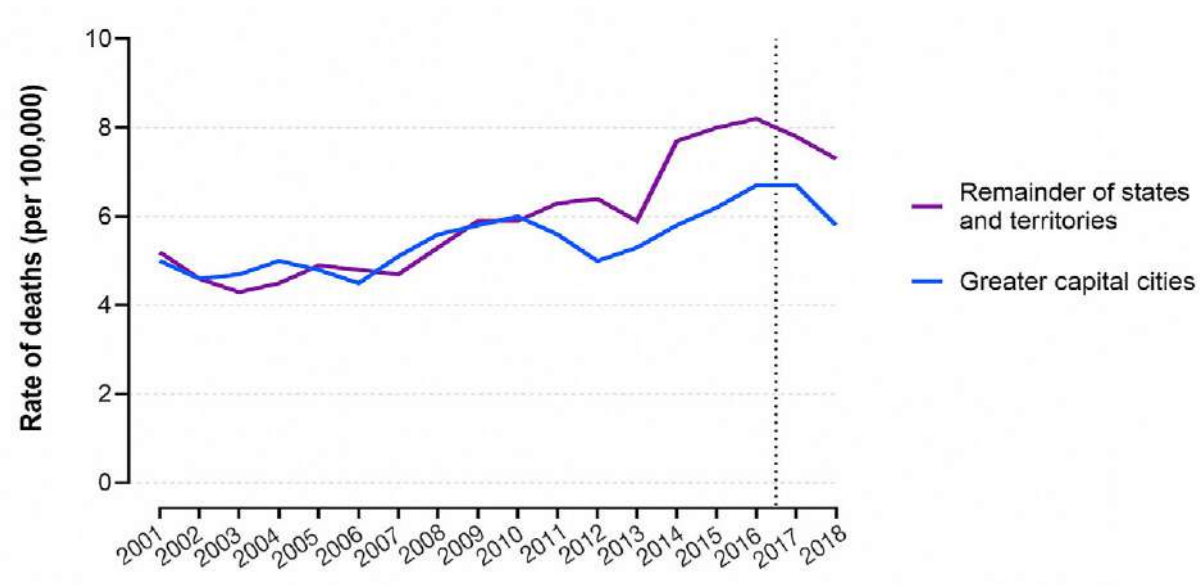
Note: 2017 and 2018 data are preliminary, and likely to rise.

5.2 Poly-substance use in unintentional drug-induced deaths

There has been a sharp increase since 2013 in the number of unintentional drug-induced deaths that involve four or more substances, with almost four times the number of deaths: 163 in 2013 compared with 582 in 2018 (Figure 15). In contrast, deaths involving the detection of alcohol on its own have remained stable, while deaths involving the detection of a single drug have decreased since reaching a high of 532 in 2014. Deaths involving the detection of two drug types have decreased slightly from a high of 277 in 2012, while those involving three drug types have slowly increased from 125 in 2008 to 207 in 2018.

Since 2017, 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.[33] 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, 2008-2018
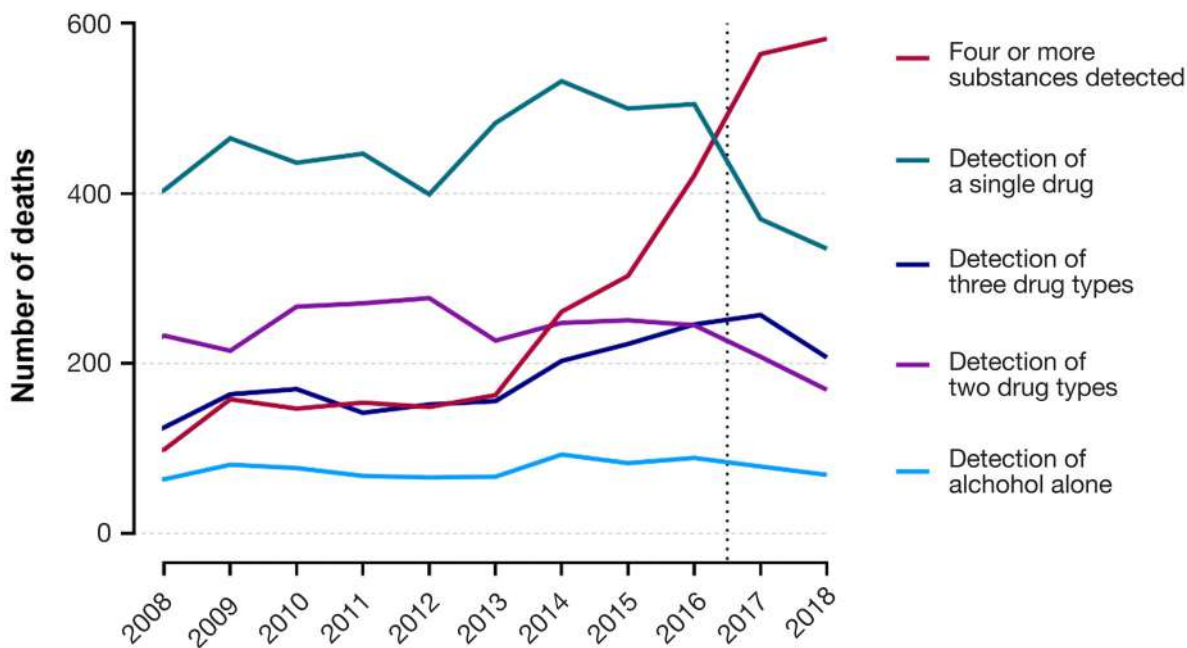
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[33] Page, A. T., Falster, M. O., Litchfield, M., Pearson, S. A. and Etherton-Beer, C. (2019). Polypharmacy among older Australians, 2006–2017: A population-based study. *Medical Journal of Australia*, 211(2): 71-75.

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, demographic factors are presented by opioid type where possible.

There were 900 unintentional drug-induced deaths involving opioids in 2018, equating to 57.8% 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 2018, there were 402 unintentional drug-induced deaths involving heroin (representing 44.7% of unintentional drug-induced deaths involving opioids) and 321 involving oxycodone / morphine / codeine (35.7% of unintentional drug-induced deaths involving opioids). In contrast, in 2018 there were 189 unintentional drug-induced deaths involving fentanyl / pethidine / tramadol (21.0% of unintentional drug-induced deaths involving opioids), and 207 deaths involving methadone (23.0% of unintentional drug-induced deaths involving opioids).[34] Opium results are not further analysed as a separate group due to low numbers (0 in 2018).

Figure 16. Unintentional drug-induced deaths by opioid type, 2001-2018
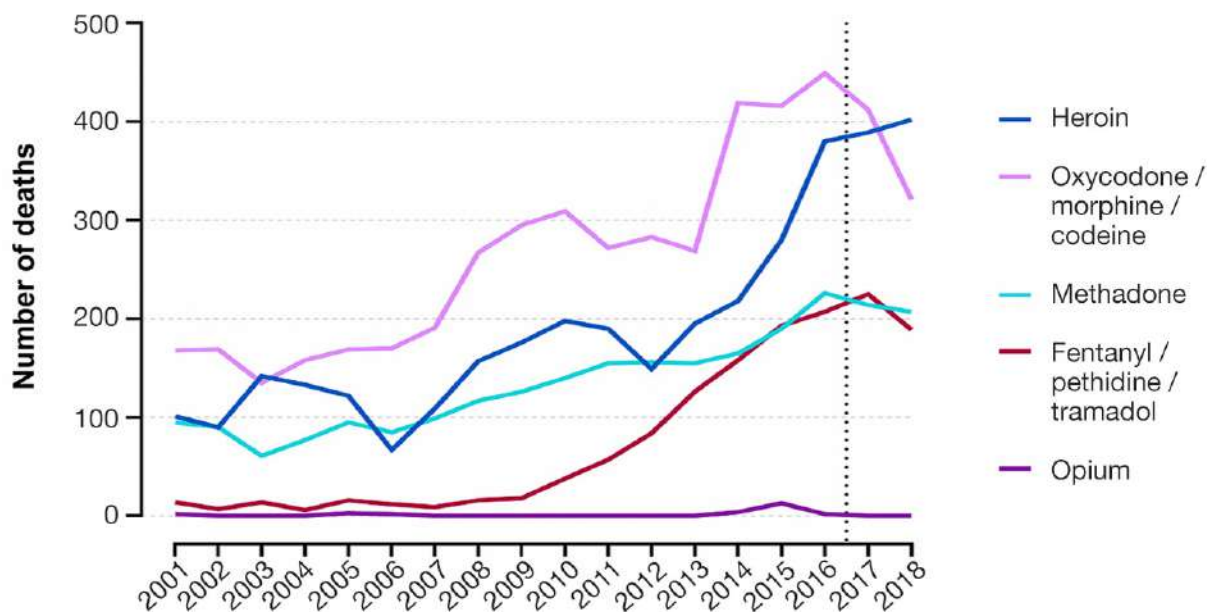
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[34] Percentages sum to more than 100% as one person may have multiple opioids in their system at death, such that they are counted in more than one opioid category.

The number of unintentional drug-induced deaths involving opioids has nearly trebled in the last 12 years, increasing from 338 in 2006 to 900 in 2018. Over the same period, deaths involving heroin increased by 500% (from 67 to 402 in 2018), deaths involving oxycodone / morphine / codeine increased by 89% (from 170 to 321 in 2018), deaths involving fentanyl / pethidine / tramadol increased by almost 1,500% (from 12 to 189 in 2018), and deaths involving methadone increased by 144% (from 85 to 207 in 2018).

The number of unintentional drug-induced deaths involving oxycodone / morphine / codeine fell sharply from 2017 (412 deaths) to 2018 (321 deaths). This may be due in part to the increased difficulty in accessing codeine following the rescheduling of over-the-counter codeine as a Schedule 4 medicine from 1 February 2018.

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, resulting in a rate of 2.4 deaths per 100,000 population in 2018. The rate in Western Australia has also been increasing substantially, with 2.8 deaths per 100,000 population in 2018.[35]

There has been high variability in the rates of unintentional drug-induced deaths involving oxycodone / morphine / codeine (Figure 17B). While Western Australia had a slightly higher rate than other jurisdictions in 2018, most states and territories appear to be seeing a drop in such deaths.

For methadone (Figure 17C), the rates of unintentional drug-induced death are lower than for heroin or oxycodone / morphine / codeine. Despite substantial variability (and uncertainty) in the rates due to small numbers, the overall trend appears to be increasing in New South Wales, which had the highest rate of unintentional drug-induced deaths involving methadone in 2018 (1.2 deaths per 100,000 population).

For fentanyl / pethidine / tramadol (Figure 17D), higher rates of deaths in recent years have been observed in Queensland and Western Australia. In 2018, Western Australia had a rate of 1.8 per 100,000 population for unintentional drug-induced deaths involving fentanyl / pethidine / tramadol, while Queensland had a rate of 0.8 deaths per 100,000 population.

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[35] The smaller population size in Western Australia means that there is more uncertainty in the estimates for that state.

Figure 17 (A and B). Unintentional drug-induced deaths by state for each opioid type, 2001-2018, shown as a rate per 100,000 population
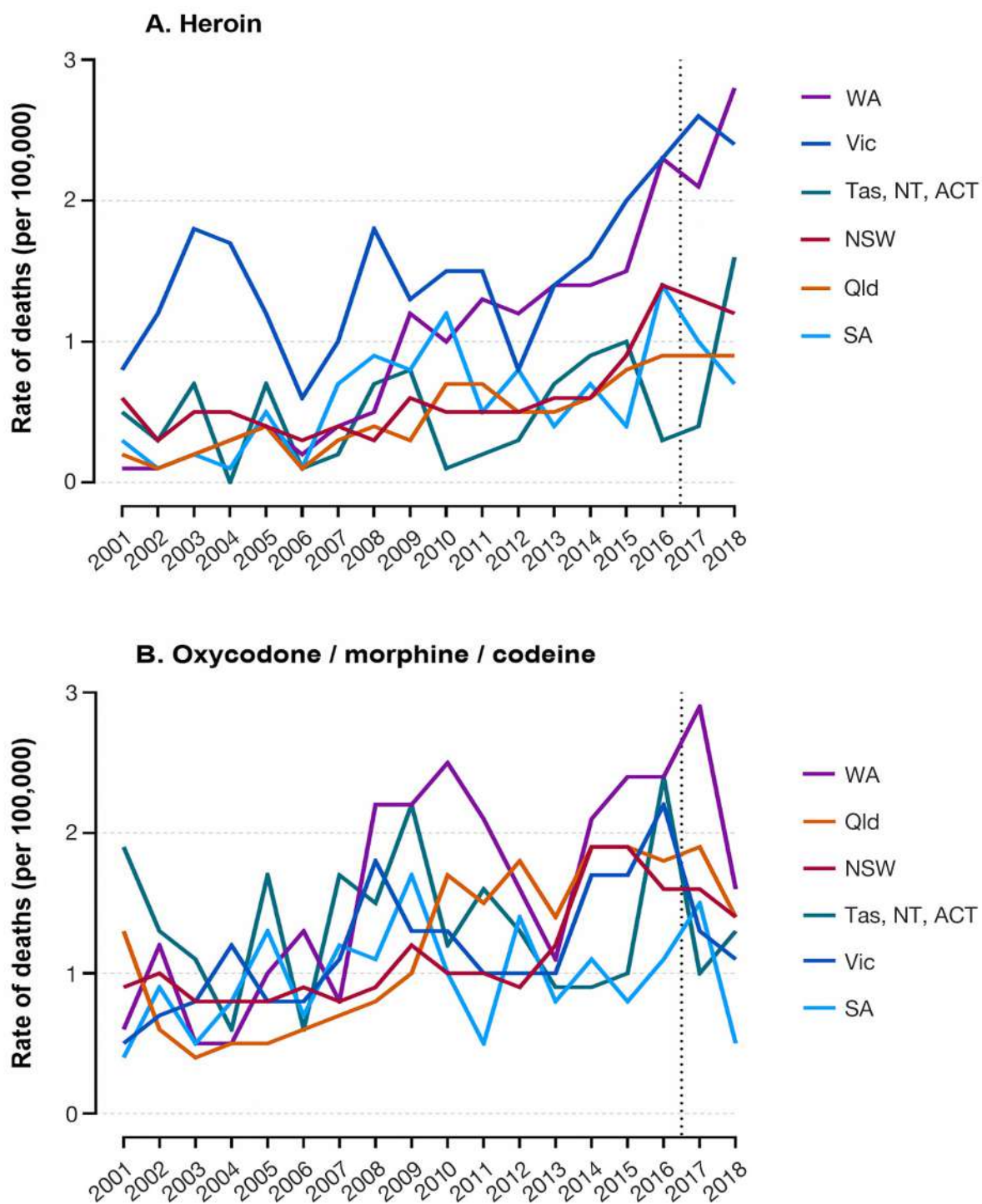
Note: 2017 and 2018 data are preliminary, and likely to rise.

Figure 17 (C and D). Unintentional drug-induced deaths by state for each opioid type, 2001-2018, shown as a rate per 100,000 population
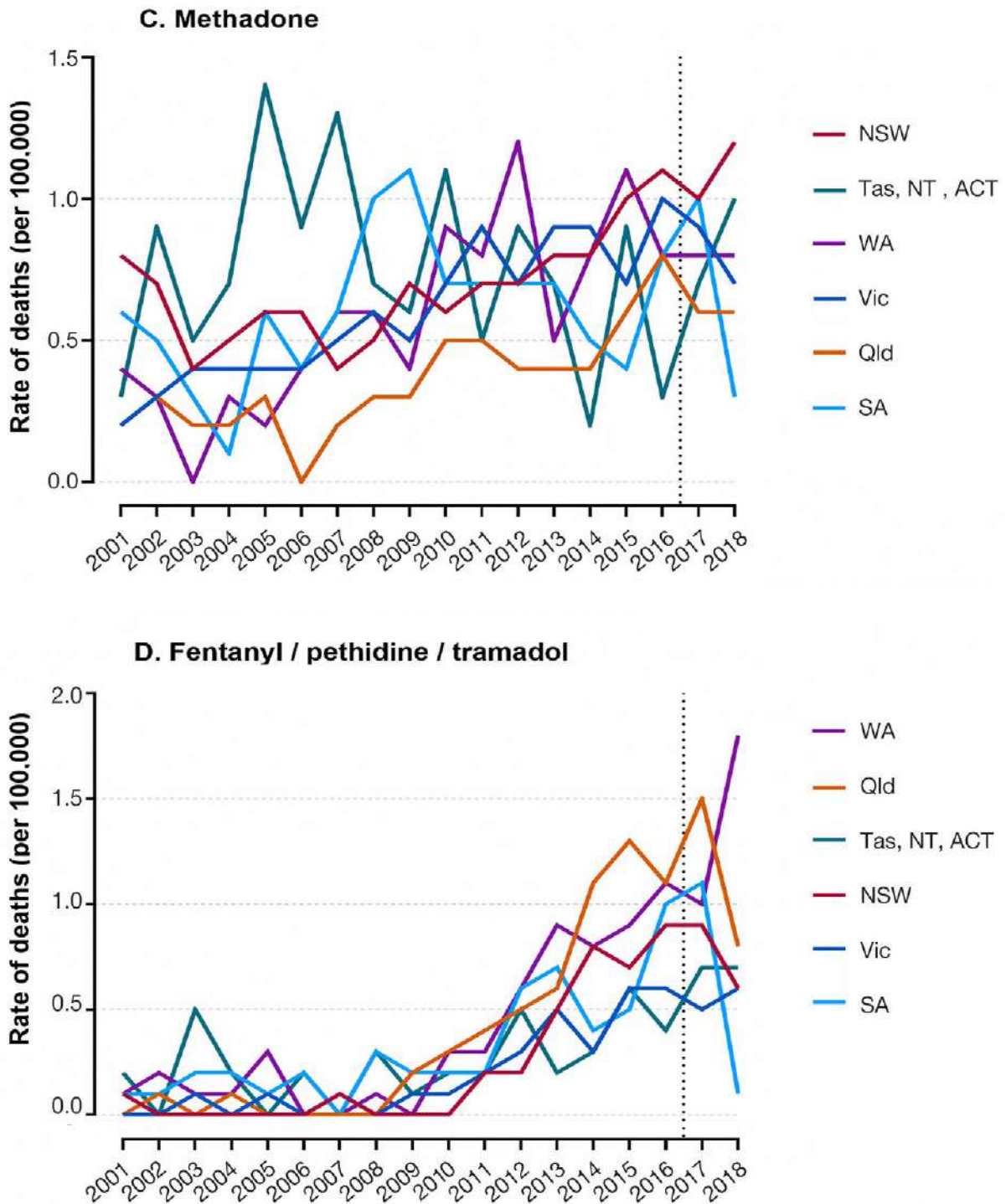
Note: 2017 and 2018 data are preliminary, and likely to rise.

Older age groups are more prevalent in unintentional drug-induced deaths involving pharmaceutical opioids than those involving heroin (Figure 18). In the period 2014 to 2018, the most common age group for unintentional deaths involving heroin was 30-39 (with 568 deaths, or 34.1% of unintentional drug-induced deaths involving heroin), compared with 40-49 for pharmaceutical opioids (with 851 deaths, or 31.4% of unintentional deaths involving these drugs).

Almost one in three (30.2%) unintentional drug-induced deaths involving pharmaceutical opioids were observed in people aged 50 and above: 21.6% among the 50-59 age group (584 deaths) and 8.6% among people aged 60 and above (233 deaths).

Figure 18. Unintentional drug-induced deaths, by opioid type and age group, 2014-2018 data aggregated
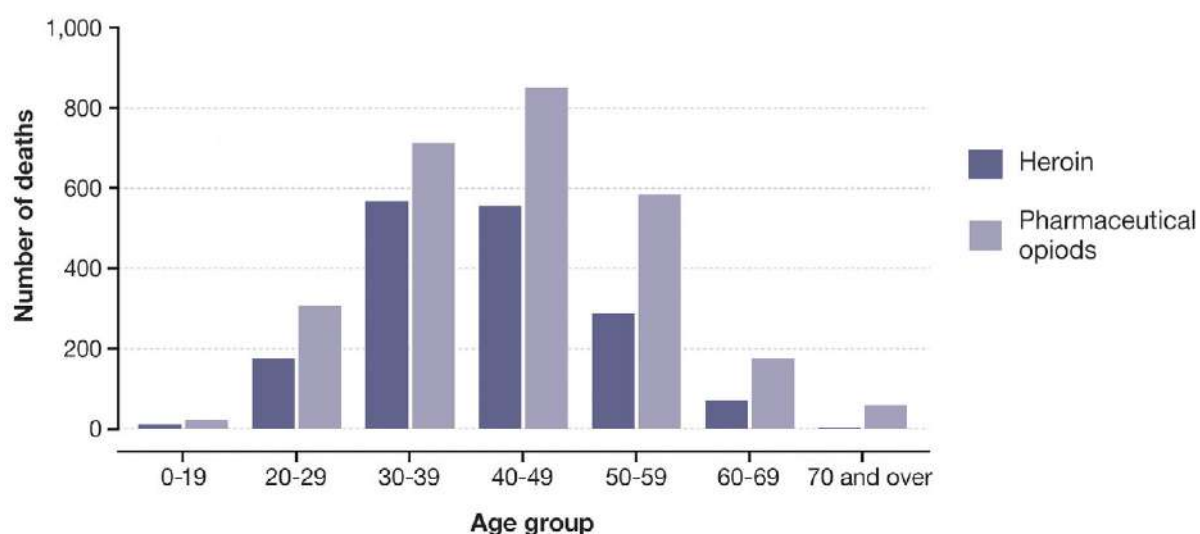
As shown in Figure 19 (with aggregated data from 2014 to 2018), among both males and females, the most common type of opioids associated with unintentional drug-induced deaths were pharmaceutical opioids, involved in 47.5% of unintentional drug-induced deaths involving opioids among males and 57.2% of unintentional drug-induced deaths involving opioids among females. Males had a higher proportion of unintentional drug-induced deaths involving heroin than females (35.1% among males, compared with 21.2% among females), whereas females had a higher proportion of unintentional drug-induced deaths involving pharmaceutical opioids (47.5% among males, compared with 57.2% among females). For both groups, methadone was associated with about one in five unintentional drug-induced deaths involving opioids (17.4% for males and 21.6% for females).

Figure 19. Unintentional drug-induced deaths by opioid type and sex, 2014-2018 data aggregated
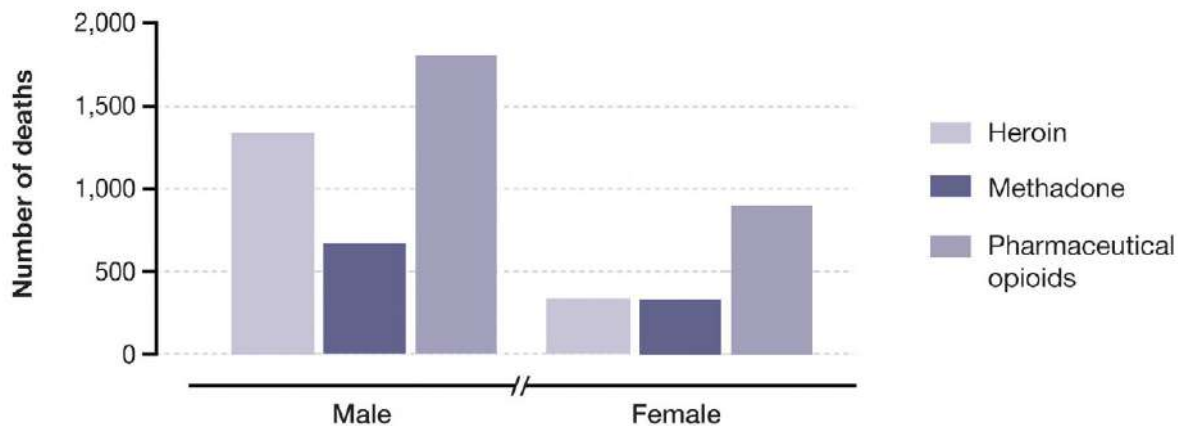
Unintentional drug-induced deaths involving opioids are increasing overall, however, there are differences between regional / rural and metropolitan areas in the most common types of opioid involved (Figure 20).

