AUSTRALIA'S ANNUAL OVERDOSE REPORT

A PENINGTON INSTITUTE REPORT
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2023

We acknowledge with gratitude the Advisory Committee and thank them for their guidance and support for this report:

- Professor Emeritus Olaf Drummer
- Associate Professor Shaun Greene
- Professor John Kaldor
- Professor Jenny Williams
- Mr Scott Wilson

We thank Craig Brady, Lauren Moran, Lipan Rahman, Louisa Logovik, Rebecca Adsett, Fiona Khoo and Hannah Jung from the Australian Bureau of Statistics for preparing the raw data that underpin this report.

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This report contains reference to suicide, self-harm behaviours, mental health disorders, overdose and family violence, which may be distressing to some readers.

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1. *Foreword*

JOHN RYAN
CEO
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The Australian drug overdose toll continues its deadly march, with a fatal overdose occurring every four hours. First Nations people have long been drastically overrepresented in the mounting toll, and their unintentional overdose rate is now more than triple that of the non-Indigenous population. So many Australians – 2,231 individuals in 2021 – have lost their lives to a cause we know is preventable.

Unintentional overdose death has far outpaced our population growth over the past two decades. Patterns continue to evolve: stimulants and benzodiazepines are increasingly involved in fatal overdose. Of particular concern, overdose deaths in Australia that involve dangerous synthetic opioids like fentanyl have been increasing.

We started producing Australia's Annual Overdose Report eight years ago to make sure the people who had overdosed were counted (in every sense of the word), and that their lost lives would motivate Australia to do better to prevent unnecessary deaths into the future. Despite some positive developments, the response has been wholly inadequate compared to the scale of the problem. Repeated calls for a comprehensive evidence-based response to this crisis barely register in our policies and discourse about drugs.

Broader naloxone distribution, more careful management and monitoring of opioid prescriptions, and improved early warning systems about contaminated drug supplies are some of the important initiatives worth highlighting since the Overdose Report first held up a mirror to Australia and the then unspoken overdose toll.

However, a continuing challenge in drug policy is the ease with which supply reduction initiatives are introduced compared to harm reduction initiatives. Real time prescription monitoring might unintentionally prevent people from accessing the opioid pain medications that they so desperately need, yet it has been rolled out absent evaluation. Compare this to harm reduction measures which are typically subject to time-consuming evaluations, and then receive meagre funding for implementation, especially when it comes to workforce development and support.

The Commonwealth Government's recent defunding of Penington Institute's *The Bulletin*, notwithstanding a positive external evaluation, not only robs frontline workers around Australia of

the policy and practice support and connections they need to help prevent overdose and other drug harms, but it also silences a voice of reason in relation to drug use issues.

This year, we have seen some encouraging actions from Australian governments and institutions that should reduce overdose risk and support the health of people who use drugs. These have included policy changes and funding to improve access to opioid dependence treatment medicines, particularly eliminating the devastating fees for patients; the consumption room in Melbourne becoming an ongoing overdose prevention service; and a commitment from the Western Australian Police Force for officers to carry the opioid overdose reversal drug naloxone.

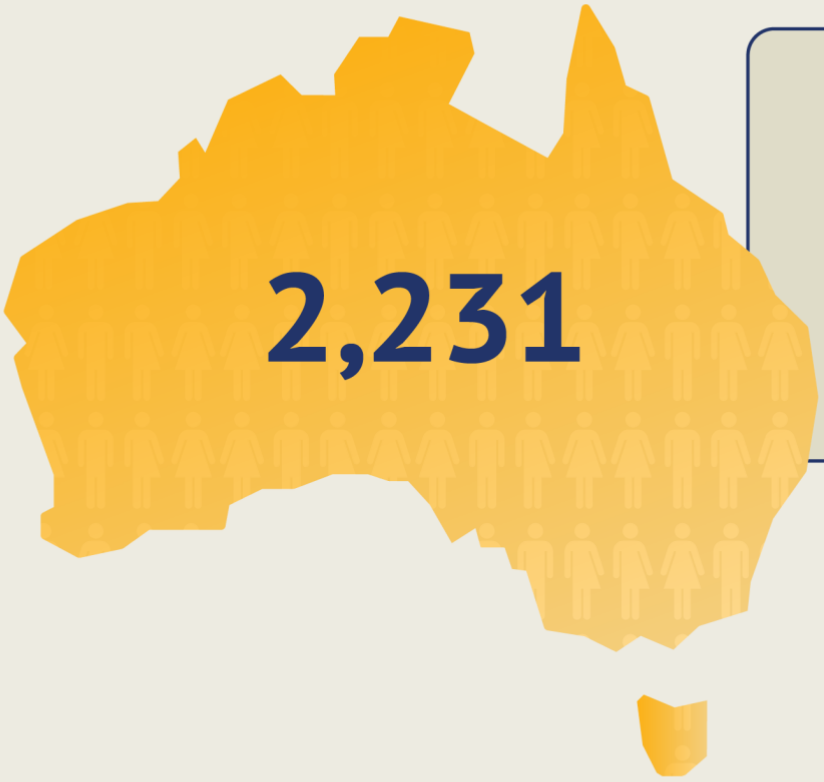
Though these developments can seem piecemeal, they are certainly to be celebrated.

It is not too late to design and deliver an effective and coordinated response to address the overdose crisis we face. Let's remember that we have both the means and the methods. What we need now is the political leadership that can take us towards the development of a comprehensive National Overdose Prevention Strategy to reduce and prevent overdose deaths.

We know overdose is preventable. This year's report reminds us that our task now is to act.

Finally, thank you to the advisory committee and the Penington Institute team, especially Emma Richards and Dr Karen Gelb, for their dedication to the development of this year's Overdose Report.