In the capital cities (Figure 20A), the number of unintentional drug-induced deaths involving heroin has increased dramatically since 2014 (from 156 to 312 deaths in 2018), and in 2016 exceeded the number of deaths involving oxycodone / morphine / codeine (186 deaths in 2018).

In rural and regional areas, unintentional drug-induced deaths involving opioids predominantly involve oxycodone / morphine / codeine (135 deaths in 2018). The number of deaths involving heroin in regional and rural areas has increased substantially since 2013 (from 24 to 90 deaths in 2018), while the number involving fentanyl / pethidine / tramadol has steadily increased from 2008 (from only 8 to 84 in 2018).

Figure 20. Unintentional drug-induced deaths by opioid type, 2001-2018, within (A) and outside of (B) capital cities
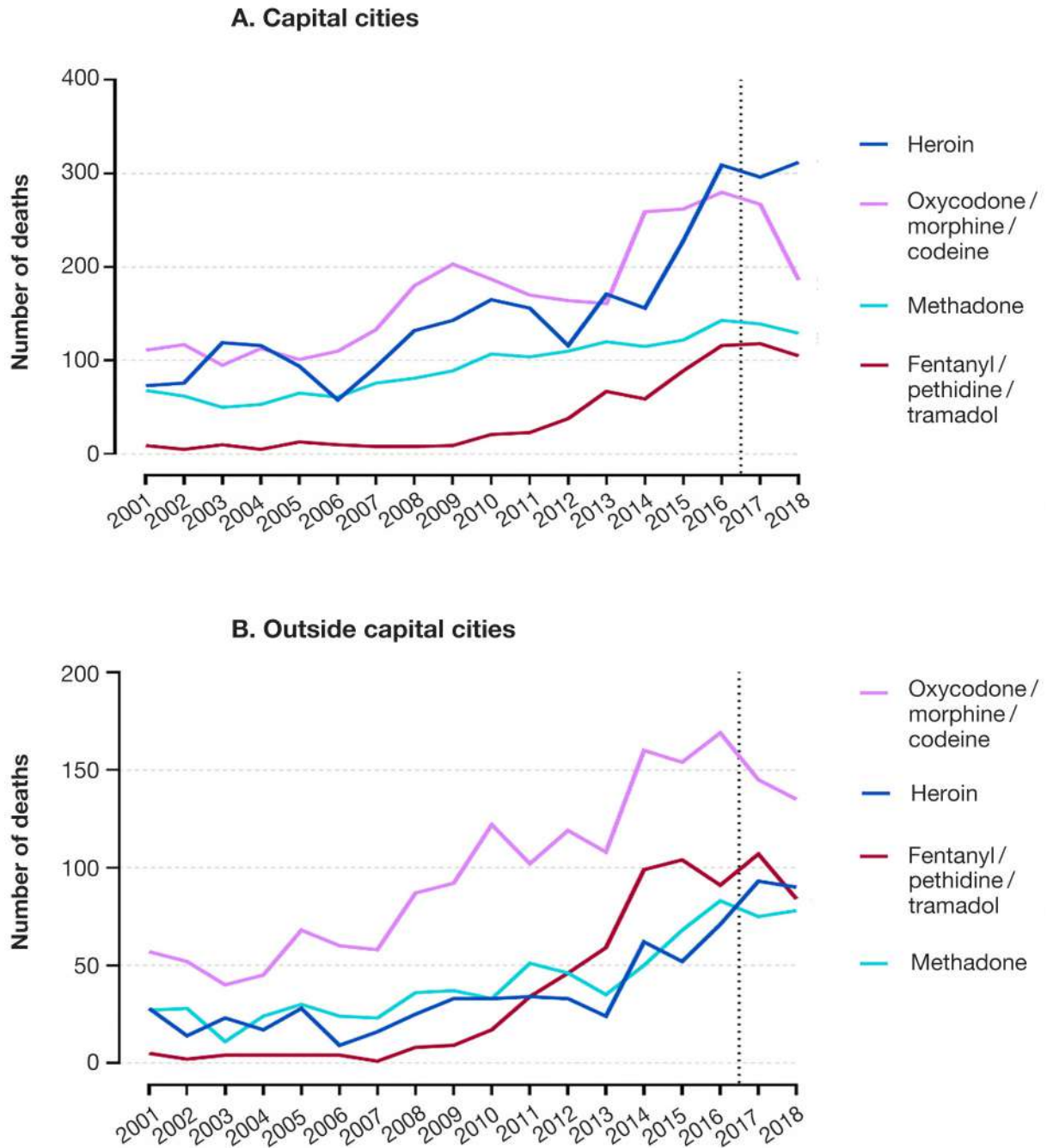
Note: 2017 and 2018 data are preliminary, and likely to rise.

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 has more than trebled from 185 deaths in 2008 to 562 in 2018. The combination of opioids with other pharmaceuticals (includes anti-depressants, anti-convulsants, anti-psychotics, sedatives and hypnotics, and anaesthetics, but excludes opioid analgesics and benzodiazepines) accounts for the second-highest number of unintentional drug-induced deaths involving opioids (471 deaths in 2018). 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, 2008-2018
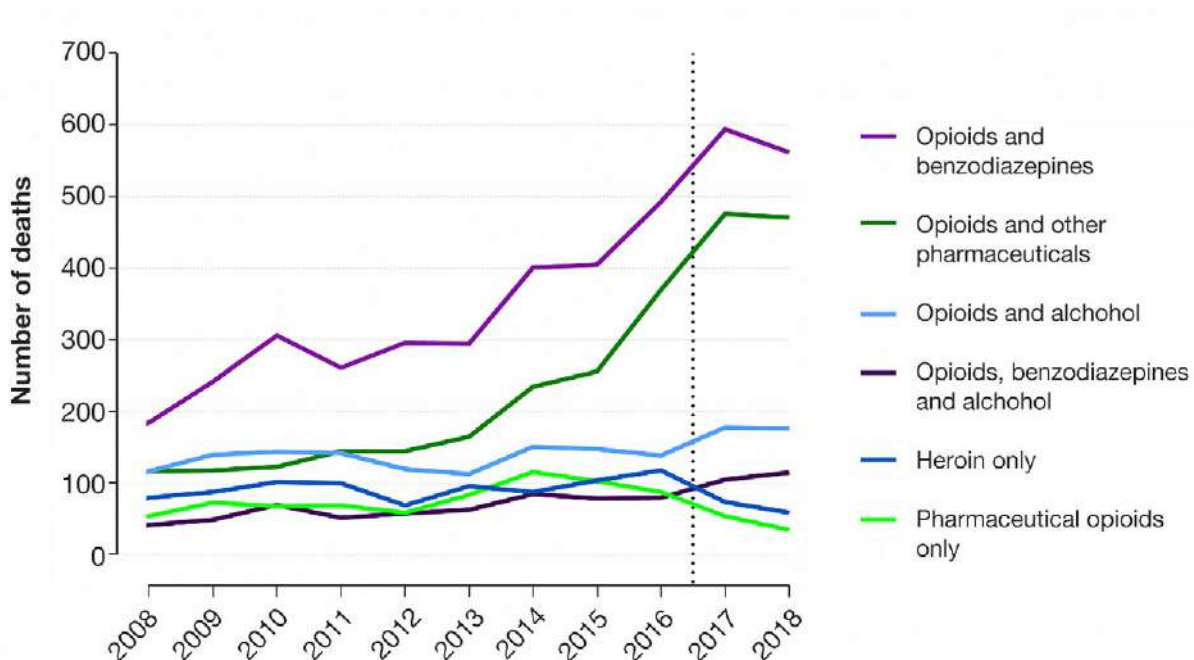
Note: 2017 and 2018 data are preliminary, and likely to rise.

6.2.   Benzodiazepines

There were 648 unintentional drug-induced deaths involving benzodiazepines in 2018, equating to 41.6% 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 less than 1.0% of these 648 deaths involving benzodiazepines on their own.

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 4.1 deaths per 100,000 population in 2018) and Victoria (from 1.8 to 2.8 deaths per 100,000 population), a trend which is not replicated in other states, though a more gradual increase is observed in both New South Wales and Queensland.

Figure 22. Unintentional drug-induced deaths involving benzodiazepines by state and territory 2001-2018, as a rate per 100,000 population
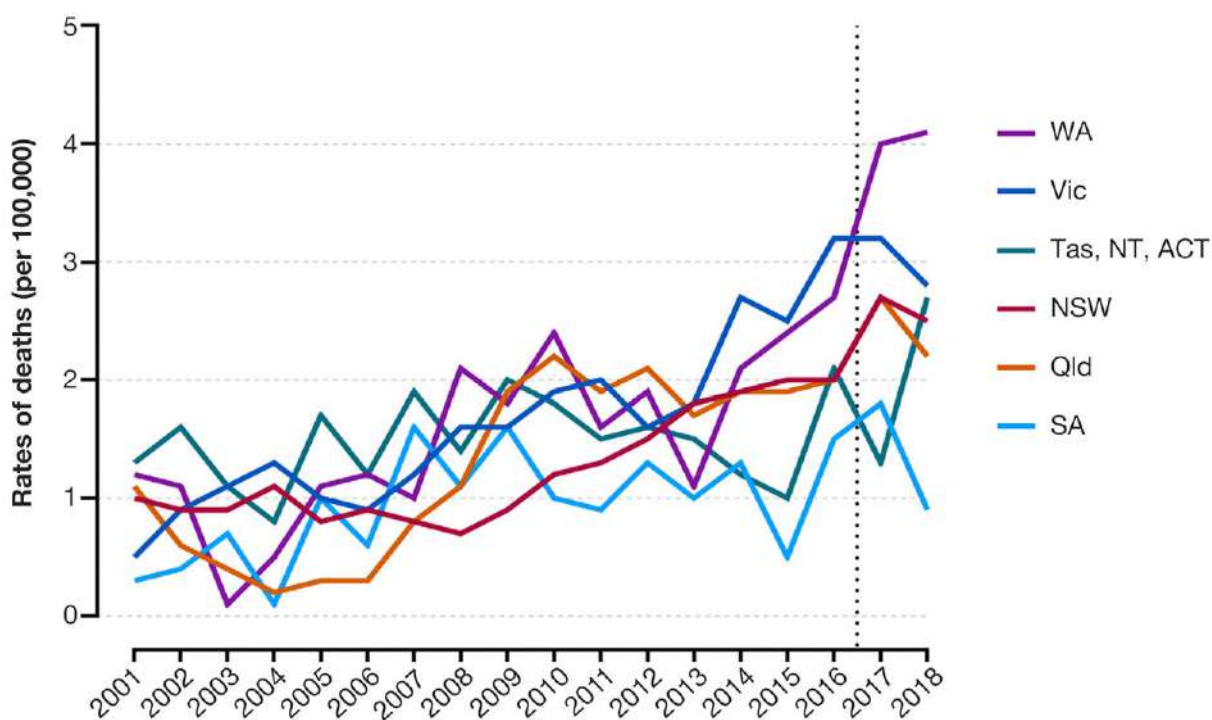
Note: 2017 and 2018 data are preliminary, and likely to rise.

The number of unintentional drug-induced deaths involving benzodiazepines over the period 2014 to 2018 was highest among people aged 40-49 (accounting for 33.0% of deaths involving benzodiazepines), followed by those aged 30-39 (28.2% of deaths involving benzodiazepines), as shown in Figure 23.

More than one-quarter (27.7%) of unintentional drug-induced deaths involving benzodiazepines during this period involved people aged 50 and above: 20.3% among the 50-59 age group (584 deaths) and 7.4% among people aged 60 and above (212 deaths).

Figure 23. Unintentional drug-induced deaths involving benzodiazepines by age group, 2014-2018 data aggregated
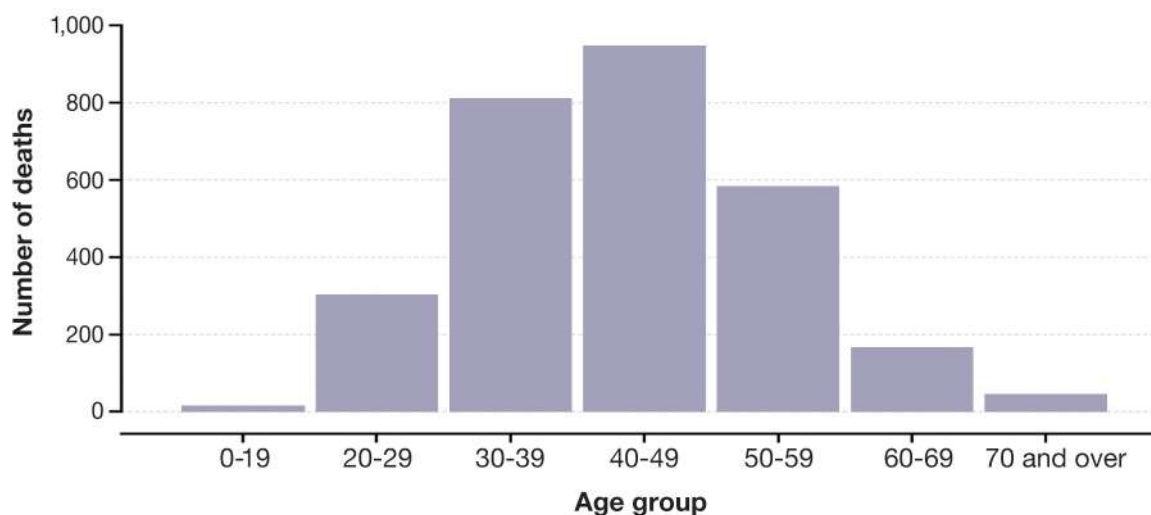
Note: Data are aggregated over the five-year period.

Males had more than double the number of unintentional drug-induced deaths involving benzodiazepines than females, with 1,926 deaths among males accounting for two-third of the deaths involving benzodiazepines (67.0%), compared with 947 deaths among females, over the period 2014 to 2018, as shown in Figure 24.

Figure 24. Unintentional drug-induced deaths involving benzodiazepines by sex, 2014-2018 data aggregated
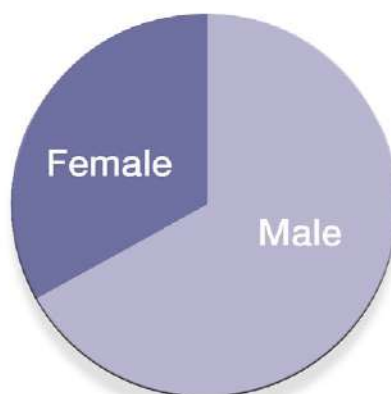
Data are aggregated over the five-year period.

Unintentional drug-induced deaths involving benzodiazepines are increasing both within and outside of capital cities, with broadly comparable rates. In 2018, the rate of unintentional drug-induced deaths involving benzodiazepines was 2.5 deaths per 100,000 population in capital cities, compared with 2.7 deaths per 100,000 population outside of the capital cities (Figure 25).

Figure 25. Unintentional drug-induced deaths involving benzodiazepines by regionality, 2001-2018, as a rate per 100,000 population
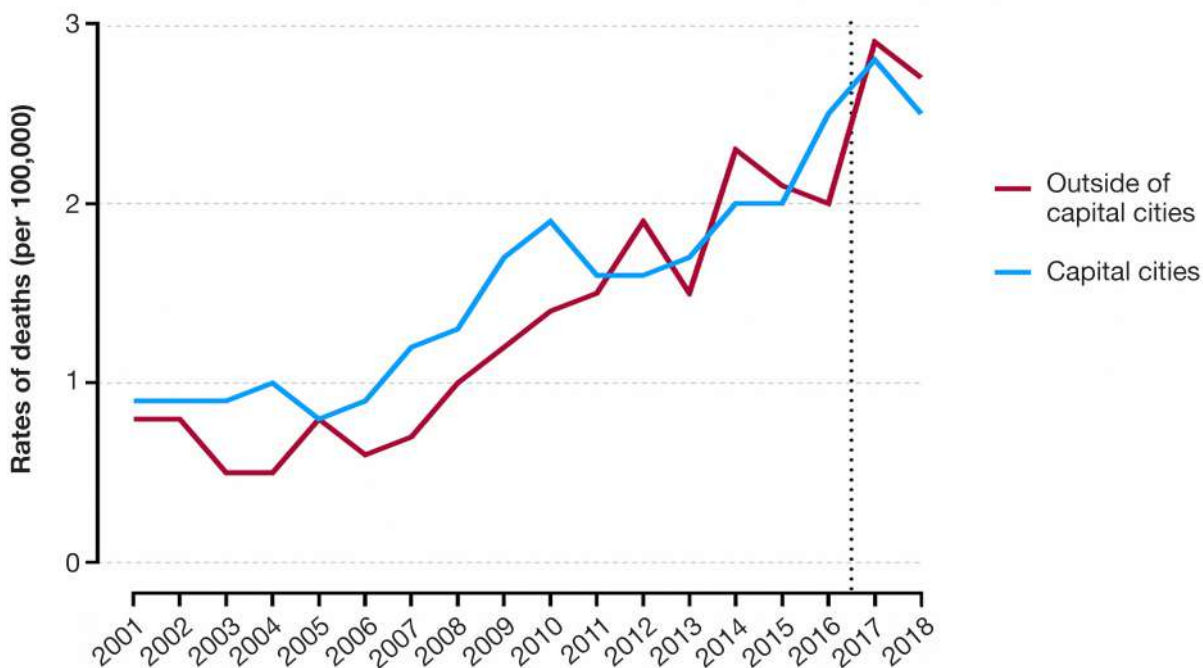
Note: 2017 and 2018 data are preliminary, and likely to rise.

6.3   Stimulants

This group includes methamphetamine (including 'ice'), amphetamine, and ecstasy (MDMA). There were 442 unintentional drug-induced deaths involving stimulants in 2018, equating to 28.4% of all unintentional drug-induced deaths, compared with 5.4% of all unintentional drug-induced deaths in 2001.

The rates of 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 3.3 deaths per 100,000 population from 2013 to 2018.

Figure 26. Unintentional drug-induced deaths involving stimulants by state and territory 2001-2018, as a rate per 100,000 population
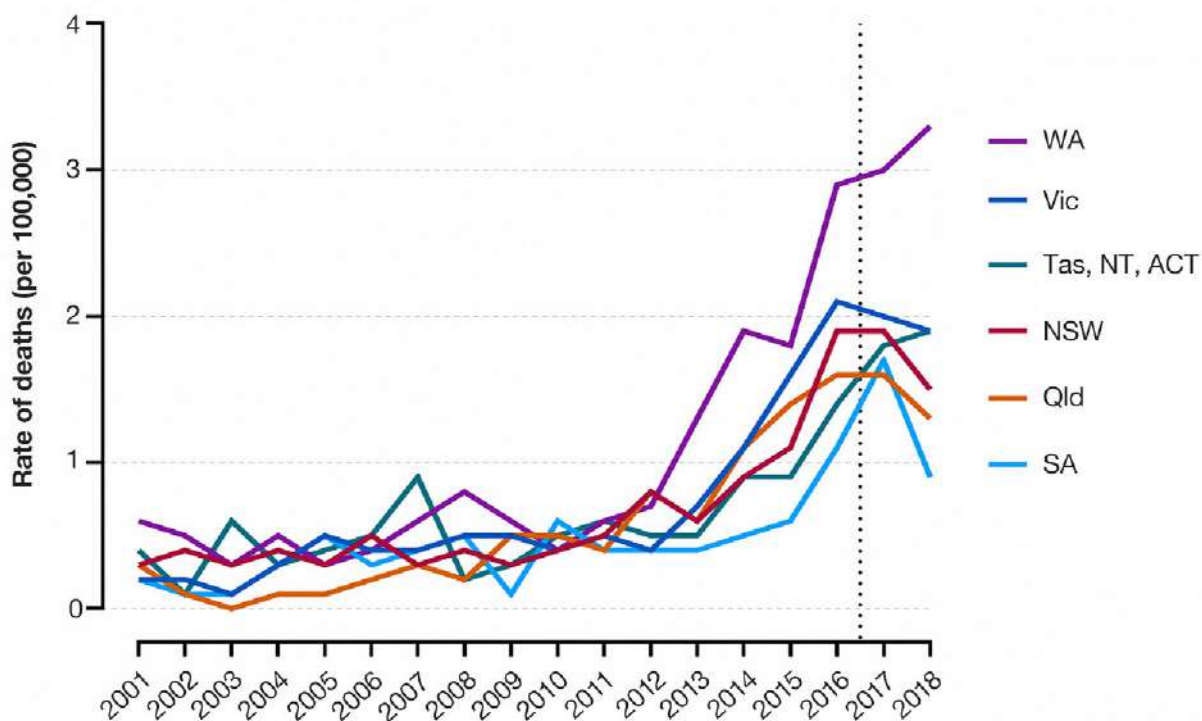
Note: 2017 and 2018 data are preliminary, and likely to rise.

The number of unintentional deaths involving stimulants over the period 2014 to 2018 was highest among people aged 30-39 (accounting for 34.0% of deaths involving stimulants), followed by those aged 40-49 (33.3% of deaths), as shown in Figure 27.

Young people accounted for a higher proportion of unintentional drug-induced deaths involving stimulants, representing 15.9% of these (308 deaths) from 2014 to 2018.

Figure 27. Unintentional drug-induced deaths involving stimulants by age group, 2014-2018 data aggregated
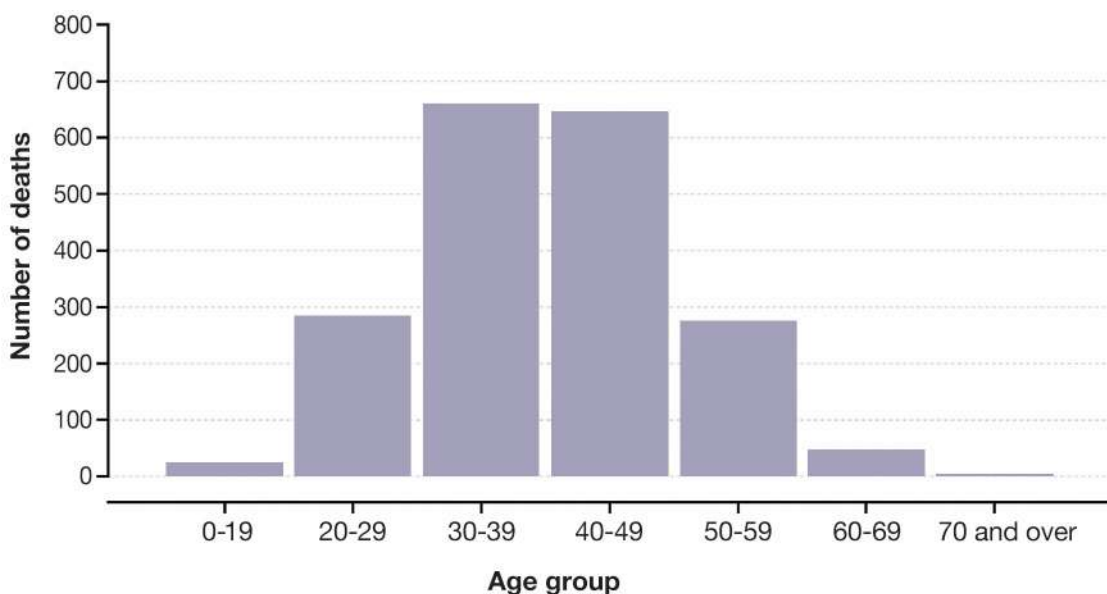
Note: Data are aggregated over the five-year period.

Males had over three times more unintentional drug-induced deaths involving stimulants than females, with 1,470 deaths among males accounting for three-quarters of deaths involving stimulants (75.8%), compared with 469 deaths among females, over the period 2014 to 2018 (Figure 28).

Figure 28. Unintentional drug-induced deaths involving stimulants by sex, 2014-2018 data aggregated
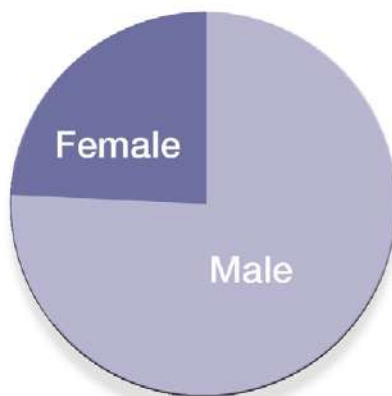
Note: Data are aggregated over the five-year period.

Unintentional drug-induced deaths involving stimulants are increasing both within and outside of capital cities (Figure 29). While capital cities had higher death rates for several years from 2006 to 2010, the rates for the two types of areas have been tracking closely since 2011. From 2011 to 2018, the rates of unintentional drug-induced deaths involving stimulants increased from 0.5 to 1.8 deaths per 100,000 population in capital cities, compared with 0.4 to 1.6 deaths per 100,000 population outside of the capital cities.

Figure 29. Unintentional drug-induced deaths involving stimulants by regionality, 2001-2018, as a rate per 100,000 population
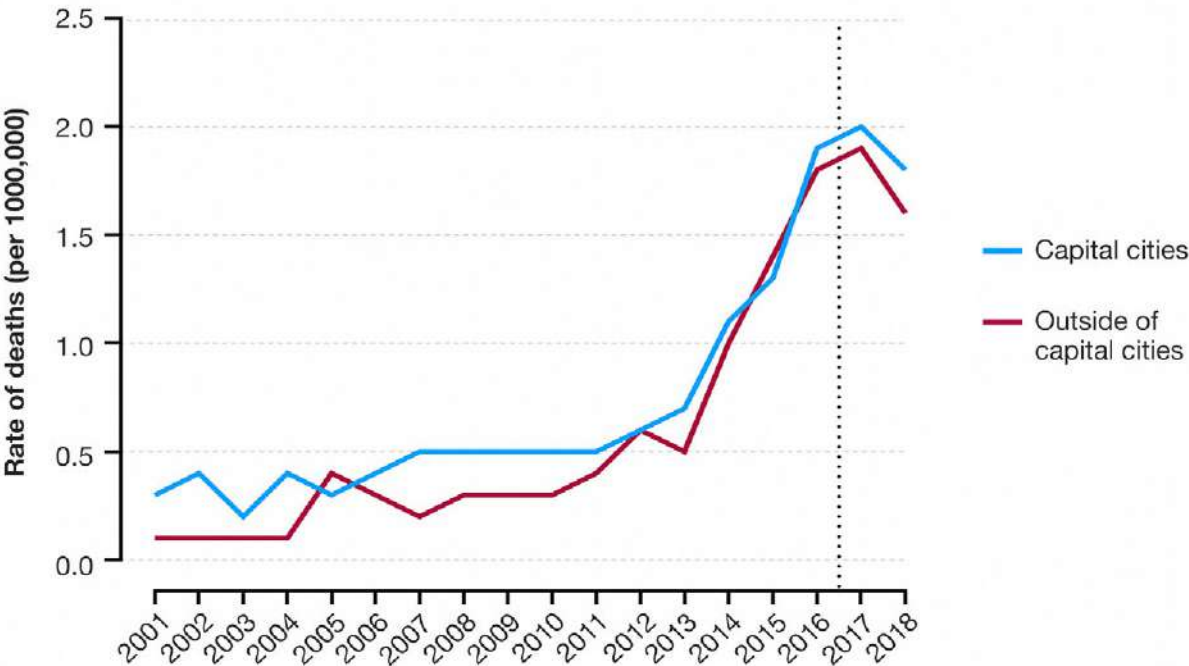
Note: 2017 and 2018 data are preliminary, and likely to rise.

6.4.   Anti-depressants

This group includes tricyclic and tetracyclic anti-depressants, monoamine-oxidase-inhibitor anti-depressants, and other unspecified anti-depressants such as selective serotonin reuptake inhibitors.[36] There were 382 unintentional drug-induced deaths involving anti-depressants in 2018, equating to 24.6% of all unintentional drug-induced deaths.

The rates of unintentional drug-induced deaths involving anti-depressants appear to be increasing in Western Australia, which has quadrupled from 0.7 deaths per 100,000 population in 2013 to 2.8 in 2018 (Figure 30). Other states have highly variable rates.

Figure 30. Unintentional drug-induced deaths involving anti-depressants by state and territory 2001-2018, as a rate per 100,000 population
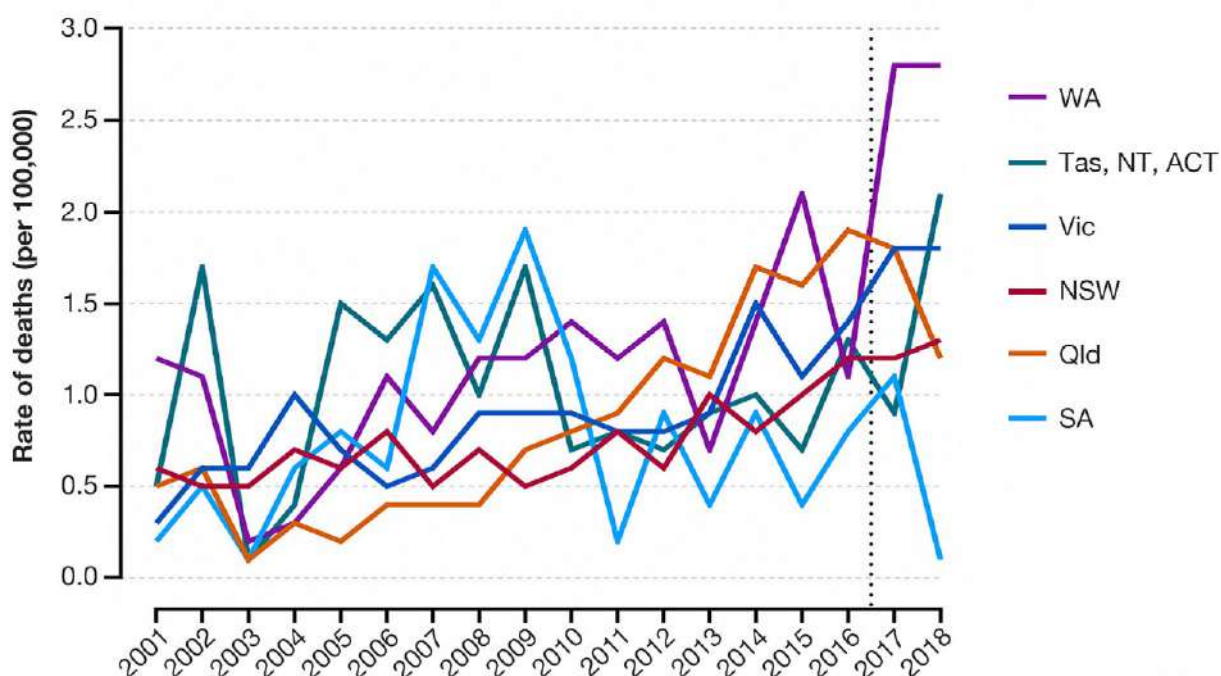
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[36] Anti-depressants vary considerably in toxicity and in the rate of use in the community. However, the data do not allow disaggregation by specific class of anti-depressant.

There is a slightly older age profile for unintentional drug-induced deaths involving anti-depressants than
for those involving either benzodiazepines or stimulants. The number of unintentional deaths involving anti-
depressants over the period 2014 to 2018 was highest among people aged 40-49 (accounting for 32.7% of
deaths involving anti-depressants), followed by those aged 50-59 (24.5% of deaths) and those aged 30-39
(24.3% of deaths). More than one in ten (10.5%) unintentional deaths involving anti-depressants were observed
among people aged 60 and over, as shown in Figure 31.

**Figure 31. Unintentional drug-induced deaths involving anti-depressants by age group, 2014-2018 data
aggregated**
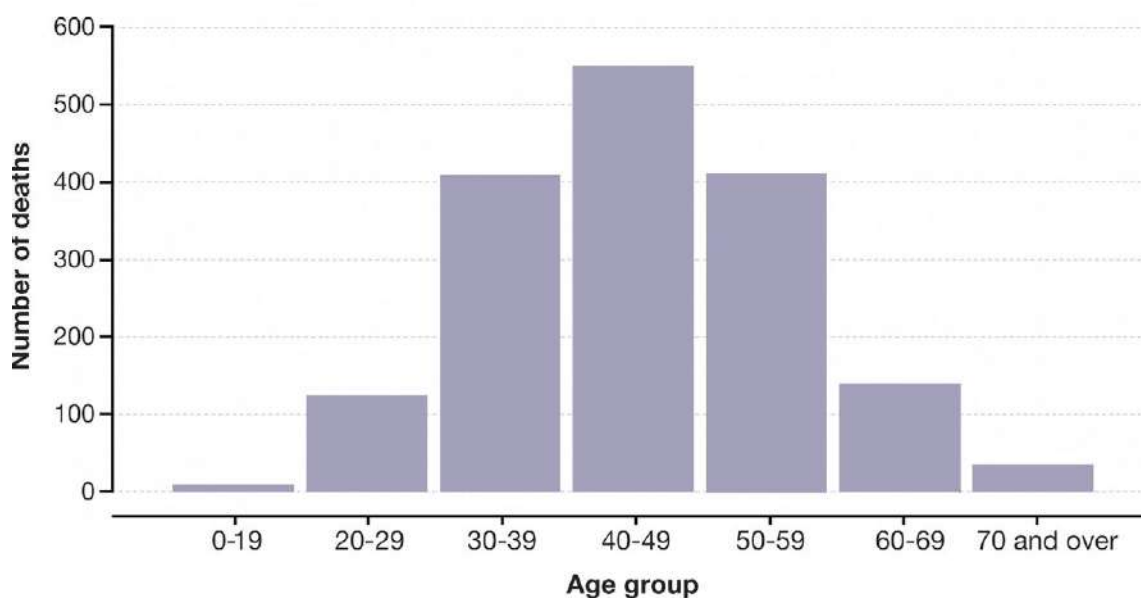
Note: Data are aggregated over the five-year period.

There is a more even sex distribution for unintentional drug-induced deaths involving anti-depressants than for
those involving other drug types. There were 971 deaths among males during the five-year period from 2014
to 2018, accounting for 57.8% of all such deaths, compared with 709 deaths among females (Figure 32).

Figure 32. Unintentional drug-induced deaths involving anti-depressants by sex, 2014-2018 data aggregated
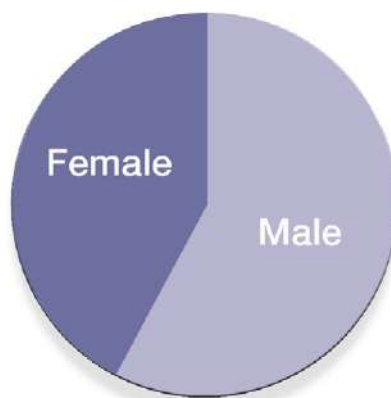
Note: Data are aggregated over the five-year period.

Unintentional drug-induced deaths involving anti-depressants are increasing both within and outside of capital cities (Figure 33). While capital cities had higher death rates from 2001 to 2010, rates of unintentional drug-induced deaths involving anti-depressants have been higher outside of capital cities since 2011. The rates of these deaths increased more for regional areas than capital cities in the period from 2001 to 2018, from 0.4 to 1.8 deaths per 100,000 population in the regions, compared with an increase from 0.6 to 1.4 deaths per 100,000 population in the cities.

Figure 33. Unintentional drug-induced deaths involving anti-depressants by regionality, 2001-2018, as a rate per 100,000 population
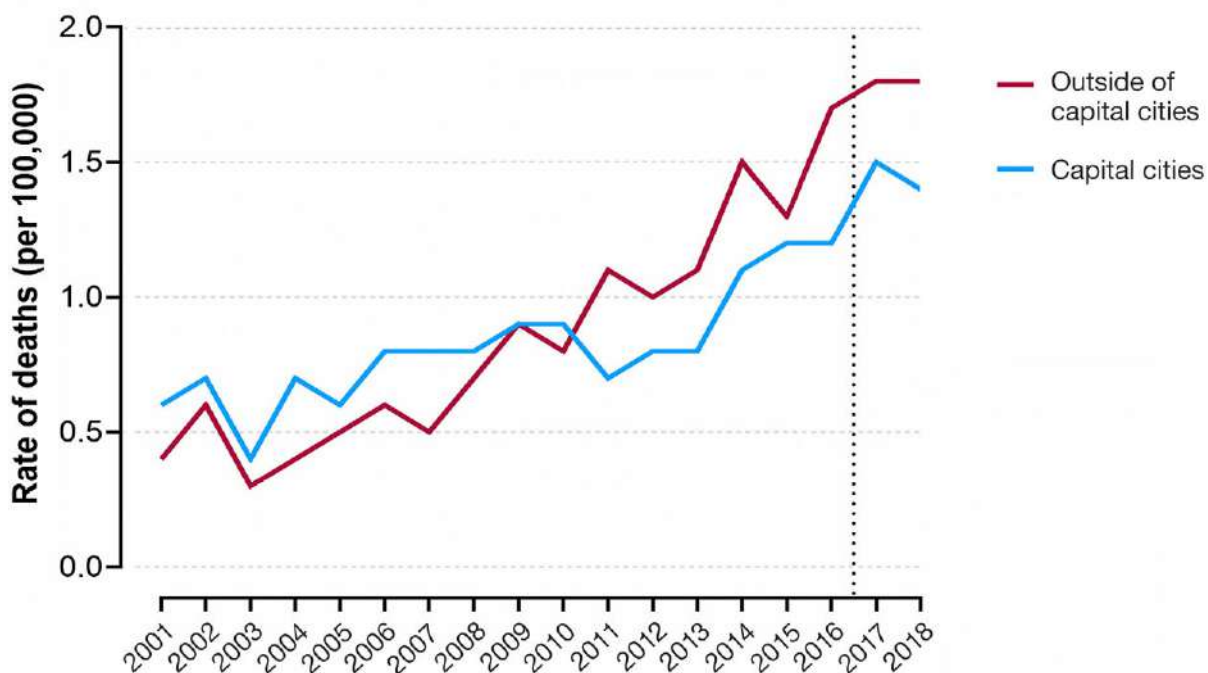
Note: 2017 and 2018 data are preliminary, and likely to rise.

6.5.   Cannabinoids

This group includes natural plants or drugs containing chemical compounds that act upon the brain's cannabinoid receptors, as well as synthetic cannabinoids and medicinal cannabis. While naturally-occurring cannabinoids such as THC likely contribute very little to the toxicity that actually causes death, and are extremely unlikely to cause death by themselves, synthetic cannabinoids are far more toxic.[37] While the data do not allow the different types of cannabinoids (natural, synthetic and medicinal) to be separated, it is likely that the synthetics are responsible for the observed increases in unintentional drug-induced deaths involving cannabinoids.

There were 328 unintentional drug-induced deaths involving cannabinoids in 2018, equating to 21.1% of all unintentional drug-induced deaths.

The rates of unintentional drug-induced deaths involving cannabinoids are increasing in all states and territories, particularly in Western Australia, which increased from 0.5 deaths per 100,000 population in 2013 to 2.3 in 2018, and Victoria, which increased from 0.2 to 1.5 deaths per 100,000 population during the same period (Figure 34).

Figure 34. Unintentional drug-induced deaths involving cannabinoids by state and territory 2001-2018, as a rate per 100,000 population

Note: 2017 and 2018 data are preliminary, and likely to rise.

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[37] Cohen, K. and Weinstein, A.M. (2018). Synthetic and non-synthetic cannabinoid drugs and their adverse effects: A review from a public health perspective. *Frontiers in Public Health*, 6: 162; Drummer, O.H., Gerostamoulos, D. and Woodford, N.W. (2019). Cannabis as a cause of death: A review. *Forensic Science International*, 298: 298-306.

The number of unintentional drug-induced deaths involving cannabinoids over the period 2014 to 2018 was highest among people aged 40-49, who accounted for more than one-third (34.7%) of these deaths. Three in ten of the deaths involving cannabinoids (30.7%) were seen among those aged 30-39, while one in five (19.9%) unintentional deaths involving cannabinoids were recorded among people aged 50 and over. Deaths among people aged under 30 accounted for 14.7% of the unintentional drug-induced deaths involving cannabinoids over the five-year period (Figure 35).

Figure 35. Unintentional drug-induced deaths involving cannabinoids by age group, 2014-2018 data aggregated
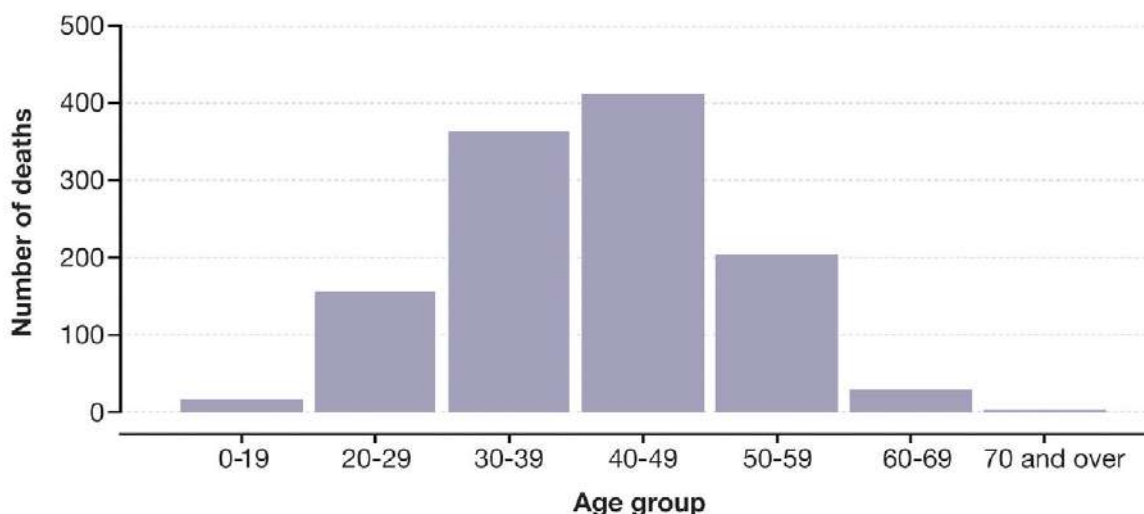
Note: Data are aggregated over the five-year period.

As with benzodiazepines and stimulants, males are far more likely than females to experience an unintentional drug-induced death involving cannabinoids. There were 880 deaths among males during the five-year period from 2014 to 2018, accounting for 74.2% of all such deaths, compared with 306 deaths among females (Figure 36).

Figure 36. Unintentional drug-induced deaths involving cannabinoids by sex, 2014-2018 data aggregated
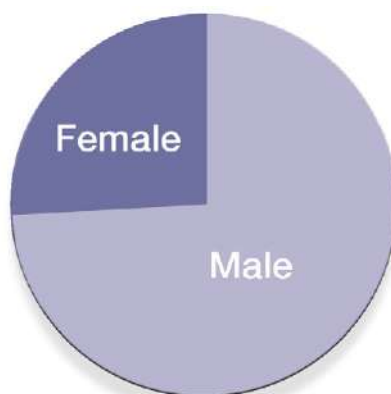
Note: Data are aggregated over the five-year period.

Rates of unintentional drug-induced deaths involving cannabinoids are increasing both within and outside of capital cities (Figure 37). While rates in both regions have been largely identical over many years, with a sharp increase starting in 2014, the preliminary data for 2018 show that rates in areas outside of capital cities (1.5 deaths per 100,000 population in 2018) may be diverging from those in the capital cities (1.2 deaths per 100,000 population).

Figure 37. Unintentional drug-induced deaths involving cannabinoids by regionality, 2001-2018, as a rate per 100,000 population
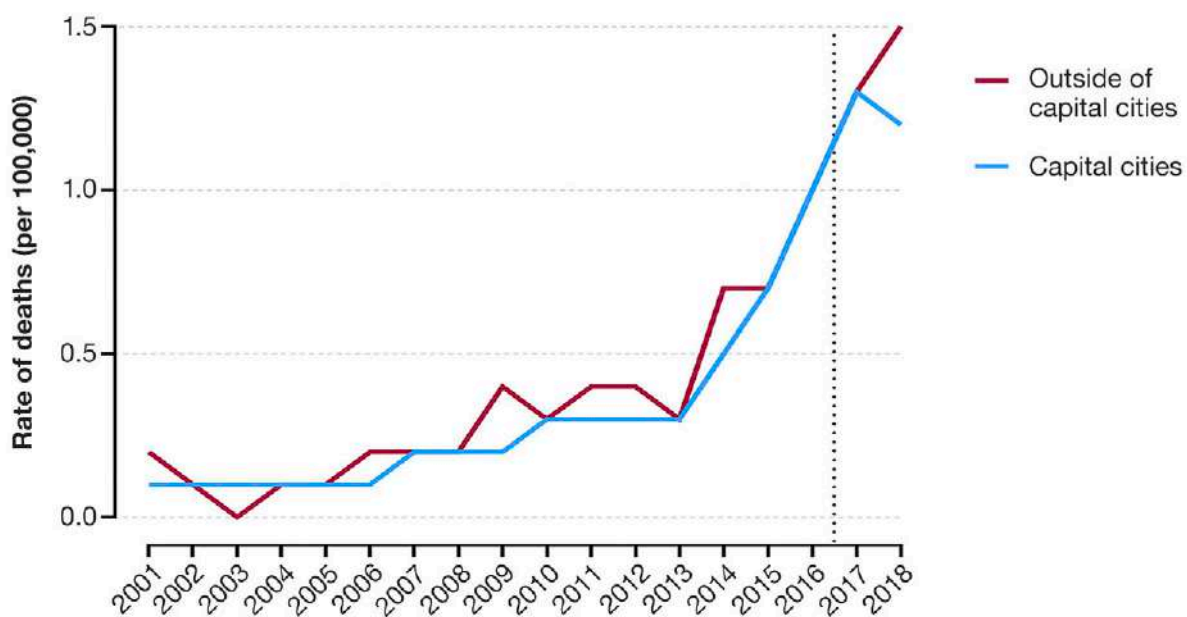
Note: 2017 and 2018 data are preliminary, and likely to rise.