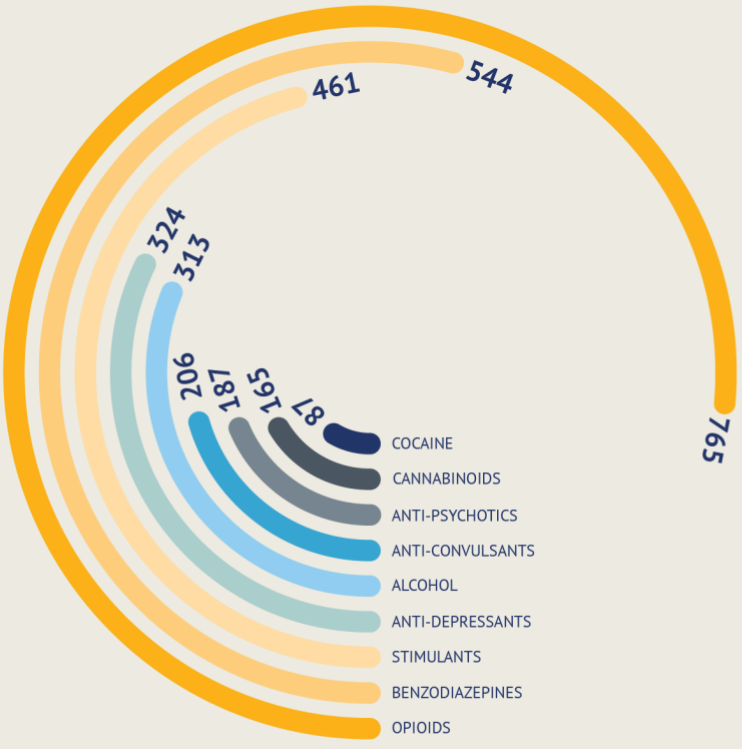
NUMBER OF DRUG-INDUCED DEATHS IN AUSTRALIA IN 2021



UNINTENTIONAL DRUG-INDUCED DEATHS:

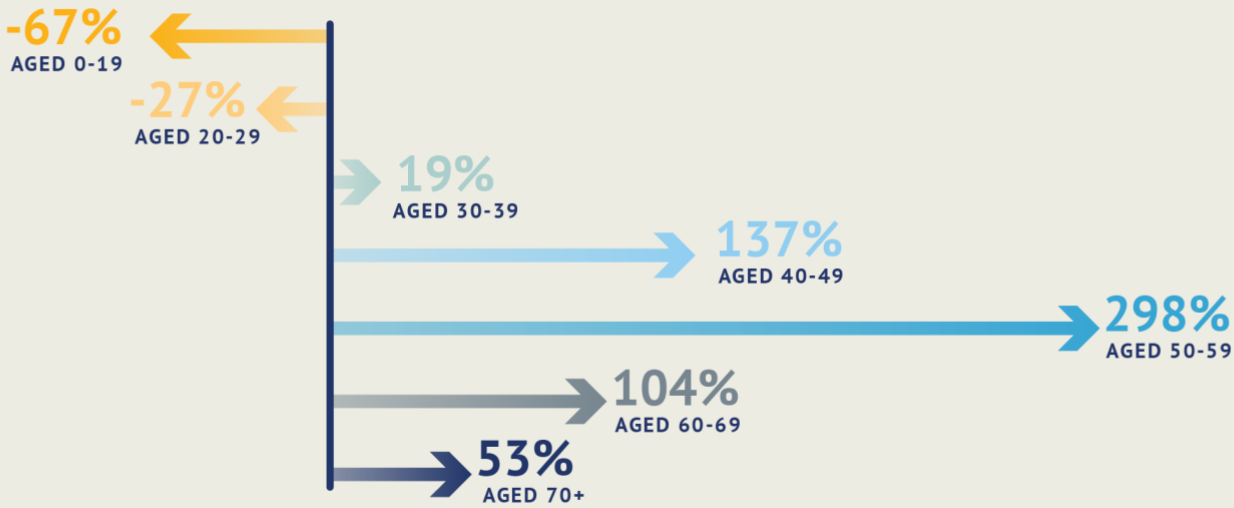
75% OR **1,675** DEATHS

NUMBER OF UNINTENTIONAL DRUG-INDUCED DEATHS BY DRUG TYPE IN 2021

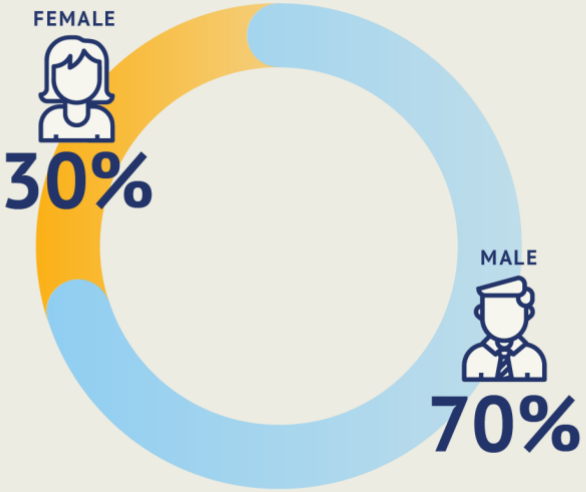


INCREASE IN UNINTENTIONAL DRUG-INDUCED DEATHS COMPARED WITH POPULATION GROWTH FROM 2001–2021

AGE-RELATED TRENDS IN UNINTENTIONAL DRUG-INDUCED DEATHS FROM 2001–2021



MALES ACCOUNTED FOR SEVEN IN TEN UNINTENTIONAL DRUG-INDUCED DEATHS IN 2021



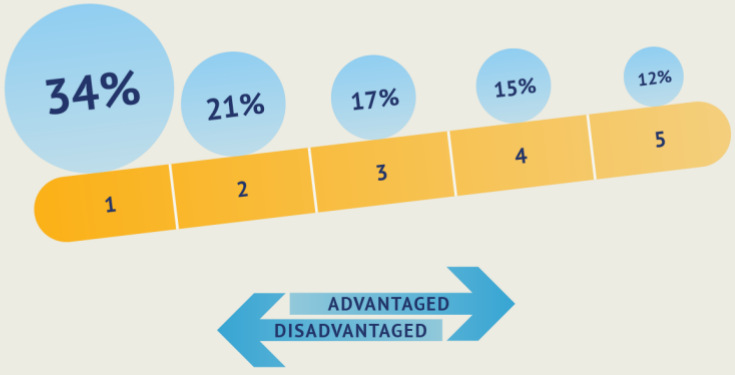
INDIGENOUS AUSTRALIANS HAD A HIGHER RATE OF UNINTENTIONAL DRUG-INDUCED DEATHS THAN NON-INDIGENOUS AUSTRALIANS IN 2021

PER 100,000 PEOPLE

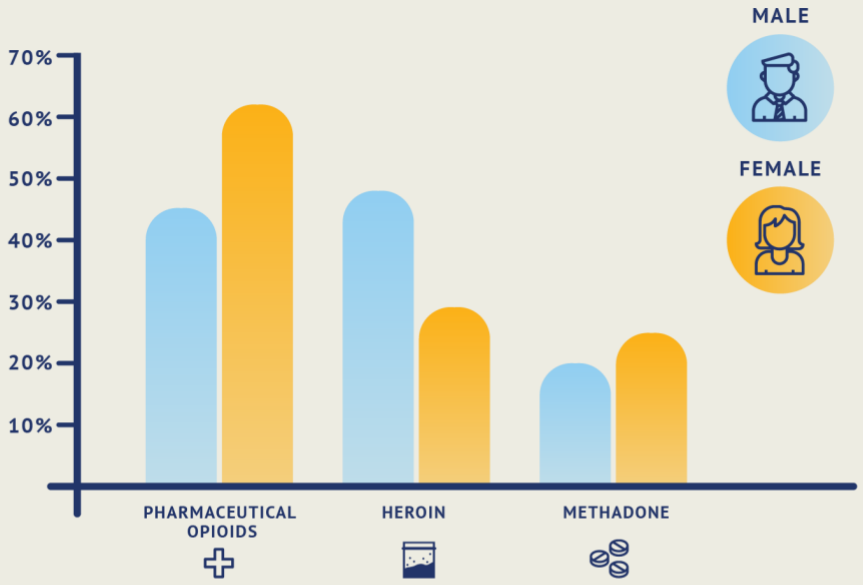
RURAL AND REGIONAL AREAS HAD A HIGHER RATE OF UNINTENTIONAL DRUG-INDUCED DEATHS THAN METRO AREAS IN 2021

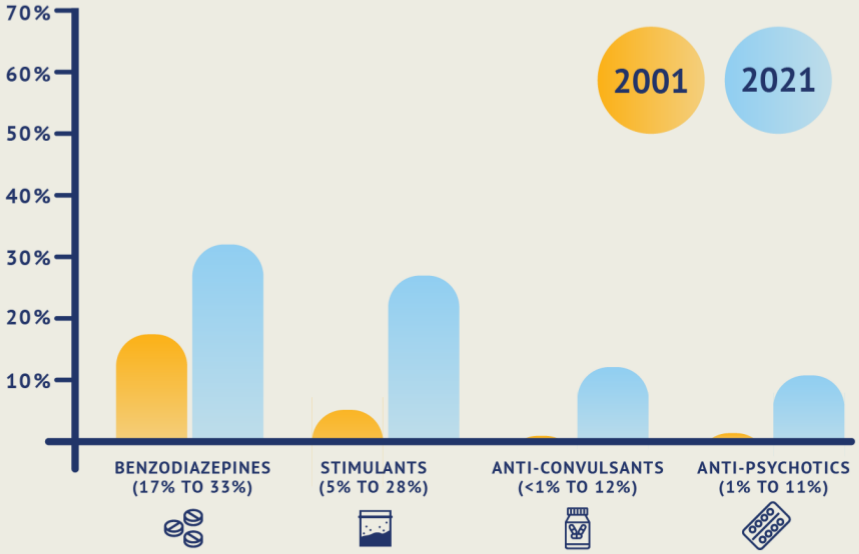
PER 100,000 PEOPLE

ONE-THIRD OF ALL UNINTENTIONAL DRUG-INDUCED DEATHS OCCURRED AMONG RESIDENTS FROM THE MOST DISADVANTAGED AREAS FROM 2017–2021



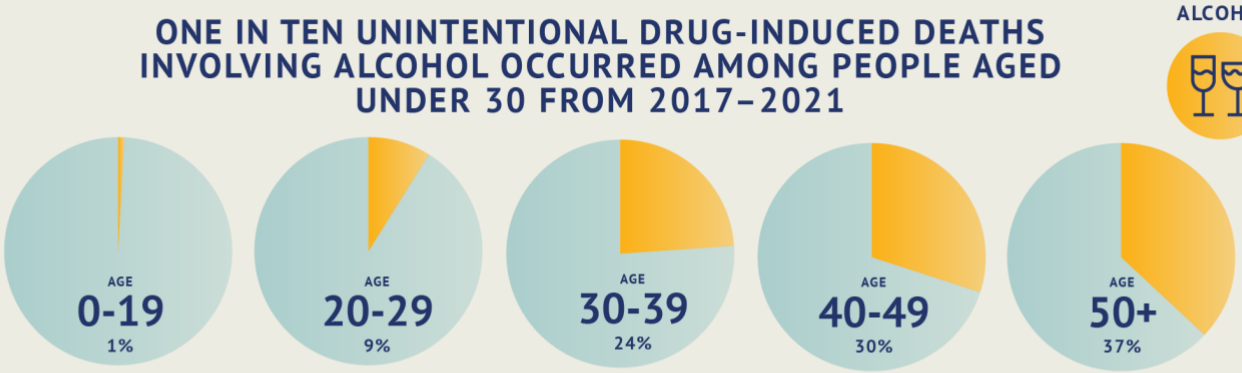
UNINTENTIONAL DRUG-INDUCED DEATHS INVOLVING OPIOIDS BY SEX AND OPIOID TYPE FROM 2017–2021