6.6. Anti-convulsants (and 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 increasing considerably.[38] As some of these drugs (including pregabalin and gabapentin) were rarely prescribed for the treatment of neuropathic pain 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, the drugs from this group that are associated with the majority of deaths are commonly prescribed for chronic neuropathic pain and, more commonly, off-label for a range of pain conditions.

While the overall number of unintentional drug-induced deaths involving anti-convulsants is low (128 deaths in 2018, representing 8.2% of all unintentional drug-induced deaths), the number has increased markedly since 2015 (Figure 38). 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 62 deaths in 2016 and 101 in 2017.

This change has been driven by rapid increases in Queensland (with 1.1 deaths per 100,000 population in 2018) and Western Australia (with 1.0 deaths per 100,000 population in 2018). It is possible, however, that an increase has also been occurring in other jurisdictions, but that different practices regarding routine post-mortem toxicological testing mean that such a change has not been identified.

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 38. Unintentional drug-induced deaths involving anti-convulsants by state, 2012-2018, as a rate per 100,000 population
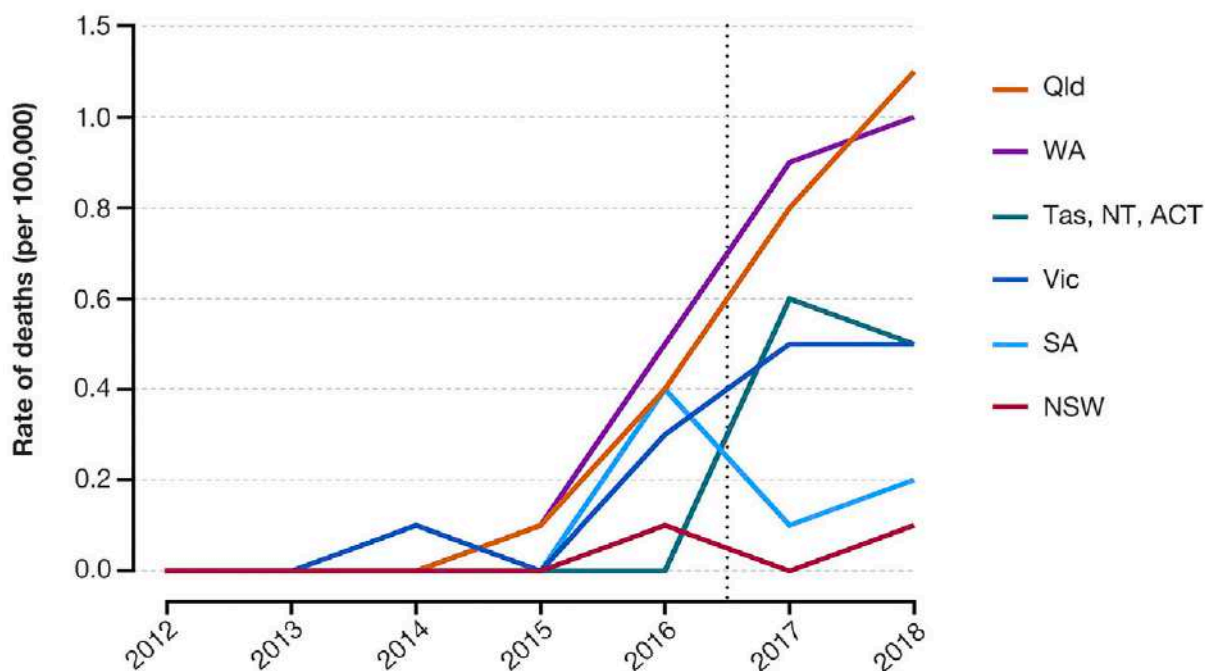
Note: 2017 and 2018 data are preliminary, and likely to rise.

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

The increase in unintentional drug-induced deaths involving anti-convulsants since 2015 has occurred in both the capital cities and in regional / rural areas (Figure 39). The rate of deaths prior to 2015 was zero in both metropolitan and regional / rural areas; in 2018 the rate of deaths was 0.5 per 100,000 population in capital cities and 0.6 outside of capital cities. While the rate itself is low, the increase is dramatic.

Figure 39. Unintentional drug-induced deaths involving anti-convulsants by regionality, 2012-2018, as a rate per 100,000 population
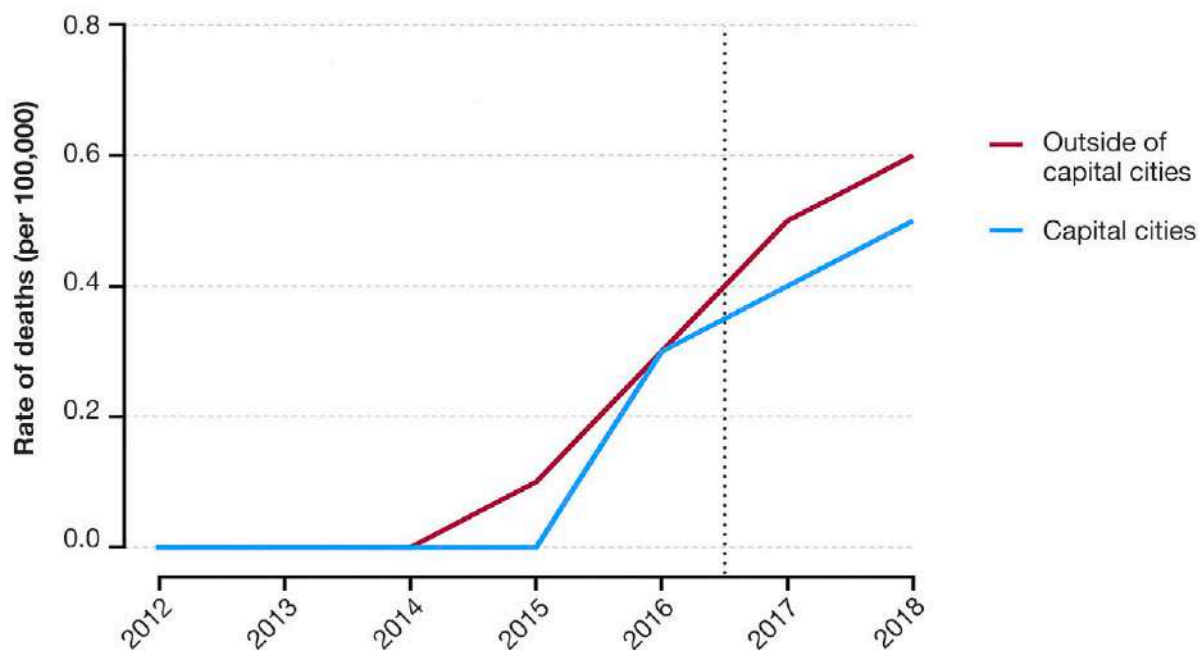
Note: 2017 and 2018 data are preliminary, and likely to rise.

6.7. Anti-psychotics

This group includes drugs such as quetiapine, olanzapine, risperidone, paliperidone, amisulpride, and lithium. There were 223 unintentional drug-induced deaths involving anti-psychotics in 2018, representing 14.3% of all unintentional drug-induced deaths. Rates of unintentional drug-induced deaths involving anti-psychotics have increased markedly since 2013 (Figure 40), particularly in Western Australia, which has increased from zero unintentional deaths per 100,000 population in 2013 to 1.6 deaths per 100,000 population in 2018. 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.

These increases may reflect increases in the total number of prescriptions. In Australia, data collected from 2011 to 2015 show that prescription numbers for anti-psychotics have risen in recent years.[39]

Figure 40. Unintentional drug-induced deaths involving anti-psychotics by state, 2001-2018, as a rate per 100,000 population
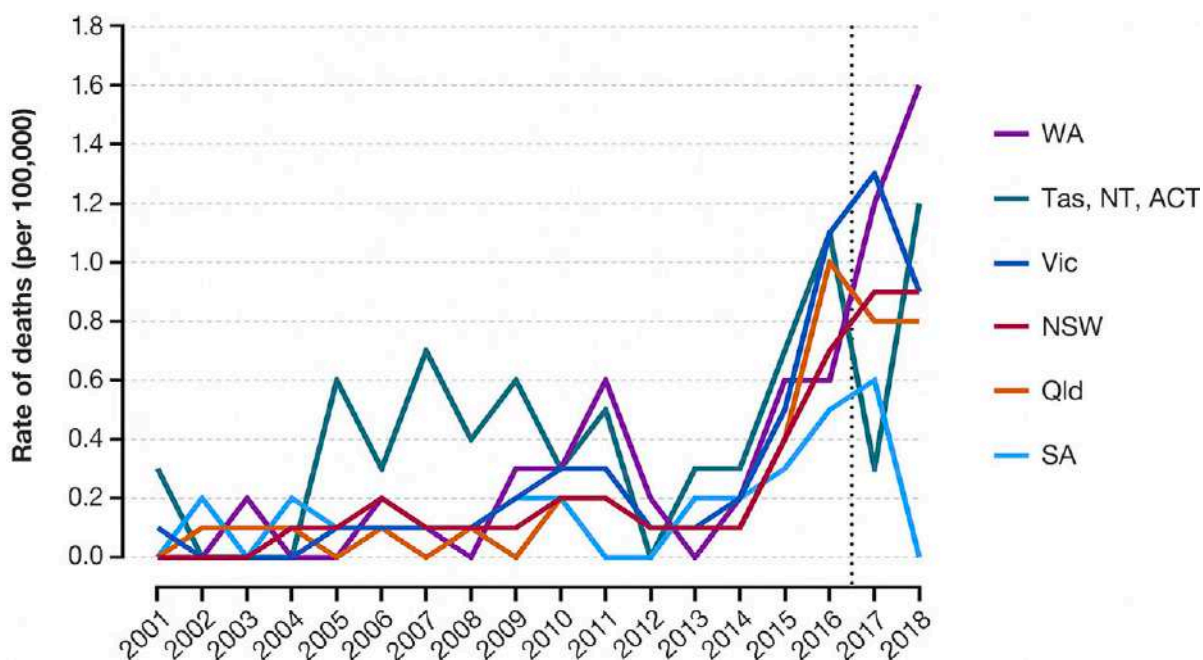
Note: 2017 and 2018 data are preliminary, and likely to rise.

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[39] 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 increase in unintentional drug-induced deaths involving anti-psychotics since 2014 has occurred in both the capital cities and in regional / rural areas (Figure 41): during this period, the rate of deaths has increased from 0.1 to 0.9 deaths per 100,000 population in both types of location. As with anti-convulsants, the rate of death for these drugs remains lower than it is for other classes of drugs.

Figure 41. Unintentional drug-induced deaths involving anti-psychotics by regionality, 2001-2018, as a rate per 100,000 population
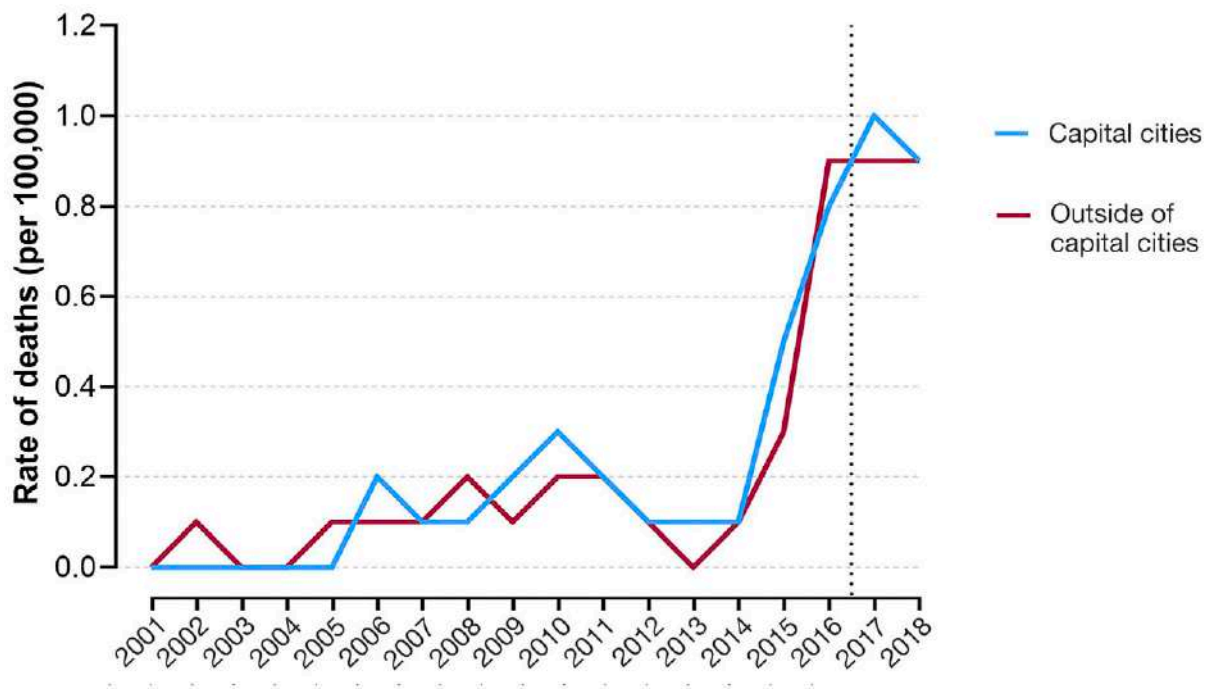
Note: 2017 and 2018 data are preliminary, and likely to rise.

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 less information 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 7.9 deaths per 100,000 population in regional and rural NSW in 2018 compared with 6.0 in Sydney (Figure 42).

In Greater Sydney, the rate of unintentional drug-induced deaths is currently highest for benzodiazepines (2.4 deaths per 100,000 population in 2018), though rates of death involving most drug types (other than pharmaceutical opioids) are trending upwards (Figure 43A).

In regional and rural New South Wales, benzodiazepines are showing a significant increase,[40] overtaking pharmaceutical opioids in 2017 and continuing to have the highest rate of involvement in unintentional drug-induced deaths (3.1 deaths per 100,000 population in 2018) (Figure 43B). Importantly, rates in regional and rural New South Wales for these drug types are far higher than 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 42. Unintentional drug-induced deaths by regionality in New South Wales, 2001-2018, as a rate per 100,000 population
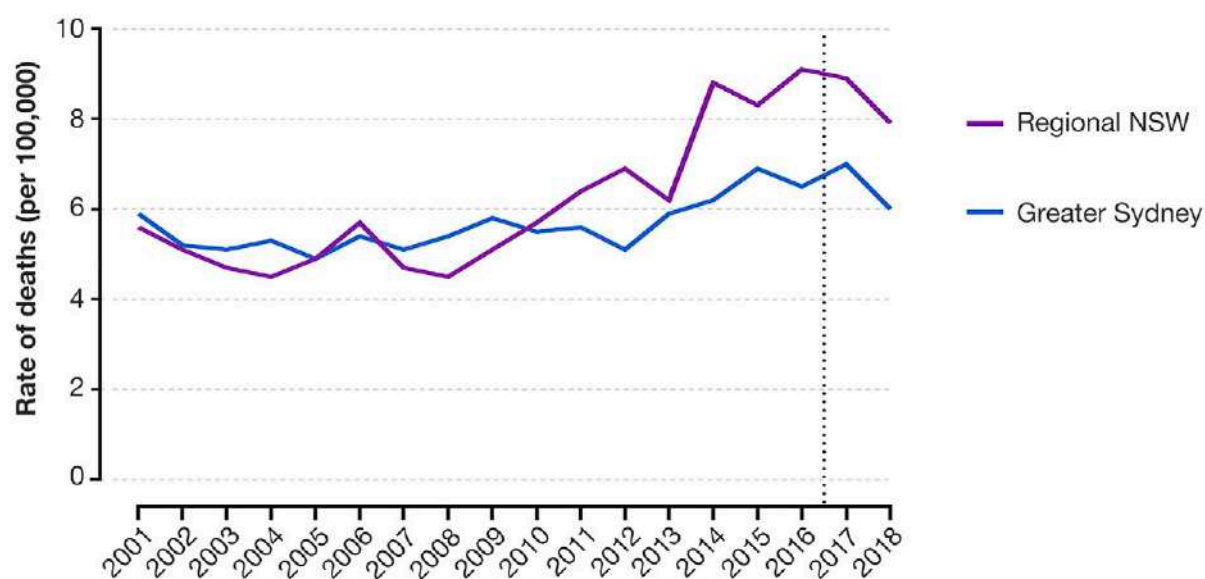
 Note: 2017 and 2018 data are preliminary, and likely to rise.

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[40] For regional NSW, $p < .01$.

Figure 43. Unintentional drug-induced deaths by drug type in greater Sydney and regional NSW, 2001-2018, as a rate per 100,000 population
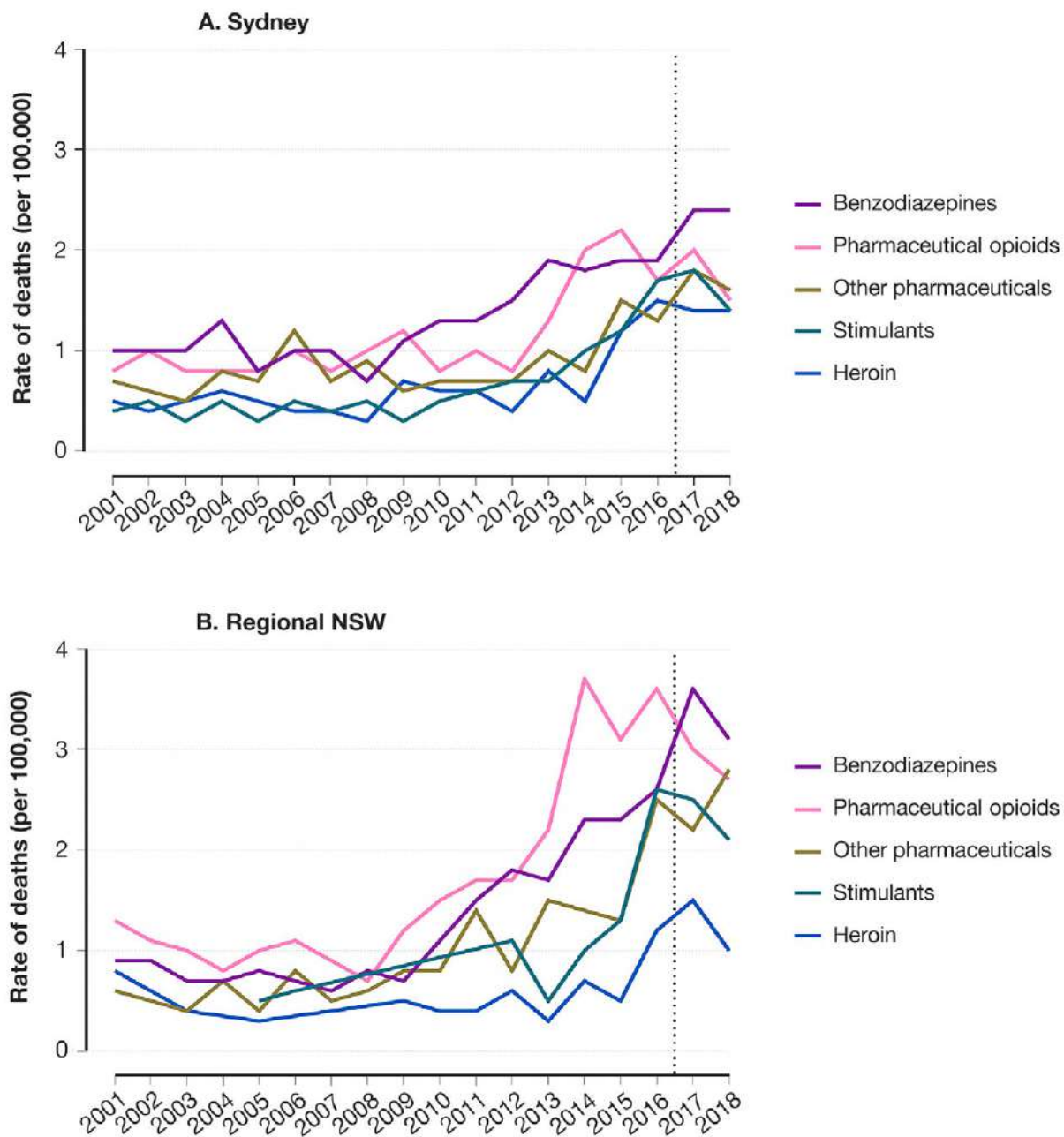
Note: 2017 and 2018 data are preliminary, and likely to rise.

Table 4. Number of unintentional drug-induced deaths, by drug group, Sydney, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Stimulants	16	22	14	22	12	21	16	21	14	22	29	31	36	46	58	86	90	73
Benzodiazepines	42	42	43	55	35	43	45	33	49	62	61	71	90	85	96	97	124	123
Other Pharmaceuticals	28	25	23	35	31	53	31	41	28	31	30	34	46	37	75	65	89	81
Heroin	23	17	23	25	23	18	20	14	34	28	28	21	37	25	59	77	70	71
Pharmaceutical Opioids	33	43	35	33	33	41	34	45	57	39	45	39	64	95	109	87	104	76

Table 5. Number of unintentional drug-induced deaths, by drug group, regional NSW, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Stimulants	3	7	5	5	10	12	7	5	4	5	6	24	11	24	28	58	58	49
Benzodiazepines	21	20	14	16	18	15	13	17	16	27	35	41	40	59	56	61	87	75
Other Pharmaceuticals	15	12	9	17	9	19	13	15	18	21	33	20	36	35	33	63	55	69
Heroin	17	3	8	5	7	3	6	5	11	8	8	13	6	18	11	28	36	24
Pharmaceutical Opioids	29	24	21	18	24	25	23	17	28	36	40	39	55	89	77	85	73	70

7.2.   Victoria

Since 2008, regional and rural Victoria has had a higher rate of unintentional drug-induced deaths than Melbourne (Figure 44).

This gap is widening, with a greater increase since 2012 observed in regional and rural Victoria. In 2018, the rate of unintentional drug-induced deaths in regional and rural Victoria was 7.6 per 100,000 population, compared with 5.0 for Melbourne.

In Melbourne, the two drug types with the highest rates of involvement in unintentional drug-induced deaths are benzodiazepines and heroin (both 2.7 deaths per 100,000 population in 2018) (Figure 45A). In regional and rural Victoria, however, while benzodiazepines are still the highest (3.9 deaths per 100,000 population in 2018), it is other pharmaceuticals that have the second highest rate of unintentional death in 2018, at 3.4 deaths per 100,000 population. All drug types have increased substantially since 2007 in regional Victoria (Figure 45B). The steep increase in the death rate from other pharmaceuticals seen in regional and rural Victoria since 2013 is more pronounced than that seen in Melbourne.