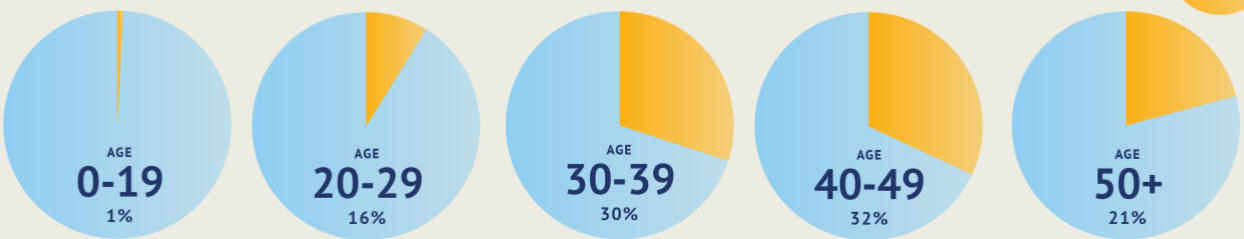


THE PROPORTION OF UNINTENTIONAL DRUG-INDUCED DEATHS INVOLVING BENZODIAZPINES, STIMULANTS, ANTI-CONVULSANTS AND ANTI-PSYCHOTICS HAS INCREASED FROM 2001–2021

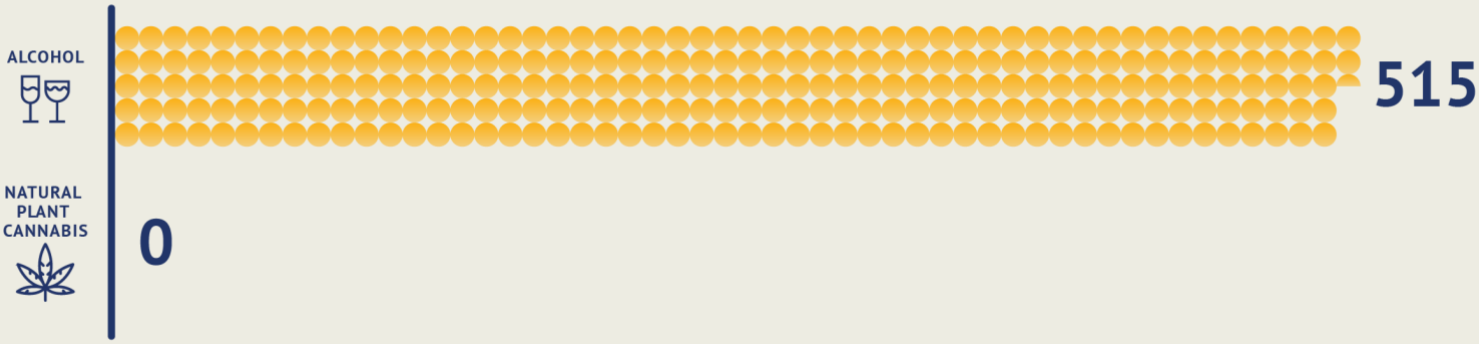
ONE IN TEN UNINTENTIONAL DRUG-INDUCED DEATHS INVOLVING ALCOHOL OCCURRED AMONG PEOPLE AGED UNDER 30 FROM 2017–2021



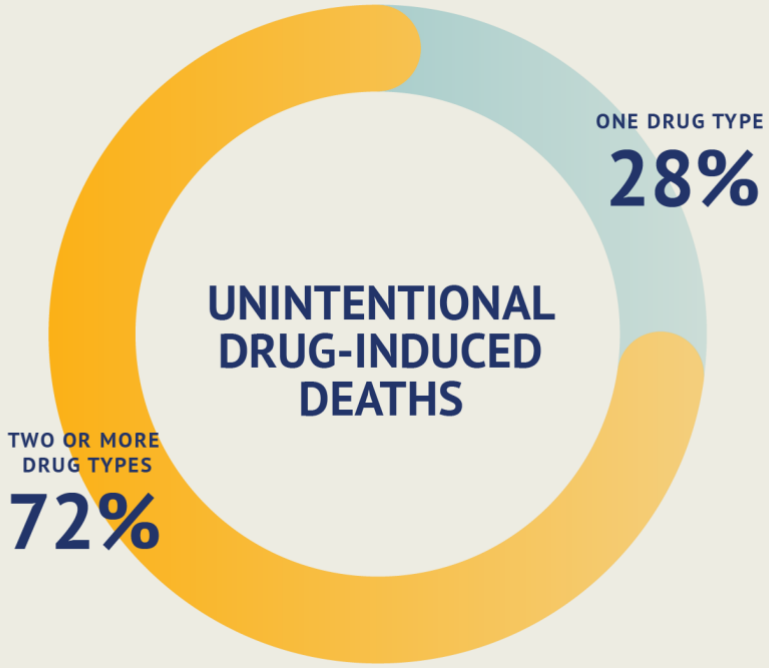
ONE IN FIVE UNINTENTIONAL DRUG-INDUCED DEATHS INVOLVING STIMULANTS OCCURRED AMONG PEOPLE AGED 50 AND OLDER FROM 2017–2021



NUMBER OF SINGLE DRUG DEATHS; ALCOHOL AND NATURAL PLANT CANNABIS FROM 2017–2021

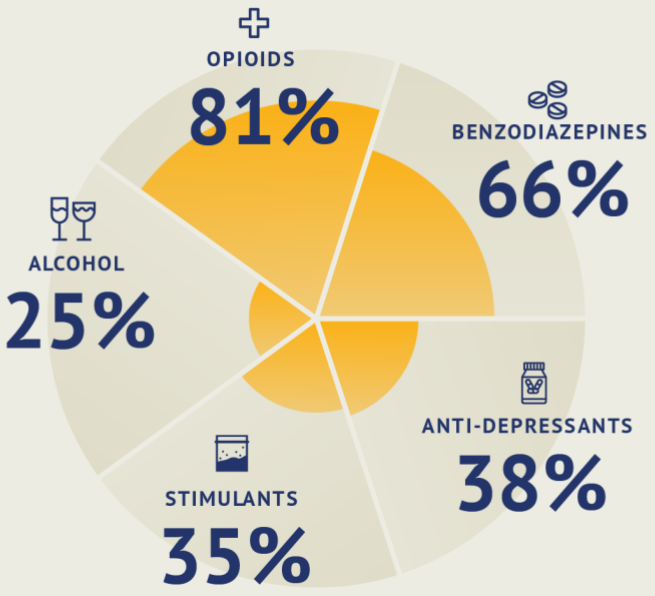


UNINTENTIONAL DRUG-INDUCED DEATHS



SEVEN IN TEN UNINTENTIONAL DRUG-INDUCED DEATHS INVOLVED TWO OR MORE DRUG TYPES FROM 2017–2021

DRUG TYPES MOST COMMONLY INVOLVED IN POLY-SUBSTANCE DEATHS FROM 2017–2021



2. *Executive summary*

The number of Australians who die from drug overdose each year continues its long-term rise, with 37,000 drug-induced deaths since 2001. *Australia's Annual Overdose Report 2023* presents a wide range of detailed data on these deaths, with a focus on unintentional drug-induced deaths.[1] As there are far more non-fatal than fatal drug overdoses in Australia every year, this report also presents a snapshot of non-fatal drug- and alcohol-related harm (including non-fatal overdose).

There were 2,231 drug-induced deaths reported in Australia in 2021, representing 66,792 years of life lost, with an average of 32 years of life lost per death. Of these deaths, 1,675 were unintentional. The annual number of unintentional drug-induced deaths surpassed the road toll in 2014; the gap between the two has continued to widen ever since. The increase in the number of unintentional drug-induced deaths has also surpassed population growth. Since 2001, the national population of Australia has increased by 32.9% while the number of unintentional drug-induced deaths has grown by 70.7%.

Drug overdose is a leading cause of death for Australians of all ages. For both men and women aged 20-29, drug-induced deaths were the third-leading cause of death in 2021 behind suicide and land transport accidents. For those aged 30-39, drug-induced deaths were the second-leading cause of death behind suicide for both men and women. Drug-induced deaths were again the third-leading cause of death in the 40-49 age group for both men and women.

Intentional drug-induced deaths also exact a substantial toll on the Australian community, with 469 such deaths in 2021. Since 2012, the rate of intentional drug-induced death in rural and regional Australia has increased substantially, overtaking the rate in capital cities. The largest increases in these fatal overdoses over time are seen among older Australians, with people aged over 60 accounting for more than one-third (39.5%) of all such deaths in 2021.

Unintentional drug-induced deaths are not evenly distributed through our communities. Among Indigenous Australians, the rate of unintentional drug-induced death continues to be far higher than for non-Indigenous Australians: in 2021, their rate of unintentional drug-induced deaths was 20 per 100,000 population, compared with 5.9 for non-Indigenous people. Residents of rural and regional parts of the country, and those from low socio-economic areas are also over-represented in such deaths, as are men. While unintentional drug-induced deaths were most common among those aged 40-49 in 2021, almost half of all such deaths were seen among people aged 50 and above.

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

Australians aged 50 and above account for the greatest increase in unintentional drug-induced deaths since 2001. In contrast, deaths involving people aged below 30 have decreased over time.

Deaths associated with multiple drug types are far more common than those associated with a single type of drug. Over the five years to 2021, more than two-thirds of all unintentional drug-induced deaths involved two or more drug types (72.5%). The drug types most commonly involved in poly-substance deaths during the five year period were opioids (involved in 81% of such deaths), benzodiazepines (66%), anti-depressants (38%), stimulants (35%), and alcohol (25%).

Unintentional poly-substance deaths were most commonly seen among middle-aged people regardless of sex, although notable sex differences may be seen among the older age cohorts. Two-thirds (66.0%) of unintentional deaths among females aged 50-59 involved poly-substance use, compared to 50.6% of such deaths among males. For those aged 60-69, poly-substance deaths accounted for 51.8% of unintentional drug-induced deaths among females and 32.1% among males. Similarly, these deaths accounted for 21.8% of unintentional drug-induced deaths among females aged 70 and over and 9.5% among males.

Opioids continue to be the most common drug type detected in unintentional drug-induced deaths in Australia. There are clear sex differences in the type of opioid most commonly detected in unintentional drug-induced deaths involving opioids. Among males, these deaths are equally as likely to involve heroin (involved in 47.9% of such deaths) and pharmaceutical opioids (47.0%). Among females, however, unintentional opioid-related deaths are far more likely to involve pharmaceutical opioids (61.8%) than heroin (28.8%).