In 2018, rates of unintentional drug-induced deaths involving each drug type except heroin were higher in regional and rural Victoria than Melbourne, though the overall numbers are higher in Melbourne. These data are provided as numbers, rather than a rate per 100,000 population, in Table 6 and Table 7.

Figure 44. Unintentional drug-induced deaths by regionality in Victoria, 2001-2018, as a rate per 100,000 population

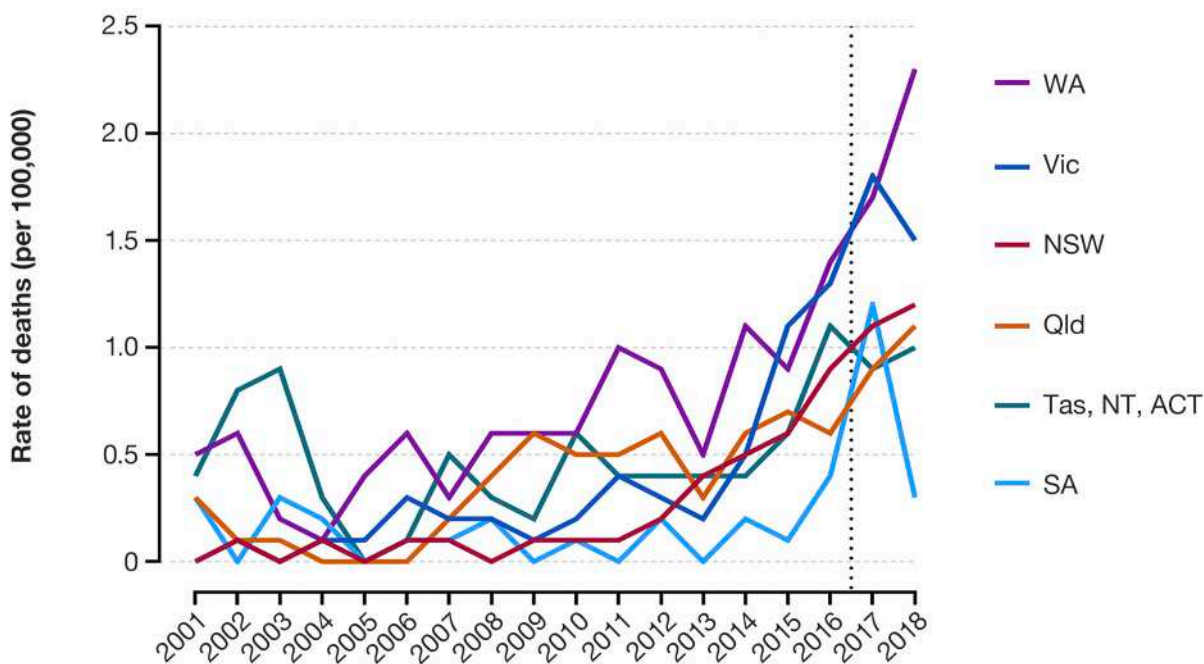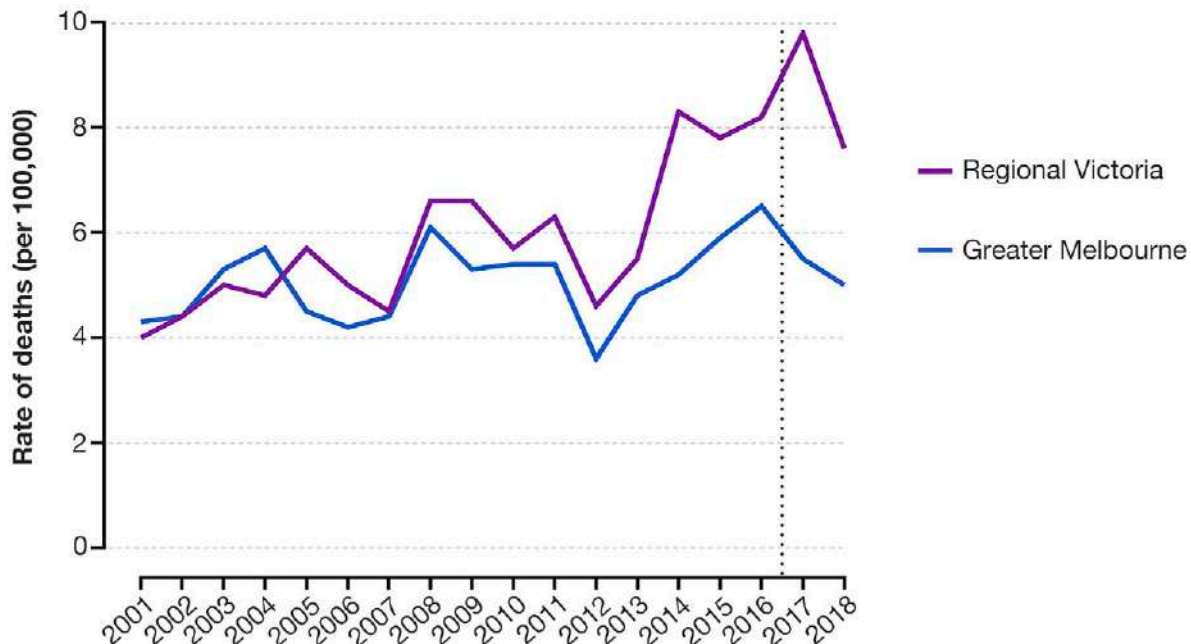Note: 2017 and 2018 data are preliminary, and likely to rise.

Figure 45. Unintentional drug-induced deaths by drug type in greater Melbourne and regional Victoria, 2001-2018, as a rate per 100,000 population
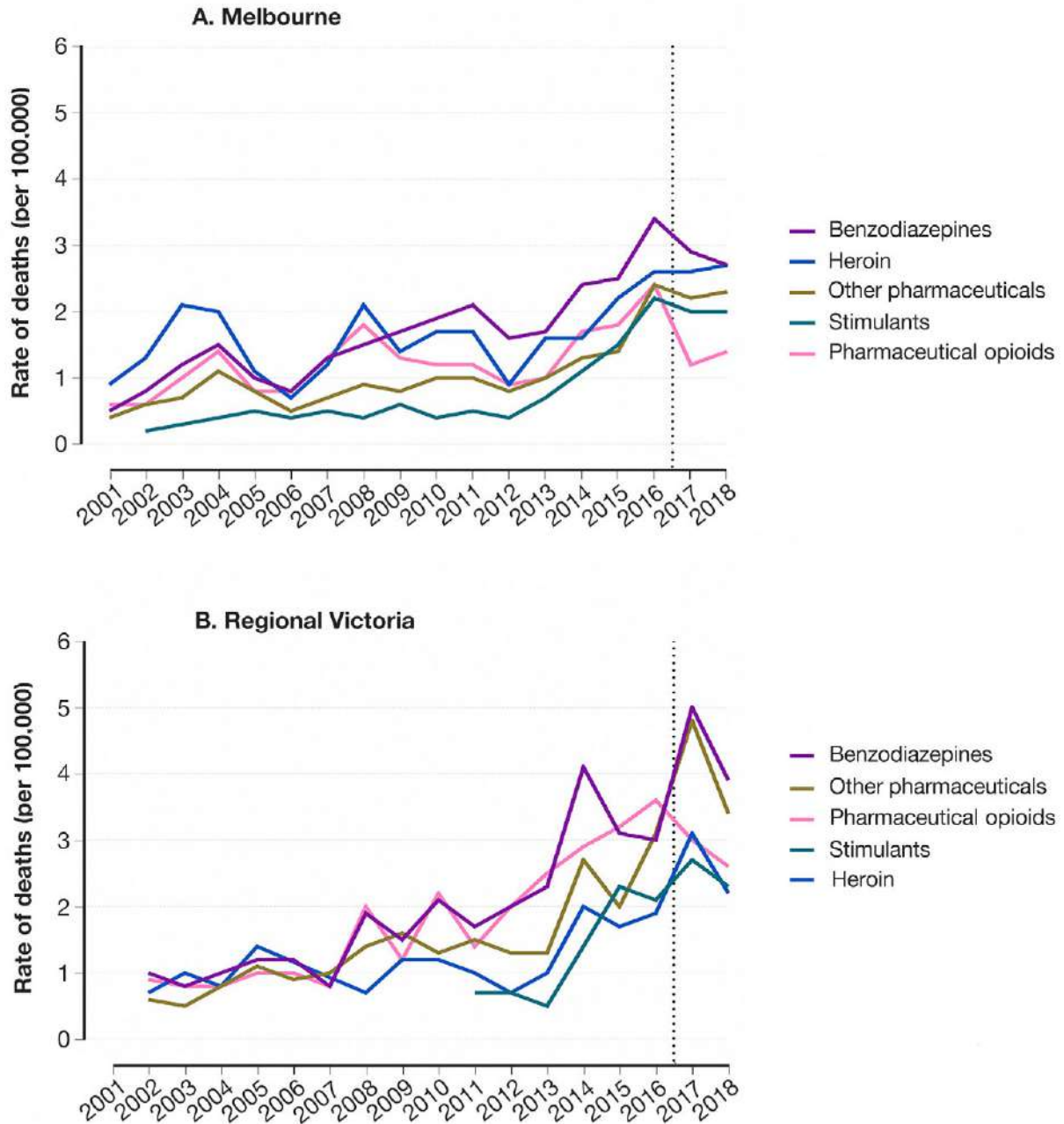
Note: 2017 and 2018 data are preliminary, and likely to rise.

Table 6. Number of unintentional drug-induced deaths, by drug group, Melbourne, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Stimulants	7	9	5	15	19	15	20	17	23	19	20	18	33	47	67	103	94	99
Benzodiazepines	19	31	44	56	38	32	51	62	70	79	89	69	75	110	113	157	140	133
Other Pharmaceuticals	14	22	26	41	28	20	27	37	34	42	41	36	42	61	66	110	108	116
Heroin	35	50	78	74	42	27	46	86	59	70	70	40	70	69	101	120	126	131
Pharmaceutical Opioids	21	22	36	51	31	32	51	74	55	51	51	39	45	77	83	113	59	68

Table 7. Number of unintentional drug-induced deaths, by drug group, regional Victoria, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Stimulants	1	0	1	2	4	5	2	7	1	3	8	2	6	16	27	25	33	28
Benzodiazepines	1	11	9	6	14	14	9	22	18	25	20	23	28	51	38	39	63	52
Other Pharmaceuticals	4	7	6	9	13	12	11	18	19	15	19	16	15	34	25	40	63	46
Heroin	5	8	11	9	16	2	4	8	13	13	11	8	11	25	20	25	39	27
Pharmaceutical Opioids	5	10	9	10	12	12	9	24	15	28	17	24	31	37	39	48	40	36

7.3.   Queensland

Regional and rural Queensland has had higher rates of unintentional drug-induced deaths compared with Brisbane from 2011 onwards. In 2018, regional Queensland had a rate of 6.3 deaths per 100,000 population, while Brisbane had a rate of 5.3 deaths per 100,000 population (Figure 46). The difference between the capital city and regional / rural areas in Queensland is not as great as those observed in New South Wales and Victoria. 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 those observed from 2003 to 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 46. Unintentional drug-induced deaths by regionality in Queensland, 2001-2018, as a rate per 100,000 population
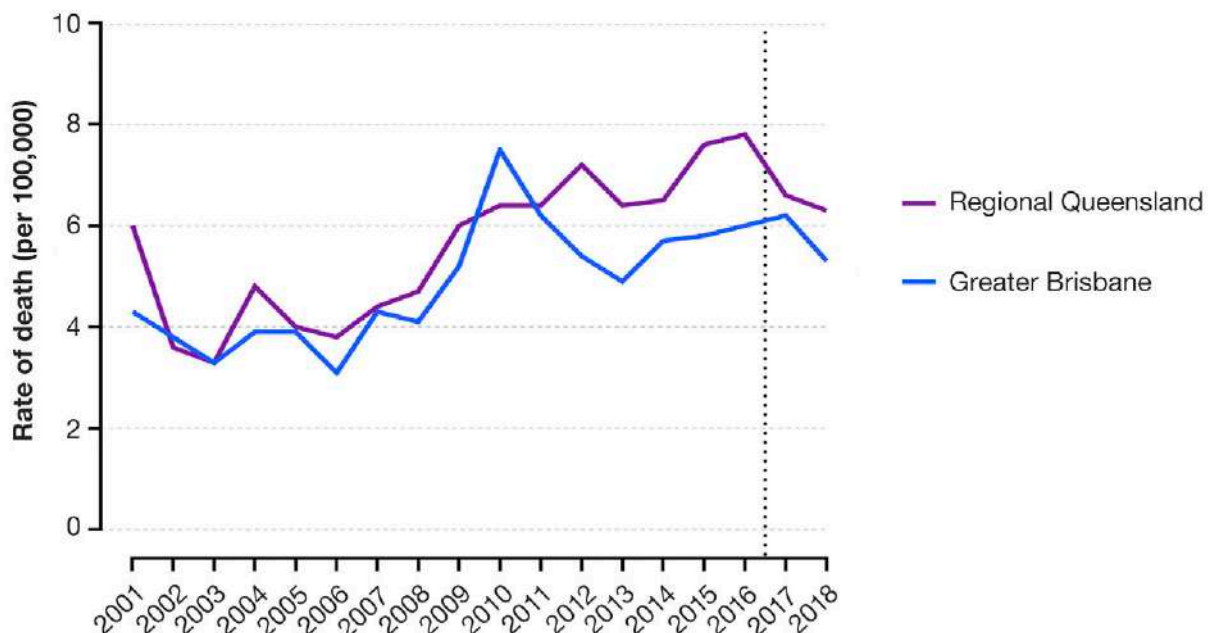
Note: 2017 and 2018 data are preliminary, and likely to rise.

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 47). In 2018, the rates of unintentional drug-induced deaths were 8.7 deaths per 100,000 population in Perth, compared with 9.3 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 47. Unintentional drug-induced deaths by regionality in Western Australia, 2001-2018, as a rate per 100,000 population
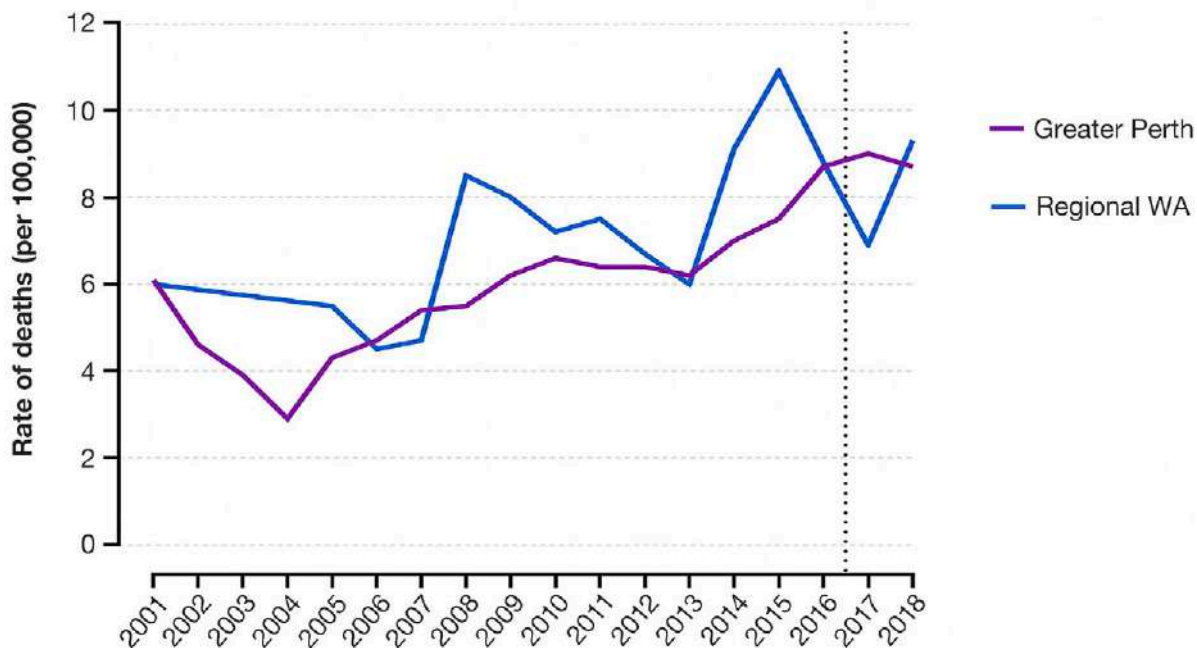
Note: 2017 and 2018 data are preliminary, and likely to rise.

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 2004-2008 with the years 2014-2018. The ratio between the 2014-2018 rate and the 2004-2008 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 almost a factor of four between the two periods.

Queensland has also seen an almost 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 almost 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 2014-2018 to those in 2004-2008 was 4.3.

Queensland again has the highest ratio for the change in rates of unintentional drug-induced deaths involving pharmaceutical opioids (4.2) and other pharmaceuticals (5.9).

Western Australia has seen the largest increase in the rate of unintentional drug-induced deaths involving heroin from 2004-2008 to 2014-2018, with a ratio between the two periods of 5.9. The largest increases have been recorded for cannabinoids, with a national ratio of 6.8 and particularly high ratios for NSW (11.4) and Victoria (8.2).

Table 8. Unintentional drug-induced deaths by state and territory and drug type, by number and rate per 100,000 population, 2004-2008 and 2014-2018

	2004-2008 number	2014-2018 number	2004-2008 rate	2014-2018 rate	Ratio
Benzodiazepines					
NSW	290	863	0.9	2.3	2.7
VIC	304	896	1.2	3.0	2.5
QLD	114	522	0.6	2.3	3.9
SA	69	101	0.9	1.2	1.4
WA	124	393	1.2	3.1	2.6
TAS	52	54	2.2	2.1	1.0
NT	9	12	np	np	np
ACT	4	32	np	1.6	np
Australia	966	2,873	1.0	2.5	2.6

Table 8 continued

	2004-2008 number	2014-2018 number	2004-2008 rate	2014-2018 rate	Ratio
Stimulants					
NSW	131	570	0.4	1.6	3.9
VIC	107	539	0.4	1.8	4.3
QLD	38	344	0.2	1.5	7.7
SA	29	81	0.4	1.0	2.5
WA	54	328	0.5	2.6	4.9
TAS	9	29	np	1.3	np
NT	3	12	np	np	np
ACT	7	36	np	1.8	np
Australia	378	1,939	0.4	1.7	4.5

	2004-2008 number	2014-2018 number	2004-2008 rate	2014-2018 rate	Ratio
Pharmaceutical Opioids					
NSW	293	865	0.9	2.3	2.6
VIC	306	600	1.2	2.0	1.6
QLD	126	635	0.6	2.7	4.2
SA	85	125	1.1	1.5	1.3
WA	130	389	1.3	3.1	2.4
TAS	38	47	1.6	1.9	1.2
NT	8	16	np	np	np
ACT	9	30	np	1.5	np
Australia	995	2,707	1.0	2.3	2.3

Table 8 continued

	2004-2008 number	2014-2018 number	2004-2008 rate	2014-2018 rate	Ratio
Other Pharmaceuticals					
NSW	264	602	0.8	1.6	2.1
VIC	216	669	0.9	2.2	2.6
QLD	81	545	0.4	2.3	5.9
SA	90	82	1.2	1.0	0.8
WA	92	355	0.9	2.8	3.2
TAS	40	59	1.6	2.3	1.4
NT	8	11	np	np	np
ACT	9	26	np	1.3	np
Australia	800	2,350	0.8	2.0	2.6

	2004-2008 number	2014-2018 number	2004-2008 rate	2014-2018 rate	Ratio
Heroin					
NSW	127	419	0.4	1.1	2.9
VIC	316	683	1.3	2.3	1.8
QLD	55	196	0.3	0.9	3.0
SA	40	72	0.6	0.9	1.6
WA	35	258	0.3	2.1	5.9
TAS	2	5	np	np	2.3
NT	0	3	—	np	np
ACT	13	34	np	1.7	np
Australia	588	1,669	0.6	1.4	2.4

Table 8 continued

	2004-2008 number	2014-2018 number	2004-2008 rate	2014-2018 rate	Ratio
Cannabinoids					
NSW	26	335	0.1	0.9	11.4
VIC	40	389	0.2	1.3	8.2
QLD	28	192	0.1	0.8	5.9
SA	6	37	np	0.5	np
WA	43	189	0.4	1.5	3.6
TAS	3	16	np	np	np
NT	4	7	np	np	np
ACT	2	21	np	1.0	np
Australia	152	1,186	0.2	1.0	6.8

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 2004-2018, and rates per 100,000 population for 2004-2008, 2009-2013, and 2014-2018 aggregated

	2004 no.	2005 no.	2006 no.	2007 no.	2008 no.	2009 no.	2010 no.	2011 no.	2012 no.	2013 no.	2014 no.	2015 no.	2016 no.	2017 no.	2018 no.	2004-2008 rate	2009-2013 rate	2014-2018 rate
PHN101 Central and Eastern Sydney																		
Unintentional Drug-induced Deaths	95	91	100	96	95	107	99	86	82	117	114	130	135	132	112	6.8	6.6	7.8
Total Drug-induced Deaths	107	117	114	133	143	137	133	114	114	140	140	161	158	166	135	8.8	8.5	9.5
PHN102 Northern Sydney																		
Unintentional Drug-induced Deaths	30	24	27	26	27	26	32	38	38	37	28	46	48	48	32	3.2	3.8	4.2
Total Drug-induced Deaths	39	29	33	41	45	44	46	52	56	54	37	60	60	57	42	4.5	5.5	5.3
PHN103 Western Sydney																		
Unintentional Drug-induced Deaths	32	36	28	24	40	44	38	53	44	44	41	55	48	57	57	4.4	5.4	5.6
Total Drug-induced Deaths	45	37	34	32	55	52	49	63	60	59	51	69	58	67	67	5.5	6.9	6.8
PHN104 Nepean Blue Mountains																		
Unintentional Drug-induced Deaths	14	18	12	18	23	16	21	29	23	22	21	24	38	29	31	5.3	6.5	7.9
Total Drug-induced Deaths	19	23	15	27	25	27	30	32	30	29	29	31	42	39	38	6.8	8.7	9.8
PHN105 South Western Sydney																		
Unintentional Drug-induced Deaths	36	26	40	43	44	57	47	44	42	47	68	73	46	76	55	4.9	5.6	6.9
Total Drug-induced Deaths	43	33	49	55	53	72	59	60	60	53	90	83	53	85	68	6.0	7.1	8.2