Key findings relating to individual drug types for unintentional drug-induced deaths in 2021 include:

- Opioids contributed to 45.7% of unintentional drug-induced deaths (765 such deaths).
- Benzodiazepines contributed to 32.5% of unintentional drug-induced deaths (544 such deaths).
- Stimulants contributed to 27.5% of unintentional drug-induced deaths (461 such deaths).
- Anti-depressants contributed to 19.3% of unintentional drug-induced deaths (324 such deaths).
- Alcohol contributed to 18.7% of unintentional drug-induced deaths (313 such deaths).
- Anti-convulsants and neuropathic pain modulators contributed to 12.3% of unintentional drug-induced deaths (206 such deaths).
- Anti-psychotics contributed to 11.2% of unintentional drug-induced deaths (187 such deaths).
- Cannabinoids contributed to 9.9% of unintentional drug-induced deaths (165 such deaths).

Despite their prominence among unintentional overdose deaths in 2021, the proportion of unintentional deaths involving opioids has remained relatively stable over time, typically accounting for just under half of these deaths. In comparison, the proportion of unintentional deaths involving benzodiazepines has increased from 16.8% in 2001 to 32.5% in 2021, while the number of unintentional deaths involving stimulants has increased from just 5.4% in 2001 to 27.5% in 2021.

Non-fatal drug- and alcohol-related harm (including non-fatal overdose) continues to take a significant toll on our communities. In 2020-21, there were 151,797 drug- and alcohol-related hospitalisations in Australia, or 415 episodes per day. These accounted for 1.3% of all hospitalisations for any reason during the year. There were at least 162,874 drug- and alcohol-related ambulance attendances recorded for the year.[2] Alcohol accounted for the overwhelming majority of drug- and alcohol-related ambulance attendances (56.6%) and hospitalisations (56.9%) in 2021, far outweighing the contribution of any other drug type.

[2] Not all ambulance attendances will result in someone being admitted to hospital. Some will not even result in the person being transported to hospital.

3. *Data sources and status*

This report is about fatal and non-fatal drug-induced overdose in Australia, with a focus on unintentional drug-induced deaths.[3] 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).

Data on drug-induced deaths in this report were sourced from the Australian Bureau of Statistics (ABS) in a customised report provided in April 2023.[4] Data on drug- and alcohol-related hospitalisations were sourced from the Australian Institute of Health and Welfare's National Hospital Morbidity Database.[5] This database captures data on the number of hospitalisations where the principal diagnosis relates to a substance use disorder or direct harm due to selected substances.[6] Data on drug- and alcohol-related ambulance attendances were sourced from the National Ambulance Surveillance System (NASS), via the Australian Institute of Health and Welfare.[7] Monthly data for 2021 are currently available for New South Wales, Victoria, Queensland, Tasmania, and the Australian Capital Territory.[8] More information on the data underpinning this report, including definitions and methods used in preparing the report, is presented in Appendix 1.

3.1. *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.[9]

[3] Drug-induced deaths deemed to be homicide, suicide or of undetermined intent are not included in unintentional drug-induced deaths.
[4] Full explanatory notes for the most recent cause of death data are available via ABS (2022). *Causes of death, Australia.*
[5] The National Hospital Morbidity Database is part of the AIHW's National Hospitals Data Collection.
[6] ICD-10 codes in the categories 'mental and behavioural disorders due to psychoactive substance use' and 'poisoning by drugs, medicaments and biological substances'. See further: Australian Institute of Health and Welfare (2023). *Alcohol, tobacco and other drug use in Australia: Health impacts.*
[7] Data for the National Ambulance Surveillance System (NASS) are compiled by Turning Point in partnership with Monash University and are sourced from paramedic electronic patient care records provided by Australian state and territory-based ambulance services. NASS data are available via Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia.*
[8] Some data for Tasmania and the Australian Capital Territory have been suppressed due to low numbers.
[9] Further information on the status of the data is available in Appendix 1 – technical specifications.

Current numbers for 2020 and 2021 should be considered preliminary. Based on past reporting, the number of deaths for 2020 and 2021 is expected to rise. Comparing 2019 data between the 2021, 2022 and 2023 reports, numbers have increased on average by approximately 7.3% as they move from preliminary to finalised, with the increase from preliminary to revised typically larger than the subsequent increase from revised to finalised. 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. For example, current data for unintentional drug-induced deaths show 1,796 such deaths in 2020 and 1,675 in 2021. Applying projections based on the average increase as the numbers move from preliminary to revised to finalised, next year's report will likely show approximately 1,819 unintentional drug-induced deaths in 2020 and 1,791 in 2021.

As 2020 and 2021 data are not yet finalised, in graphs depicting a time-series, data for 2020 and 2021 are represented as being to the right of a dashed vertical line on the graph.

Overdose and the COVID-19 pandemic

The impact of the COVID-19 pandemic has been profound. In Australia, interventions aimed at reducing virus transmission – border closures, restrictions on social movement, lockdowns and increased police power – caused major disruptions to everyday life. These measures were in place from June 2020 to October 2020 in most Australian jurisdictions and were re-instated in New South Wales and Victoria from June 2021. Border and travel restrictions had substantial impacts on some drug markets, particularly those involving cocaine, MDMA, heroin and methylamphetamine. Wastewater analysis shows the total estimated consumption of these four drug types decreased by 4.7 tonnes from August 2020 to August 2021; national methamphetamine and MDMA consumption is estimated to have reduced by 21% and 53%, respectively. In contrast, the cannabis market remained strong despite COVID-related restrictions, with record-high levels of consumption recorded in regional and capital city sites in August 2021.[10]

Restrictions associated with the pandemic affected people's drug use behaviours and led to an increase in psychological stressors. High levels of unemployment, economic stress, educational disruption, and social isolation led to a decline in population mental health,[11] particularly among young people, females, and those with prior mental health challenges.[12] Prescriptions for psychotropic drugs (including anti-depressants, anti-psychotics, and psychostimulants) increased significantly compared with pre-pandemic trends.[13] Alcohol sales increased significantly between

[10] Australian Criminal Intelligence Commission (2022). *National Wastewater Drug Monitoring Program: Report 15.* Canberra: ACIC.