Table 9 continued

	2004 no.	2005 no.	2006 no.	2007 no.	2008 no.	2009 no.	2010 no.	2011 no.	2012 no.	2013 no.	2014 no.	2015 no.	2016 no.	2017 no.	2018 no.	2004-2008 rate	2009-2013 rate	2014-2018 rate
PHN106 South Eastern NSW																		
Unintentional Drug-induced Deaths	26	34	24	34	26	33	30	37	38	38	55	52	62	53	45	5.2	6.1	8.6
Total Drug-induced Deaths	30	43	35	44	50	45	47	59	57	52	67	66	79	67	54	7.3	8.9	10.7
PHN107 Western NSW																		
Unintentional Drug-induced Deaths	9	15	19	9	16	15	18	27	12	22	33	28	35	33	27	4.6	6.3	10.4
Total Drug-induced Deaths	12	17	21	14	20	17	21	28	15	27	40	31	40	39	31	5.8	7.1	12.1
PHN108 Hunter New England and Central Coast																		
Unintentional Drug-induced Deaths	61	53	64	53	45	51	70	68	70	62	94	97	84	101	96	4.9	5.4	7.7
Total Drug-induced Deaths	80	61	76	80	75	81	86	89	107	93	126	128	115	142	127	6.6	7.7	10.3
PHN109 North Coast																		
Unintentional Drug-induced Deaths	11	22	32	25	22	26	33	28	39	36	54	40	45	48	43	4.6	6.8	8.9
Total Drug-induced Deaths	17	28	37	54	38	47	49	32	50	45	72	55	62	65	60	7.4	9.2	12.0
PHN110 Murrumbidgee																		
Unintentional Drug-induced Deaths	11	8	14	9	10	11	8	8	16	11	16	16	19	13	15	4.5	4.8	6.9
Total Drug-induced Deaths	11	10	14	13	13	11	14	14	22	15	17	24	25	16	20	5.3	6.8	8.8
PHN201 North Western Melbourne																		
Unintentional Drug-induced Deaths	75	71	59	61	105	71	82	97	67	81	91	109	118	100	95	5.8	5.3	6.0
Total Drug-induced Deaths	85	84	77	81	125	118	107	126	99	104	119	139	146	131	133	7.1	7.5	7.9

Table 9 continued

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2004-2008	2009-2013	2014-2018
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	rate	rate	rate
PHN202 Eastern Melbourne																		
Unintentional Drug-induced Deaths	60	39	43	50	66	67	58	59	35	70	65	70	72	81	56	4.0	4.2	4.6
Total Drug-induced Deaths	72	60	63	73	91	97	84	87	64	90	92	101	103	103	76	5.5	6.0	6.3
PHN203 South Eastern Melbourne																		
Unintentional Drug-induced Deaths	80	63	58	64	78	83	89	76	55	62	81	92	115	87	99	5.4	5.3	6.2
Total Drug-induced Deaths	97	75	85	89	113	133	120	110	83	82	116	126	147	120	121	7.3	7.7	8.2
PHN204 Gippsland																		
Unintentional Drug-induced Deaths	10	11	7	12	14	23	17	14	9	17	27	19	30	16	24	4.9	6.7	9.2
Total Drug-induced Deaths	16	15	11	15	19	29	22	25	14	22	37	24	35	18	27	6.6	9.0	10.8
PHN205 Murray																		
Unintentional Drug-induced Deaths	20	31	25	23	29	31	24	34	29	38	36	44	47	59	43	4.8	5.8	8.0
Total Drug-induced Deaths	30	42	29	34	37	41	30	50	45	55	53	59	63	69	62	6.4	8.1	10.4
PHN206 Grampians and Barwon South West																		
Unintentional Drug-induced Deaths	31	30	35	26	42	35	35	35	25	20	46	42	41	56	40	5.9	5.2	7.5
Total Drug-induced Deaths	39	39	42	35	57	48	47	55	42	27	61	48	51	64	56	7.7	7.7	9.2
PHN301 Brisbane North																		
Unintentional Drug-induced Deaths	23	26	29	43	36	43	65	55	56	45	53	62	65	54	48	4.0	5.9	5.7
Total Drug-induced Deaths	37	37	47	59	50	61	78	77	77	69	81	86	81	74	74	5.8	8.1	8.0

Table 9 continued

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2004-2008	2009-2013	2014-2018
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	rate	rate	rate
PHN302 Brisbane South																		
Unintentional Drug-induced Deaths	36	42	23	36	38	49	76	64	55	49	69	52	59	84	67	3.8	5.6	6.0
Total Drug-induced Deaths	50	52	44	55	62	64	96	76	78	71	90	81	80	109	95	5.7	7.4	8.2
PHN303 Gold Coast																		
Unintentional Drug-induced Deaths	24	20	17	19	19	26	24	36	39	31	40	48	42	54	40	4.2	5.8	7.5
Total Drug-induced Deaths	29	37	27	34	38	40	35	44	45	49	59	68	59	89	57	7.0	7.9	11.0
PHN304 Darling Downs and West Moreton																		
Unintentional Drug-induced Deaths	19	13	13	14	19	37	27	28	25	28	23	41	33	25	27	3.5	5.9	5.7
Total Drug-induced Deaths	23	25	17	24	30	47	31	35	35	40	34	57	42	32	37	5.4	7.6	7.6
PHN305 Western Queensland																		
Unintentional Drug-induced Deaths	7	4	0	3	5	2	6	5	2	6	4	3	2	2	4	np	6.5	np
Total Drug-induced Deaths	7	4	1	2	5	3	7	5	5	6	4	6	4	4	3	np	7.3	6.2
PHN306 Central Queensland and Sunshine Coast																		
Unintentional Drug-induced Deaths	30	20	26	32	38	46	63	52	64	65	66	58	67	49	72	4.0	7.7	8.0
Total Drug-induced Deaths	48	36	41	45	55	60	76	64	84	97	92	91	92	74	103	6.2	9.8	11.0
PHN307 Northern Queensland																		
Unintentional Drug-induced Deaths	23	27	30	31	28	37	39	43	36	33	30	53	58	31	28	4.8	5.7	5.8
Total Drug-induced Deaths	34	36	42	42	35	46	47	62	50	44	42	69	70	45	42	6.4	7.5	7.8

Table 9 continued

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2004-2008	2009-2013	2014-2018
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	rate	rate	rate
PHN401 Adelaide																		
Unintentional Drug-induced Deaths	67	63	45	73	76	86	77	52	84	46	68	51	88	97	64	5.8	5.9	5.9
Total Drug-induced Deaths	81	87	77	97	110	116	110	87	119	90	113	97	124	136	105	8.1	8.9	9.3
PHN402 Country SA																		
Unintentional Drug-induced Deaths	20	24	17	20	21	28	17	21	20	19	15	26	24	26	18	4.3	4.1	4.3
Total Drug-induced Deaths	26	34	23	29	32	32	25	37	34	35	28	44	33	43	27	6.0	6.6	6.8
PHN501 Perth North																		
Unintentional Drug-induced Deaths	19	35	42	49	51	77	62	59	71	65	64	75	86	92	86	4.6	6.8	7.6
Total Drug-induced Deaths	29	45	47	72	69	100	88	76	97	88	91	101	113	124	111	6.1	9.2	10.1
PHN502 Perth South																		
Unintentional Drug-induced Deaths	26	31	33	41	44	34	55	60	49	55	77	73	89	91	92	4.7	5.8	8.9
Total Drug-induced Deaths	36	41	41	58	57	52	78	76	77	69	101	94	114	115	116	6.2	8.1	11.3
PHN503 Country WA																		
Unintentional Drug-induced Deaths	8	25	17	20	40	36	35	36	35	28	47	56	45	31	43	4.8	6.6	8.3
Total Drug-induced Deaths	11	30	21	27	46	43	42	43	45	33	60	69	60	42	55	5.9	8.0	10.6
PHN601 Tasmania																		
Unintentional Drug-induced Deaths	20	34	30	32	27	40	28	36	28	27	37	31	47	32	33	5.7	6.0	6.7
Total Drug-induced Deaths	28	46	45	49	40	60	41	47	42	45	54	49	70	54	44	8.4	8.9	9.9

Table 9 continued

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2004-2008	2009-2013	2014-2018
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	rate	rate	rate
PHN701 Northern Territory																		
Unintentional Drug-induced Deaths	11	16	15	20	12	12	16	9	17	11	10	15	9	15	16	7.5	7.2	5.8
Total Drug-induced Deaths	12	17	20	22	15	12	19	11	19	13	16	20	12	21	18	8.9	8.2	7.8
PHN801 Australian Capital Territory																		
Unintentional Drug-induced Deaths	15	23	9	22	22	17	20	16	12	23	21	16	28	28	27	5.4	4.7	6.0
Total Drug-induced Deaths	19	28	14	28	28	30	25	22	17	27	31	24	33	43	38	6.8	6.5	8.4

7.8.   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 2014-18 period.[41] 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 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.

Figure 48. Australia: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population

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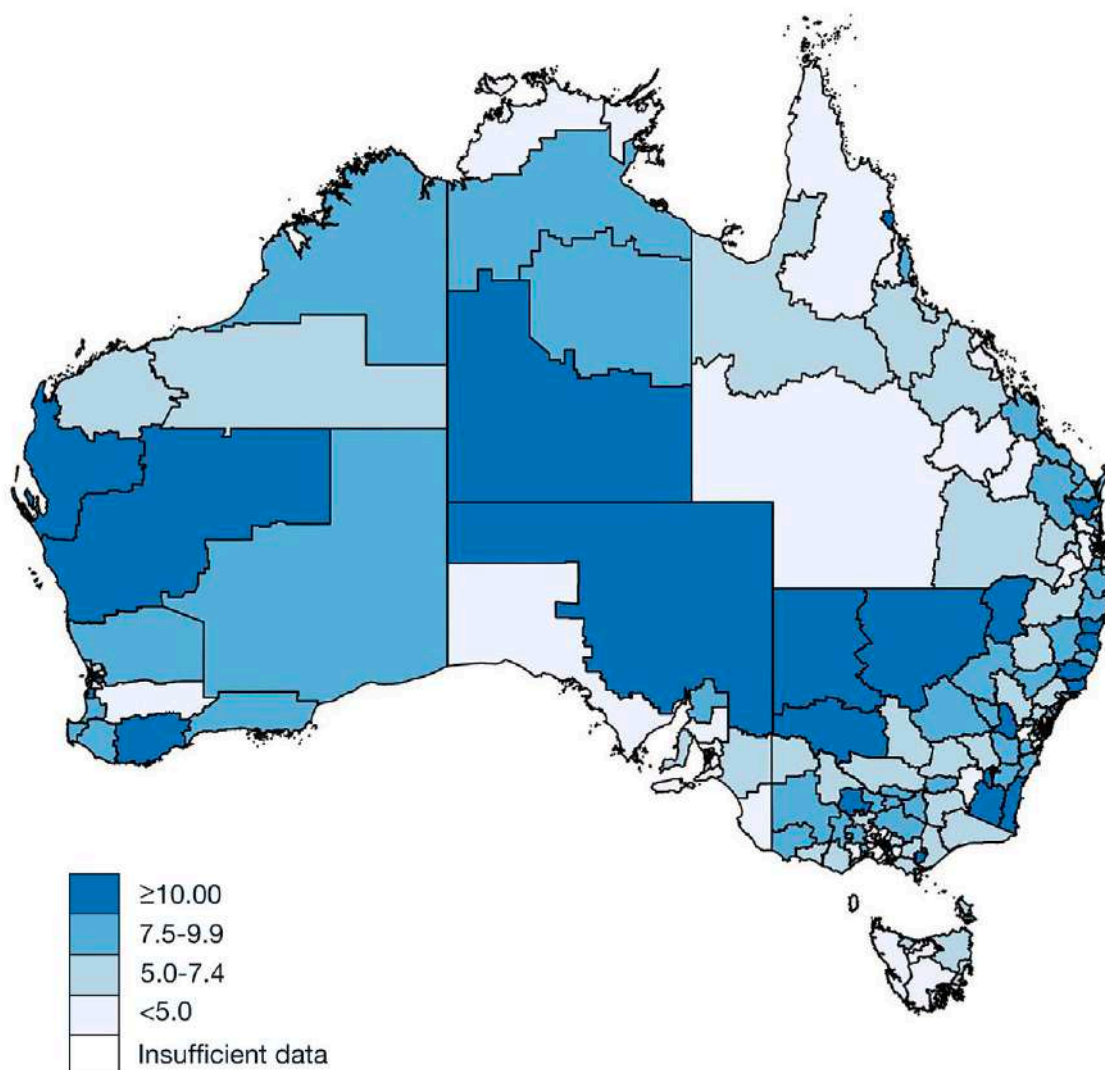
[41] The maps were created in Stata 15 using the the 'shp2data' package (created by Kevin Crow) and 'spmap' package (created by Maurizio Pisati).

Figure 49 and Figure 50. Sydney and NSW: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
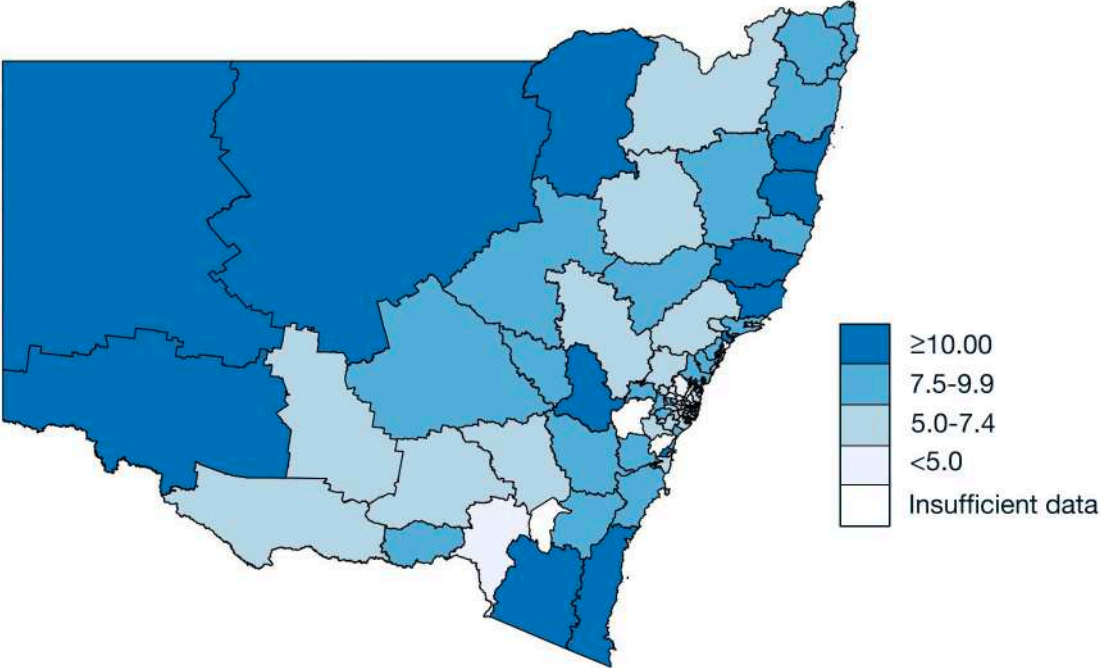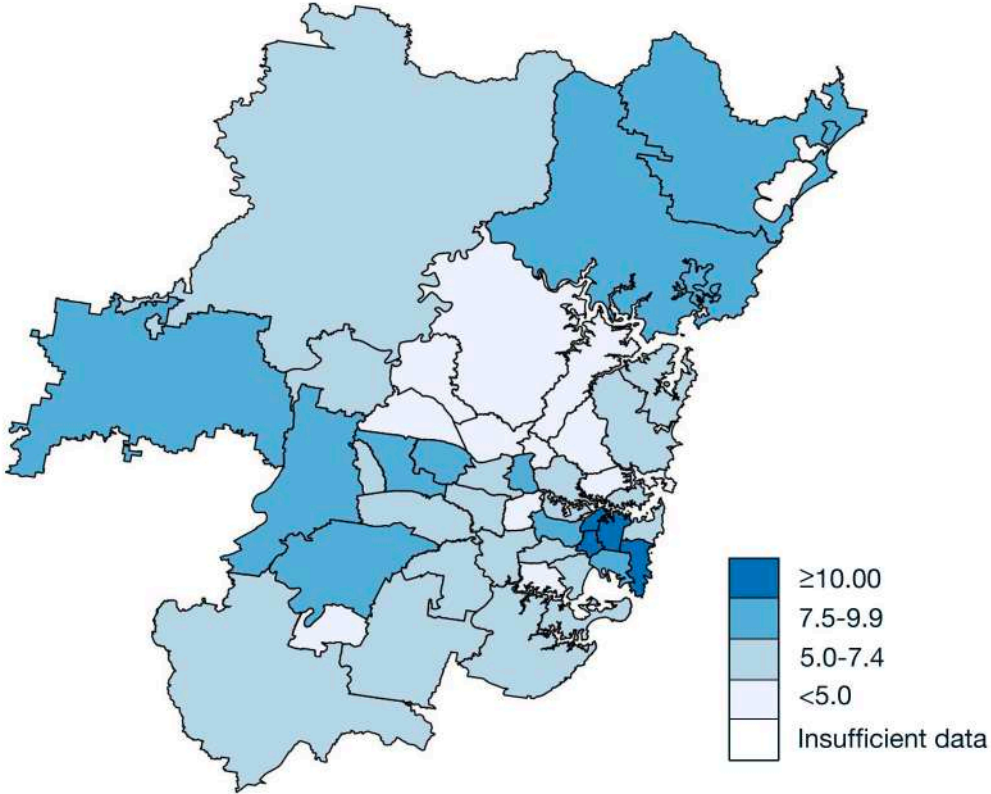
Figure 51 and Figure 52. Melbourne and Victoria: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
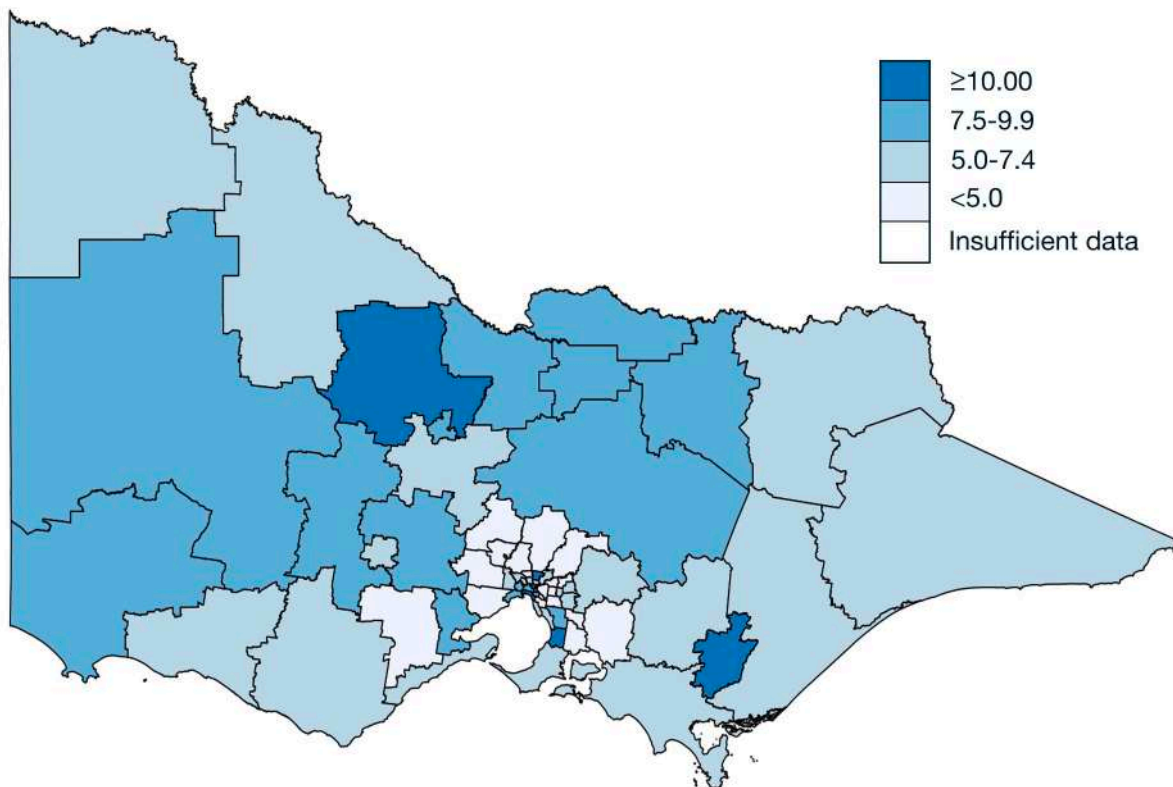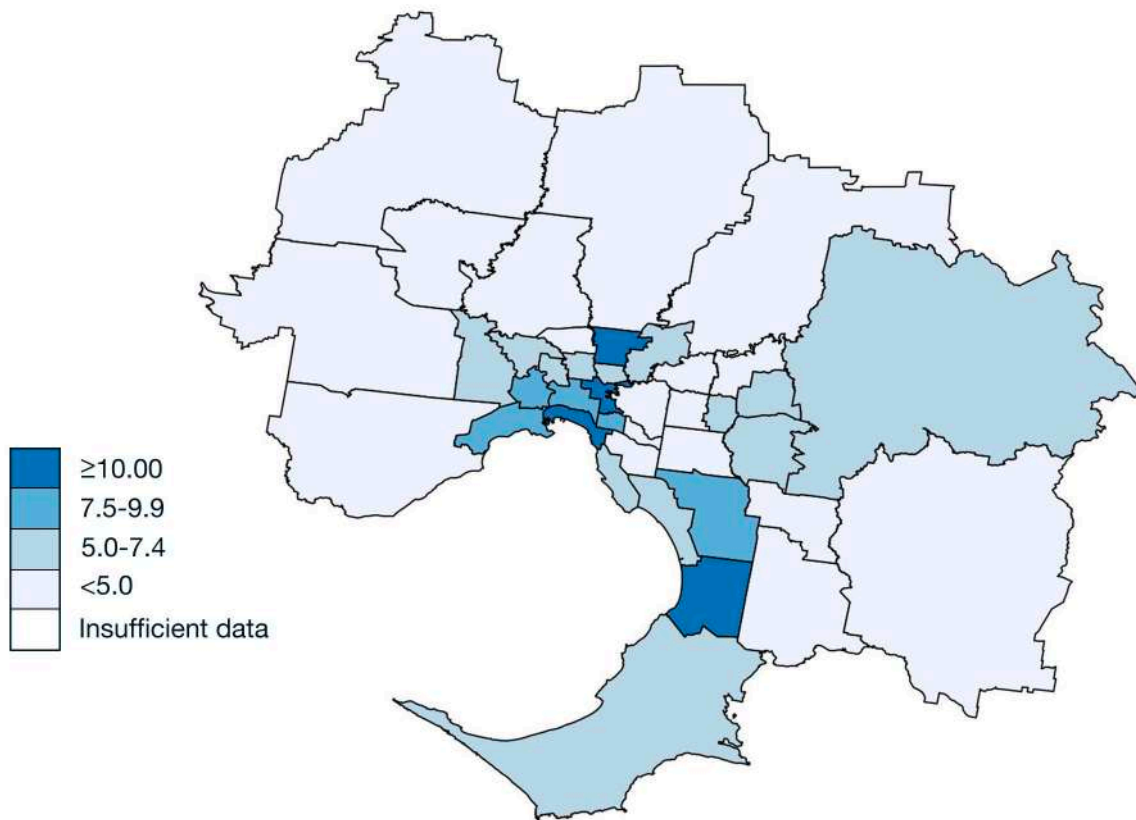
Figure 53 and Figure 54. Brisbane and Queensland: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
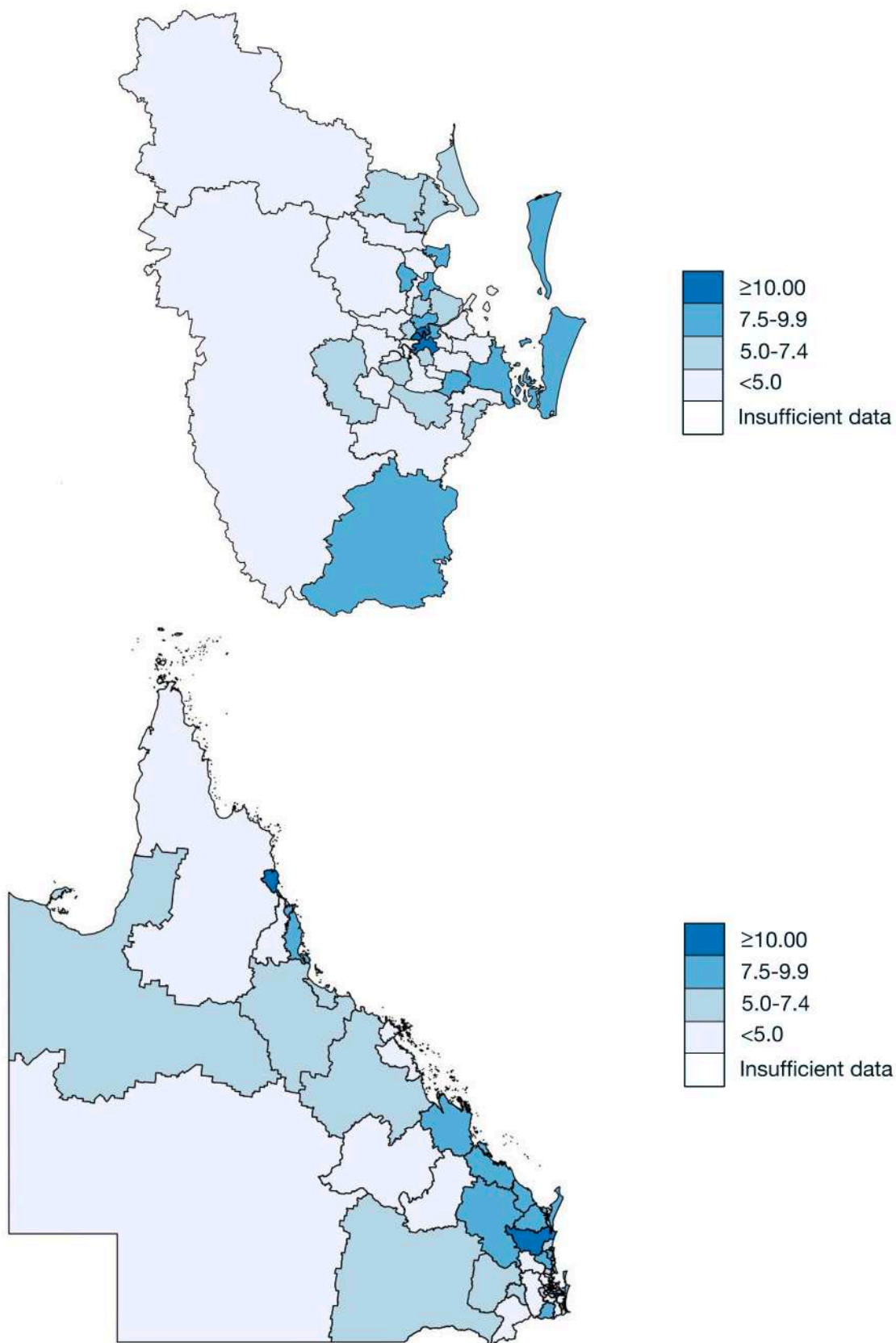
Figure 55 and Figure 56. Perth and WA: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
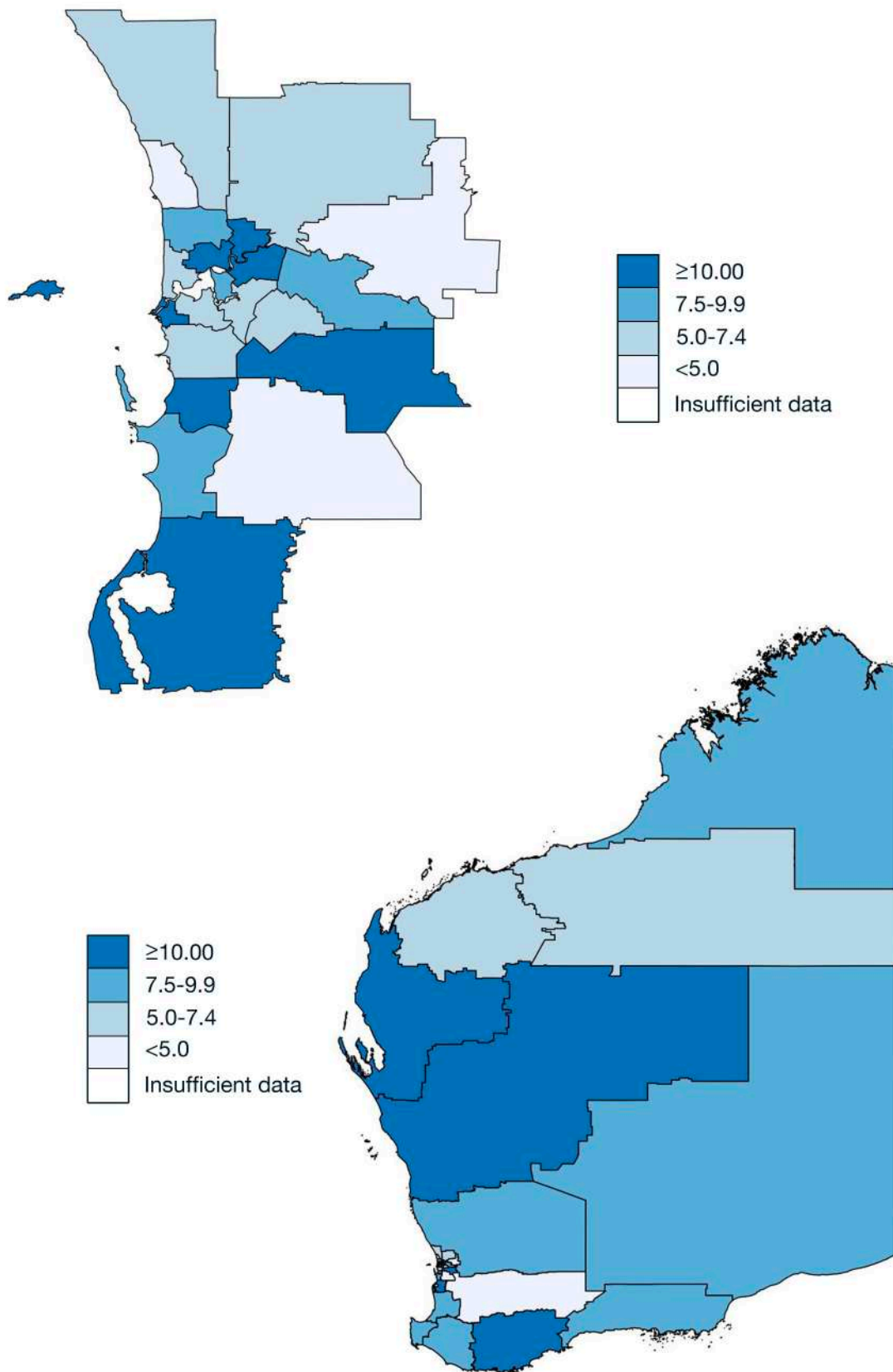
Figure 57 and Figure 58. Adelaide and SA: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
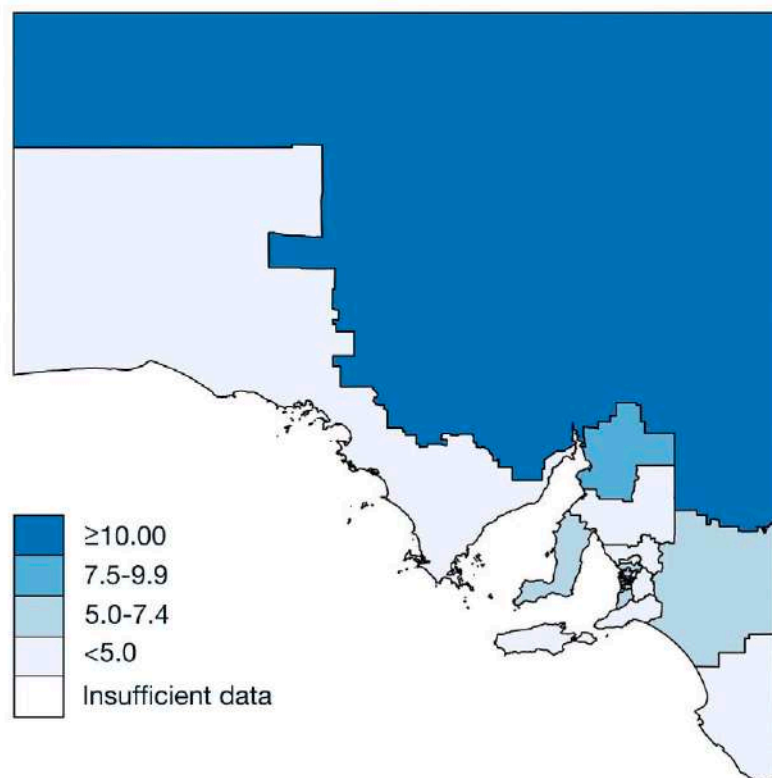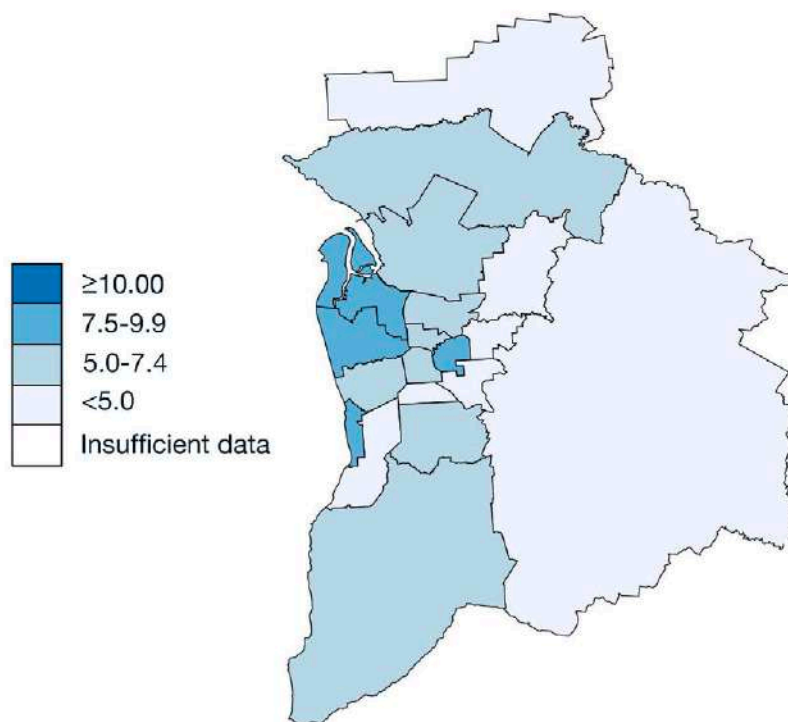
Figure 59 and Figure 60. Hobart and Tasmania: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
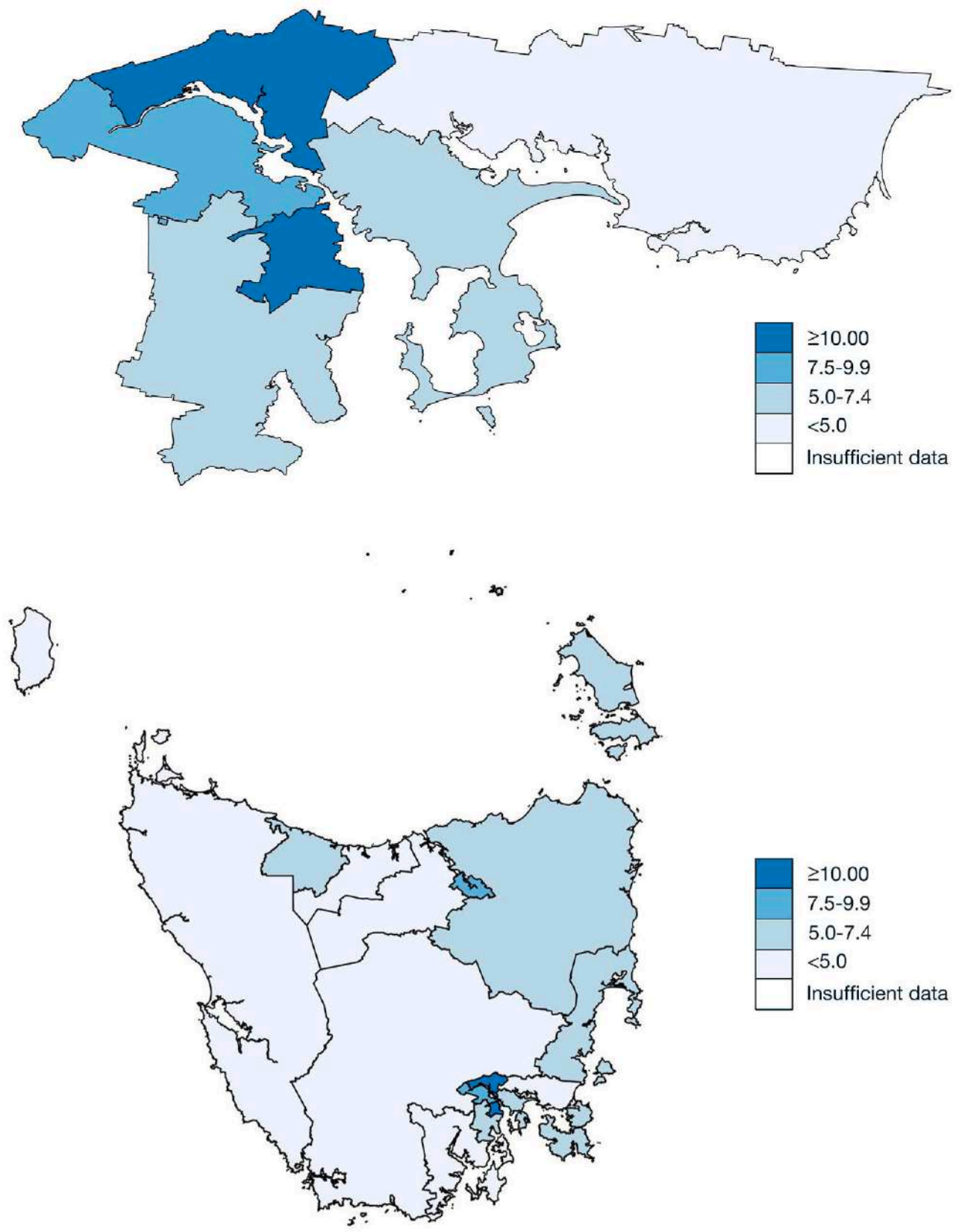
Figure 61 and Figure 62. Darwin and NT: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
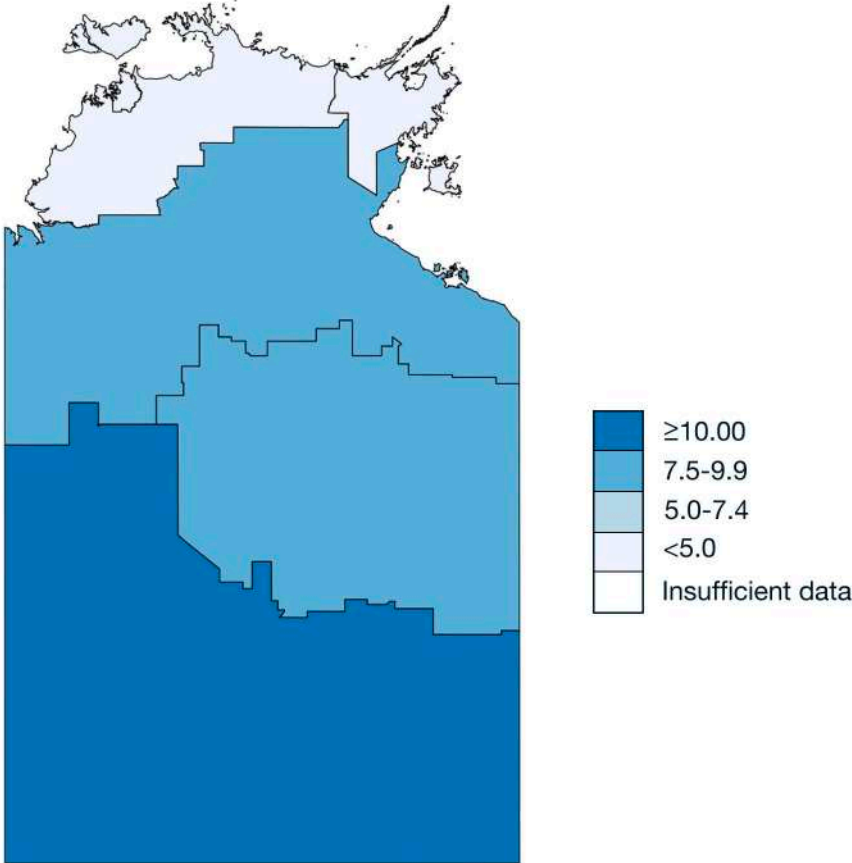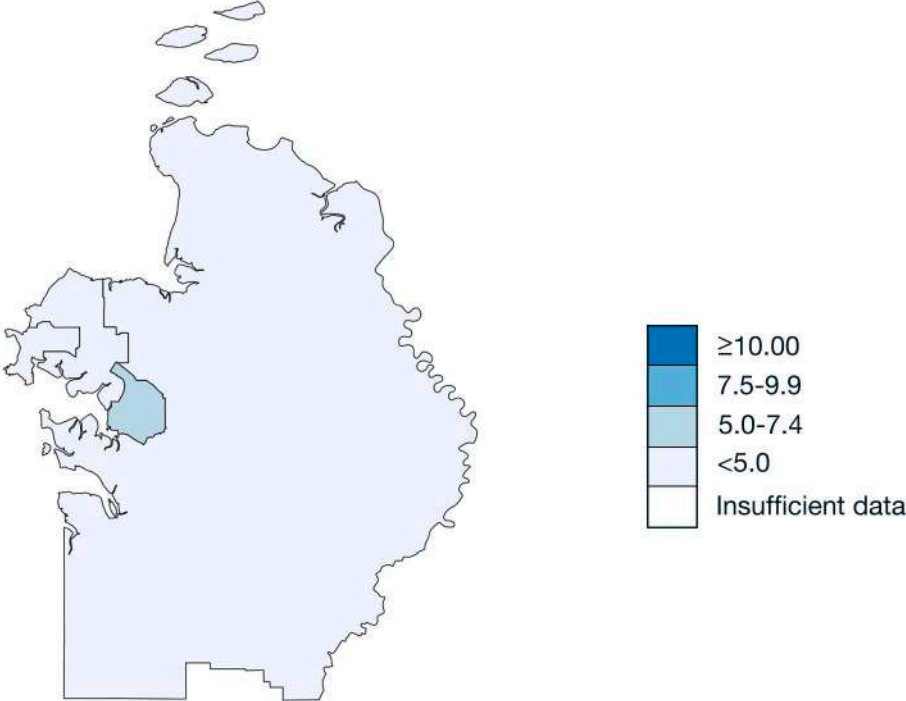
Figure 63. ACT: Unintentional drug-induced deaths 2014-2018 (Statistical Area 3), rate per 100,000 population
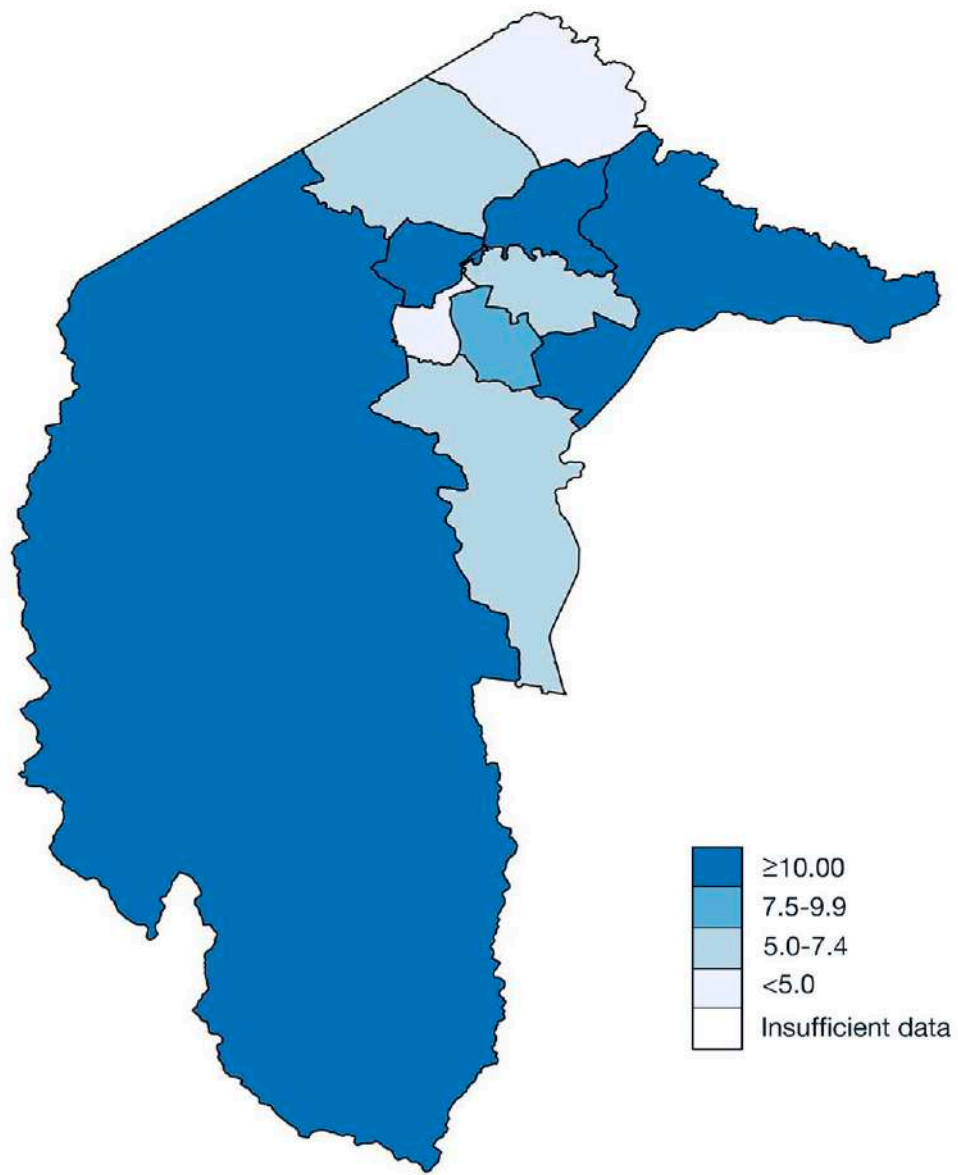
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9. Appendix 1 – data cubes for figures

9.1. Data cubes for Chapter 4

Data for Figure 2. Number of drug-induced deaths in Australia, compared with other causes of death, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	2,244	2,274	2,070
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	1,744	1,722	1,556
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	1,345	1,269	1,220
Car crashes	1,047	1,032	997	835	881	894	858	829	853	840	793	788	726	718	762	771	733	678

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 3. Number of drug-induced deaths in Australia, by drug type, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Opiods	506	483	456	461	498	442	610	745	856	871	888	886	883	1,101	1,167	1,267	1,309	1,130
Cocaine	30	15	10	15	17	16	19	24	30	17	16	26	22	17	48	37	52	64
Cannabinoids	32	29	12	16	24	38	46	58	68	74	92	93	77	152	212	268	363	363
Benzodiazepines	252	264	225	209	249	249	371	406	519	557	540	618	580	710	706	805	974	899
Anti-epileptics	2	4	2	2	2	4	6	1	3	1	0	1	3	4	24	80	139	174
Anti-depressants	194	249	154	190	200	270	282	314	374	336	333	386	376	472	502	521	644	591
Anti-psychotics	9	11	5	12	20	52	53	71	71	106	90	41	31	52	189	305	356	318
Stimulants	60	63	36	61	79	90	99	112	103	110	115	174	175	285	352	500	535	501
Alcohol	206	215	164	175	178	182	265	307	368	346	352	345	318	398	401	371	421	435

Note: 2017 and 2018 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 2018 by drug type

	All drug-induced deaths	Unintentional drug-induced deaths
All opioids	1130	900
Benzodiazepines	899	648
All Pharmaceutical Opioids	647	457
Anti-depressants	591	382
Stimulants	501	442
Oxycodone, morphine, codeine	484	321
Heroin	438	402
Alcohol	435	322
Anti-psychotics	318	223
Cannabinoids	363	328
Fentanyl, pethidine, tramadol	243	189
Methadone	225	207
Anti-convulsants	174	128
Specified anti-convulsants and sedatives	107	65
Cocaine	64	61
Other sedatives	16	12
Succinimides and oxazolidinediones	7	6

Data for Figure 5. Unintentional drug-induced deaths compared with all drug-induced deaths, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	2,244	2,274	2,070
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	1,744	1,722	1,556

Note: 2017 and 2018 data are preliminary, and likely to rise.