[11] Dawel, A., Shou, Y., Smithson, M., Cherbuin, N., Banfield, M., Calear, A. L., et al. (2020). The effect of COVID-19 on mental health and wellbeing in a representative sample of Australian adults. *Frontiers in Psychiatry*, *11*, 579985; Griffiths, D., Sheehan, L., van Vreden, C., Petrie, D., Whiteford, P., Sim, M. R., & Collie, A. (2022). Changes in work and health of Australians during the COVID-19 pandemic: a longitudinal cohort study. *BMC Public Health*, *22*(1), 487.

[12] Zhao, Y., Leach, L. S., Walsh, E., Batterham, P. J., Calear, A. L., Phillips, C., et al. (2022). COVID-19 and mental health in Australia–a scoping review. *BMC Public Health*, *22*(1), 1-13; Butterworth, P., Schurer, S., Trinh, T. A., Vera-Toscano, E., & Wooden, M. (2022). Effect of lockdown on mental health in Australia: evidence from a natural experiment analysing a longitudinal probability sample survey. *The Lancet Public Health*, *7*(5), e427-e436; Australian Institute of Health and Welfare (2021). COVID-19 and the impact on young people.

[13] Wood, S. J., Ilomäki, J., Gould, J., Tan, G. S., Raven, M., Jureidini, J. N., & Grzeskowiak, L. E. (2023). Dispensing of psychotropic medications to Australian children and adolescents before and during the COVID-19 pandemic, 2013–2021: A retrospective cohort study. *Medical Journal of Australia*; de Oliveira Costa, J., Gillies, M. B., Schaffer, A. L., Peiris, D., Zoega, H., & Pearson, S. A. (2023). Changes in antidepressant use in Australia: A nationwide analysis (2015–2021). *Australian & New Zealand Journal of Psychiatry*, *57*(1), 49-57; Australian Institute of Health and Welfare (2022). *Mental health-related prescriptions.*

2019 and 2021, facilitated by the rise in online delivery and take-away services.[14] According to self-report data, one in five Australians reported increased alcohol use during the pandemic to cope with psychological stress and boredom.[15] Research conducted with people who regularly use drugs found that one in four reported stockpiling illicit drugs due to concerns about the impact of pandemic restrictions on drug availability.[16]

Changes to drug use behaviours – including initiation among novel users, relapse among people who previously used drugs, or increased use whilst in isolation – may have increased the risk of overdose. These issues were further compounded by changes to harm reduction and drug treatment sectors, with some services unable to provide face-to-face contact or take on new clients. Given the timeline of these restrictions, the COVID-19 pandemic is likely to have had some impact on the data presented in this report.

[14] Colbert, S., Wilkinson, C., Thornton, L., & Richmond, R. (2020). COVID-19 and alcohol in Australia: Industry changes and public health impacts. *Drug and Alcohol Review*, *39*(5), 435–4; Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Impacts of COVID-19 on alcohol and other drug use.*

[15] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Impacts of COVID-19 on alcohol and other drug use.*

[16] Peacock, A., Price, O., Dietze, P., Bruno, R., Salom, C., Lenton, S., Swanton R., Uporova, J, et al. (2020). Impacts of COVID-19 and associated restrictions on people who use illicit stimulants in Australia: Preliminary findings from the Ecstasy and Related Drugs Reporting System (EDRS), in National Drug and Alcohol Research Centre 2020. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney; Sutherland, R., Baillie, G., Memedovic, S., Hammoud, M., Barratt, M., Bruno, R., Dietze, P., Ezard, N., Salom, C., Degenhardt, L., Hughes, C. & Peacock, A. (2020). Key findings from the 'Australians' Drug Use: Adapting to Pandemic Threats (ADAPT)' Study. ADAPT Bulletin no. 1. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney.

4. *All drug-induced deaths 2001-2021*

Case study: Stephen

Stephen* was 49 years old when he died. He was a keen motorcycle and car enthusiast; he was a mechanic by trade, and he loved his job. But he sustained a catastrophic work-related injury, which resulted in multiple surgeries and left him unable to work as a mechanic.

Stephen had a history of chronic pain due to injuries sustained during a car accident a decade prior. He was prescribed multiple painkillers, including oxycodone, codeine and pregabalin, which he used for more than a decade prior to his death. He had attended multiple pain management clinics but continued to suffer from pain. After struggling to cope with the breakdown of his relationship, Stephen was also diagnosed with anxiety and was prescribed anti-depressants. Stephen had begun showing signs of opioid dependence and drug-seeking behaviours, including attending multiple doctors' clinics and obtaining large quantities of prescription drugs.

One evening, Stephen was found unresponsive in his home. Toxicological analysis detected the presence of morphine, pregabalin, and amitriptyline in his blood. Apart from the morphine, these medications had been prescribed to Stephen. It was determined that Stephen was likely not informed of the risks associated with the simultaneous use of multiple central nervous system depressants. The concurrent use of these drugs in such large quantities, even without the additional use of diverted morphine, greatly increased the risk of overdose in this case.