9.2. Data cubes for Chapter 5

Data for Figure 6. Unintentional drug-induced deaths by state, 2001-2018, presented as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NSW	5.8	5.2	4.9	5.0	4.9	5.4	5.0	5.1	5.5	5.6	5.8	5.6	5.9	7.0	7.4	7.3	7.6	6.6
Vic	4.2	4.4	5.2	5.5	4.8	4.4	4.4	6.3	5.6	5.5	5.6	3.8	5.0	5.9	6.3	6.9	6.4	5.5
Qld	5.2	3.7	3.3	4.4	3.9	3.5	4.4	4.4	5.6	6.9	6.4	6.3	5.7	6.1	6.8	6.9	6.3	5.8
SA	3.4	3.7	4.4	5.7	5.7	3.9	5.7	6.1	7.2	5.8	4.3	6.1	3.9	4.9	4.3	6.5	7.2	4.9
WA	6.1	4.3	3.9	2.7	4.6	4.7	5.3	6.2	6.6	6.7	6.6	6.4	6.2	7.5	8.2	8.7	8.6	8.8
Tas, ACT, NT	4.4	7.4	4.1	4.1	7.3	6.0	6.4	5.4	7.5	5.6	6.7	5.7	5.1	7.0	5.7	8.9	5.8	6.2

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 7. Unintentional drug-induced deaths by drug type, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Stimulants	53	57	34	60	69	78	84	87	90	93	105	139	156	250	313	454	480	442
Cocaine	28	15	10	15	15	13	16	16	24	16	13	19	22	15	41	36	50	61
Benzodiazepines	165	171	148	161	170	162	217	256	324	383	359	382	371	485	474	569	697	648
Opioids	413	375	370	387	407	338	424	552	643	684	684	644	670	853	905	1,028	1,023	900
Cannabinoids	27	26	10	15	21	34	34	48	57	66	79	79	67	131	170	238	319	328
Alcohol	162	162	123	145	136	134	192	216	273	285	278	252	232	309	296	287	324	322
Anti-convulsants	4	0	1	0	2	4	2	2	2	0	0	0	0	1	11	62	101	128
Anti-psychotics	5	5	1	6	11	31	26	30	36	50	52	21	15	28	109	201	238	223
Anti-depressants	103	128	73	124	117	143	141	165	191	186	187	196	213	288	288	324	398	382

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 8 – Unintentional drug-induced deaths by age group, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
0-19	36	16	18	20	15	15	11	16	14	21	14	16	11	13	12	13	13	13
20-29	212	172	174	160	160	132	146	172	159	155	166	128	139	131	129	157	151	137
30-39	242	217	219	227	213	191	240	279	308	318	335	306	303	342	393	394	388	355
40-49	192	188	182	221	239	212	213	238	287	313	304	316	330	404	452	473	487	419
50-59	106	131	120	126	158	155	176	197	246	255	236	229	243	320	319	353	363	337
60-69	91	86	78	86	96	93	111	111	136	116	135	122	111	165	144	209	166	166
70 +	102	93	110	128	102	154	144	157	131	147	129	120	139	137	163	145	154	129

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 9. Unintentional drug-induced deaths by sex, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	701	635	640	685	683	676	707	834	910	927	937	813	877	1,040	1,138	1,237	1,226	1,112
Female	280	268	261	283	300	276	334	337	371	398	382	424	399	473	474	507	496	444

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 10. Unintentional drug-induced deaths by drug type and Indigenous status, for NSW, Qld, SA, WA, NT, 2014-2018 data aggregated

	Opioids	Cannabinoids	Benzodiazepines	Anti-convulsants	Anti-depressants	Anti-psychotics	Stimulants	Alcohol
Indigenous	244	77	115	15	61	36	146	81
Non-Indigenous	2,983	666	1,712	182	1,048	472	1,157	991

Note: 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 11. Unintentional drug-induced deaths by Indigenous status 2001-2018, 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	2018
Indigenous	19.3	13.7	13.1	12.3	11.2	10.4	13.6	12.9	9.5	15.4	15.3	14.8	14.7	15.8	18.5	20	19.3	17.3
Non-Indigenous	4.9	4.1	4.0	4.3	4.4	4.2	4.6	4.8	5.6	5.7	5.5	5.5	5.3	6.1	6.6	6.6	6.7	6.0

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 12. Unintentional drug-induced deaths by socio-economic status, data aggregated from 2014-2018

SEIFA IRSAD Decile	1	2	3	4	5	6	7	8	9	10
Number of deaths	1,110	865	907	772	807	778	718	678	823	592

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

Data for Figure 13. Unintentional drug-induced deaths by drug type and socio-economic status, percentage distribution across quintiles, 2014-2018 aggregated

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Heroin	18.6	15.5	20.0	22.9	21.3
Oxycodone, morphine, codeine	23.0	22.3	20.5	16.6	16.9
Methadone	25.4	19.7	18.8	18.3	16.4
Fentanyl, pethidine, tramadol	28.2	25.6	18.9	13.1	12.7
Cocaine	14.8	12.8	19.7	19.2	32.5
Cannabinoids	23.3	22.0	20.7	17.0	15.8
Benzodiazepines	21.8	20.2	20.5	18.6	18.0
Anti-convulsants	21.9	21.2	22.2	18.3	16.0
Anti-depressants	22.6	21.4	21.1	17.5	16.8
Anti-psychotics	23.7	19.9	19.4	18.5	18.0
Stimulants	23.6	20.7	19.2	18.8	16.1
Alcohol	21.4	19.6	20.7	18.0	18.8

Note: Quintile 1 is the most disadvantaged and Quintile 5 is the most advantaged.

Data for Figure 14. Unintentional drug-induced deaths by regionality 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	6.7	5.8
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	8.2	7.8	7.3

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 15. Unintentional drug-induced deaths by poly-substance and sole drug use, 2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Sole detection of drug	404	465	436	447	399	483	532	500	505	370	335
Sole detection of alcohol	64	81	77	68	66	67	93	83	89	79	69
Two drug types	233	215	267	271	277	227	248	251	245	208	169
Three drug types	125	164	170	142	152	156	203	223	246	257	207
Four or more substances	99	158	147	154	149	163	261	303	421	564	582

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data in this table indicate the number of deaths with each specified drug recorded. Drug types are not mutually exclusive and deaths with multiple drugs present will be included in more than one category. As a result, categories cannot be summed to obtain the total number of drug-induced deaths.

9.3.　　Data cubes for Chapter 6

Data for Figure 16. Unintentional drug-induced deaths by opioid type, 2001-2018

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Opium	2	0	0	0	3	2	0	0	0	0	0	0	0	4	13	2	0	0
Heroin	101	90	142	133	122	67	109	157	176	198	190	149	195	218	280	380	389	402
Oxycodone, morphine, codeine	168	169	135	158	169	170	191	267	295	309	272	283	269	419	416	449	412	321
Methadone	95	90	61	77	95	85	99	117	126	140	155	156	155	165	190	226	214	207
Fentanyl, pethidine, tramadol	14	7	14	6	16	12	9	16	18	38	57	84	126	158	193	207	225	189

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 17. Unintentional drug-induced deaths by state for each opioid type, 2001-2018, 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	2018
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	1.3	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	2.4
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	0.9	0.9
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	1.0	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	2.1	2.8
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	0.4	1.6

Oxycodone / morphine / codeine

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	1.6	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	1.1
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	1.8	1.9	1.4
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	1.5	0.5
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	2.9	1.6
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	2.4	1.0	1.3

Methadone

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	1.1	1.0	1.2
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	0.7
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	0.6	0.6
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	1.0	0.3
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	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	0.3	0.7	1.0

Fentanyl / pethidine / tramadol

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	0.9	0.6
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	0.6	0.5	0.6
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	1.5	0.8
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	1.0	1.1	0.1
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	1.0	1.8
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	0.7	0.7

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 18. Unintentional drug-induced deaths, by opioid type and age group, 2014-2018 data aggregated

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Heroin	11	166	519	462	225	44	
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, 2014-2018 data aggregated

	Male	Female
Heroin	1,335	334
Methadone	662	340
Pharmaceutical opioids	1,807	900

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

Data for Figure 20. Unintentional drug-induced deaths by opioid type, 2001-2018, 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	2018
Heroin	73	76	119	116	94	58	93	132	143	165	156	116	171	156	228	309	296	312
Oxycodone, morphine, codeine	111	117	95	113	101	110	133	180	203	187	170	164	161	259	262	280	267	186
Methadone	68	62	50	53	65	61	76	81	89	107	104	110	120	115	122	143	139	129
Fentanyl, pethidine, tramadol	9	5	10	5	13	10	8	8	9	21	23	38	67	59	89	116	118	105

Outside of capital cities

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heroin	28	14	23	17	28	9	16	25	33	33	34	33	24	62	52	71	93	90
Oxycodone, morphine, codeine	57	52	40	45	68	60	58	87	92	122	102	119	108	160	154	169	145	135
Methadone	27	28	11	24	30	24	23	36	37	33	51	46	35	50	68	83	75	78
Fentanyl, pethidine, tramadol	5	2	4	4	4	4	1	8	9	17	34	46	59	99	104	91	107	84

Note: 2017 and 2018 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, 2008-2018

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Heroin only	80	88	102	100	69	96	88	104	118	74	59
Pharmaceutical opioids only	54	73	68	69	59	84	116	103	88	54	35
Opioids and benzodiazepines	185	242	306	261	296	295	401	405	493	594	562
Opioids and alcohol	117	140	144	142	120	113	151	148	139	178	177
Opioids, benzodiazepines and alcohol	42	49	70	52	58	63	85	79	80	105	115
Opioids and other pharmaceuticals	117	118	123	145	145	165	235	256	370	476	471

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 22. Unintentional drug-induced deaths involving benzodiazepines by state 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	2.7	2.5
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	3.2	3.2	2.8
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	2.0	2.7	2.2
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	1.5	1.8	0.9
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	4.0	4.1
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	2.7

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 23. Unintentional drug-induced deaths involving benzodiazepines by age group, 2014-2018 data aggregated

Age group	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Number of deaths	16	303	811	947	584	167	45

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

Data for Figure 24. Unintentional drug-induced deaths involving benzodiazepines by sex, 2014-2018 data aggregated

Sex	Male	Female
Number of deaths	1,926	947

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

Data for Figure 25. Unintentional drug-induced deaths involving benzodiazepines by regionality, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	2.5	2.8	2.5
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	2.9	2.7

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 26. Unintentional drug-induced deaths involving stimulants by state 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	1.9	1.5
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	2.1	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	1.6	1.6	1.3
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	1.7	0.9
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	3.0	3.3
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	1.9

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 27. Unintentional drug-induced deaths involving stimulants by age group, 2014-2018 data aggregated

Age group	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Number of deaths	24	284	661	647	275	47	4

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

Data for Figure 28. Unintentional drug-induced deaths involving stimulants by sex, 2014-2018 data aggregated

Sex	Male	Female
Number of deaths	1,470	469

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

Data for Figure 29. Unintentional drug-induced deaths involving stimulants by regionality, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	2.0	1.8
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	1.9	1.6

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 30. Unintentional drug-induced deaths involving anti-depressants by state 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NSW	0.6	0.5	0.5	0.7	0.6	0.8	0.5	0.7	0.5	0.6	0.8	0.6	1.0	0.8	1.0	1.2	1.2	1.3
Vic	0.3	0.6	0.6	1.0	0.7	0.5	0.6	0.9	0.9	0.9	0.8	0.8	0.9	1.5	1.1	1.4	1.8	1.8
Qld	0.5	0.6	0.1	0.3	0.2	0.4	0.4	0.4	0.7	0.8	0.9	1.2	1.1	1.7	1.6	1.9	1.8	1.2
SA	0.2	0.5	0.1	0.6	0.8	0.6	1.7	1.3	1.9	1.2	0.2	0.9	0.4	0.9	0.4	0.8	1.1	0.1
WA	1.2	1.1	0.2	0.3	0.6	1.1	0.8	1.2	1.2	1.4	1.2	1.4	0.7	1.4	2.1	1.1	2.8	2.8
Tas, ACT, NT	0.5	1.7	0.1	0.4	1.5	1.3	1.6	1.0	1.7	0.7	0.8	0.7	0.9	1.0	0.7	1.3	0.9	2.1

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 31. Unintentional drug-induced deaths involving anti-depressants by age group, 2014-2018 data aggregated

Age group	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Number of deaths	8	125	409	550	412	141	35

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

Data for Figure 32. Unintentional drug-induced deaths involving anti-depressants by sex, 2014-2018 data aggregated

Sex	Male	Female
Number of deaths	971	709

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

Data for Figure 33. Unintentional drug-induced deaths involving anti-depressants by regionality, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Capital cities	0.6	0.7	0.4	0.7	0.6	0.8	0.8	0.8	0.9	0.9	0.7	0.8	0.8	1.1	1.2	1.2	1.5	1.4
Outside of capital cities	0.4	0.6	0.3	0.4	0.5	0.6	0.5	0.7	0.9	0.8	1.1	1.0	1.1	1.5	1.3	1.7	1.8	1.8

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 34. Unintentional drug-induced deaths involving cannabinoids by state 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
NSW	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.5	0.6	0.9	1.1	1.2
Vic	0.0	0.1	0.0	0.1	0.1	0.3	0.2	0.2	0.1	0.2	0.4	0.3	0.2	0.5	1.1	1.3	1.8	1.5
Qld	0.3	0.1	0.1	0.0	0.0	0.0	0.2	0.4	0.6	0.5	0.5	0.6	0.3	0.6	0.7	0.6	0.9	1.1
SA	0.3	0.0	0.3	0.2	0.0	0.1	0.1	0.2	0.0	0.1	0.0	0.2	0.0	0.2	0.1	0.4	1.2	0.3
WA	0.5	0.6	0.2	0.1	0.4	0.6	0.3	0.6	0.6	0.6	1.0	0.9	0.5	1.1	0.9	1.4	1.7	2.3
Tas	0.0	0.4	0.8	0.0	0.0	0.0	0.2	0.2	0.4	0.6	0.2	0.8	0.0	0.0	0.2	0.8	1.0	0.6
NT	0.0	1.5	1.0	0.0	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.0	0.0	1.2	1.6	0.8	0.0	1.2
ACT	1.2	0.9	0.9	0.9	0.0	0.0	1.2	0.6	0.0	0.8	0.8	0.0	1.0	0.5	0.5	1.7	1.5	1.4
Tas, ACT, NT	0.4	0.8	0.9	0.3	0.0	0.1	0.5	0.3	0.2	0.6	0.4	0.4	0.4	0.4	0.6	1.1	0.9	1.0

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 35. Unintentional drug-induced deaths involving cannabinoids by age group, 2014-2018 data aggregated

Age group	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Number of deaths	17	157	364	412	205	30	1

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

Data for Figure 36. Unintentional drug-induced deaths involving cannabinoids by sex, 2014-2018 data aggregated

Sex	Male	Female
Number of deaths	880	306

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

Data for Figure 37. Unintentional drug-induced deaths involving cannabinoids by regionality, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Capital cities	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.5	0.7	1.0	1.3	1.2
Outside of capital cities	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.4	0.4	0.3	0.7	0.7	1.0	1.3	1.5

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 38. Unintentional drug-induced deaths involving anti-convulsants by state, 2012-2018, as a rate per 100,000 population

	2012	2013	2014	2015	2016	2017	2018
NSW	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Vic	0.0	0.0	0.1	0.0	0.3	0.5	0.5
Qld	0.0	0.0	0.0	0.1	0.4	0.8	1.1
SA	0.0	0.0	0.0	0.0	0.4	0.1	0.2
WA	0.0	0.0	0.0	0.1	0.5	0.9	1.0
Tas, ACT, NT	0.0	0.0	0.0	0.0	0.0	0.6	0.5

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 39. Unintentional drug-induced deaths involving anti-convulsants by regionality, 2012-2018, as a rate per 100,000 population

	2012	2013	2014	2015	2016	2017	2018
Capital cities	0.0	0.0	0.0	0.0	0.3	0.4	0.5
Outside capital cities	0.0	0.0	0.0	0.1	0.3	0.5	0.6

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 40. Unintentional drug-induced deaths involving anti-psychotics by state, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	0.7	0.9	0.9
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	1.1	1.3	0.9
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	1.0	0.8	0.8
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	0.6	0.0
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	1.2	1.6
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	0.3	1.2

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 41. Unintentional drug-induced deaths involving anti-psychotics by regionality, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	1.0	0.9
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	0.9	0.9	0.9

Note: 2017 and 2018 data are preliminary, and likely to rise.

9.4.   Data cubes for Chapter 7

Data for Figure 42. Unintentional drug-induced deaths by regionality in New South Wales, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	7.0	6.0
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	9.1	8.9	7.9

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 43. Unintentional drug-induced deaths by drug type in greater Sydney and regional NSW, 2001-2018, 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	2018
Amphetamines	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	1.0	1.2	1.7	1.8	1.4
Benzodiazepines	1.0	1.0	1.0	1.3	0.8	1.0	1.0	0.7	1.1	1.3	1.3	1.5	1.9	1.8	1.9	1.9	2.4	2.4
Other Pharmaceuticals	0.7	0.6	0.5	0.8	0.7	1.2	0.7	0.9	0.6	0.7	0.7	0.7	1.0	0.8	1.5	1.3	1.8	1.6
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	1.4	1.4
Pharmaceutical Opioids	0.8	1.0	0.8	0.8	0.8	1.0	0.8	1.0	1.2	0.8	1.0	0.8	1.3	2.0	2.2	1.7	2.0	1.5

Regional NSW

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Amphetamines	-	-	-	-	0.5	0.6	-	-	-	-	-	1.1	0.5	1.0	1.3	2.6	2.5	2.1
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	2.6	3.6	3.1
Other Pharmaceuticals	0.6	0.5	0.4	0.7	0.4	0.8	0.5	0.6	0.8	0.8	1.4	0.8	1.5	1.4	1.3	2.5	2.2	2.8
Heroin	0.8	-	0.4	-	0.3	-	-	-	0.5	0.4	0.4	0.6	0.3	0.7	0.5	1.2	1.5	1.0
Pharmaceutical Opioids	1.3	1.1	1.0	0.8	1.0	1.1	0.9	0.7	1.2	1.5	1.7	1.7	2.2	3.7	3.1	3.6	3.0	2.7

Note: 2017 and 2018 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 44. Unintentional drug-induced deaths by regionality in Victoria, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	6.5	5.5	5.0
Regional Victoria	4.0	4.4	5.0	4.8	5.7	5.0	4.5	6.6	6.6	5.7	6.3	4.6	5.5	8.3	7.8	8.2	9.8	7.6

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 45. Unintentional drug-induced deaths by drug type in greater Melbourne and regional Victoria, 2001-2018, 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	2018
Amphetamines	np	0.2	np	0.4	0.5	0.4	0.5	0.4	0.6	0.4	0.5	0.4	0.7	1.1	1.5	2.2	2.0	2.0
Benzodiazepines	0.5	0.8	1.2	1.5	1.0	0.8	1.3	1.5	1.7	1.9	2.1	1.6	1.7	2.4	2.5	3.4	2.9	2.7
Other Pharmaceuticals	0.4	0.6	0.7	1.1	0.8	0.5	0.7	0.9	0.8	1.0	1.0	0.8	1.0	1.3	1.4	2.4	2.2	2.3
Heroin	0.9	1.3	2.1	2.0	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	2.7
Pharmaceutical Opioids	0.6	0.6	1.0	1.4	0.8	0.8	1.3	1.8	1.3	1.2	1.2	0.9	1.0	1.7	1.8	2.4	1.2	1.4

Regional Victoria

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Amphetamines	-	-	-	-	-	-	-	-	-	-	0.7	0.7	0.5	1.4	2.3	2.1	2.7	2.3
Benzodiazepines	-	1.0	0.8	-	1.2	1.2	0.8	1.9	1.5	2.1	1.7	2.0	2.3	4.1	3.1	3.0	5.0	3.9
Other Pharmaceuticals	-	0.6	0.5	0.8	1.1	0.9	1.0	1.4	1.6	1.3	1.5	1.3	1.3	2.7	2.0	3.1	4.8	3.4
Heroin	-	0.7	1.0	0.8	1.4	-	-	0.7	1.2	1.2	1.0	0.7	1.0	2.0	1.7	1.9	3.1	2.2
Pharmaceutical Opioids	-	0.9	0.8	0.8	1.0	1.0	0.8	2.0	1.2	2.2	1.4	2.0	2.5	2.9	3.2	3.6	3.0	2.6

Note: 2017 and 2018 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 46. Unintentional drug-induced deaths by regionality in Queensland, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	6.0	6.2	5.3
Regional Qld	6.0	3.6	3.3	4.8	4.0	3.8	4.4	4.7	6.0	6.4	6.4	7.2	6.4	6.5	7.6	7.8	6.6	6.3

Note: 2017 and 2018 data are preliminary, and likely to rise.

Data for Figure 47. Unintentional drug-induced deaths by regionality in Western Australia, 2001-2018, as a rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
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	7.0	7.5	8.7	9.0	8.7
Regional WA	6.0	-	-	-	5.5	4.5	4.7	8.5	8.0	7.2	7.5	6.7	6.0	9.1	10.9	8.8	6.9	9.3

Note: 2017 and 2018 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