*Not his real name

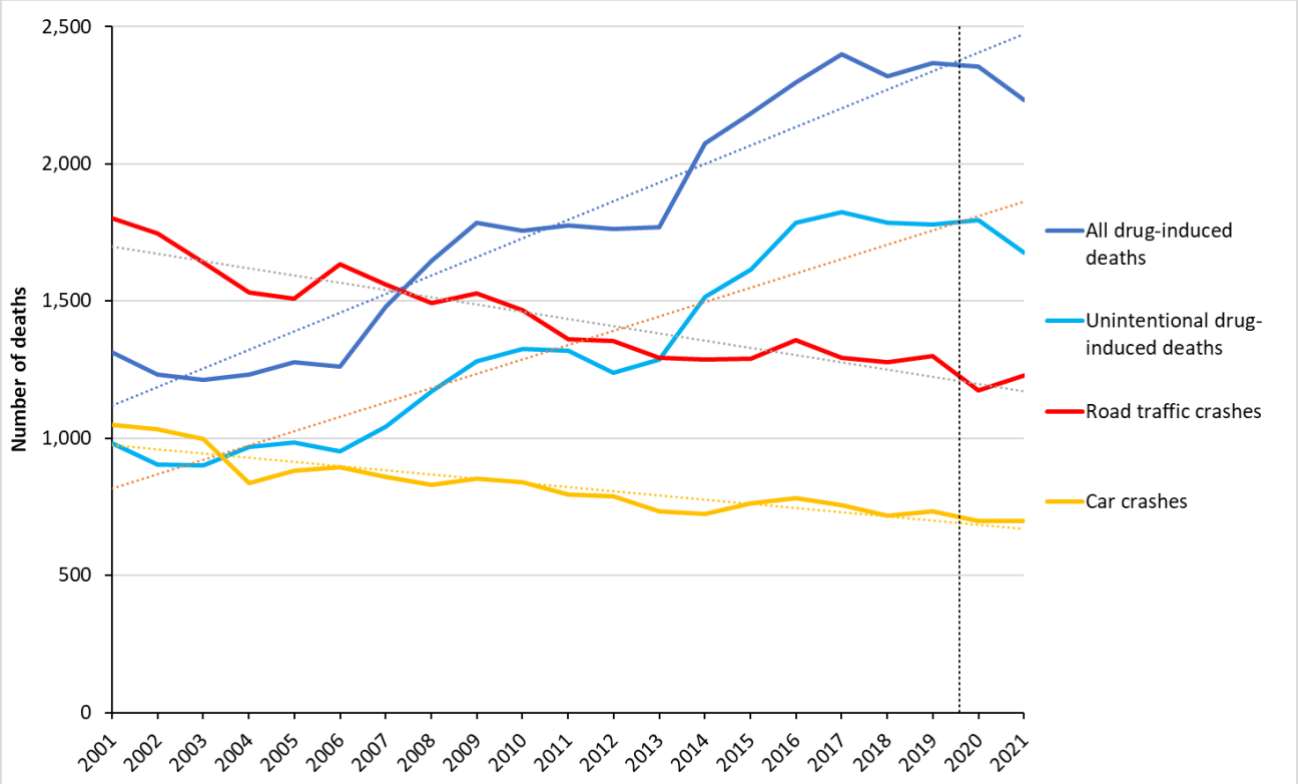
This chapter examines trends and patterns in all drug-induced deaths. While the focus of this report is on *unintentional* drug-induced deaths, this chapter provides context by comparing trends in drug-induced deaths to road traffic crashes (the 'road toll') and car crashes.

In 2021, there were 2,231 drug-induced deaths in Australia. This equates to 66,792 years of life lost, with an average of 32 years of life lost per drug-induced death. As a point of reference, the 2021 rate of all drug-induced deaths in Australia was 8.5 per 100,000 people, compared with 8.4 deaths per 100,000 people in England and Wales in 2021[17] and 32.4 per 100,000 people in the United States in 2021.[18] The current rate of deaths in Australia is equivalent to the rate of deaths in the United States in 2003.[19]

As shown in Figure 1, the number of all drug-induced deaths surpassed the road toll in 2008 and has continued to rise in the years since. In contrast, 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, reaching 1,675 in 2021. Based on the current trends from 2001-2021, both drug-induced deaths and unintentional drug-induced deaths have been increasing on average by 2.9% per year. This would equate to an additional 343 drug-induced deaths by 2026; 257 will likely be unintentional. In contrast, the road toll has decreased on average by 1.8% per year, equating to 107 fewer deaths by 2026.

[17] Office for National Statistics (2022). *Deaths related to drug poisoning in England and Wales.*
[18] Centers for Disease Control and Prevention (2022). *Drug overdose deaths in the United States, 1999-2021.*
[19] Hedegaard, H., Minino, A. and Warner, M. (2022). *NCHS data brief no. 356: Drug overdose deaths in the United States, 1999-2018.* Centers for Disease Control and Prevention.

Figure 1. Number of drug-induced deaths in Australia, compared with road-related deaths, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. 'Road traffic crashes' includes all deaths due to road-related accidents; 'car crashes' includes only those deaths involving an occupant of a car.

To place the impact of drug-induced deaths in a broader context, it is useful to identify the relative rank of the number of these deaths compared with deaths from all causes. Table 1 presents the ranking of drug-induced deaths in 2021 for males and females aged 20 and over.

For both males and females aged 20-29, drug-induced deaths were the third-leading cause of death behind suicide and land transport accidents. For those aged 30-39, drug-induced deaths were the second-leading cause of death behind suicide for both males and females. Drug-induced deaths were again the third-leading cause of death in the 40-49 age group for both males and females, although there was some variation: suicide and ischaemic heart disease were the top two causes of death for males in this age group, while breast cancer and suicide were the top two causes of death for females. Drug-induced deaths ranked sixth for males and eleventh for females aged 50-59, and did not appear in the top 20 rankings for those aged 60 and above.

Table 1. Top three causes of death by age group and sex, 2021

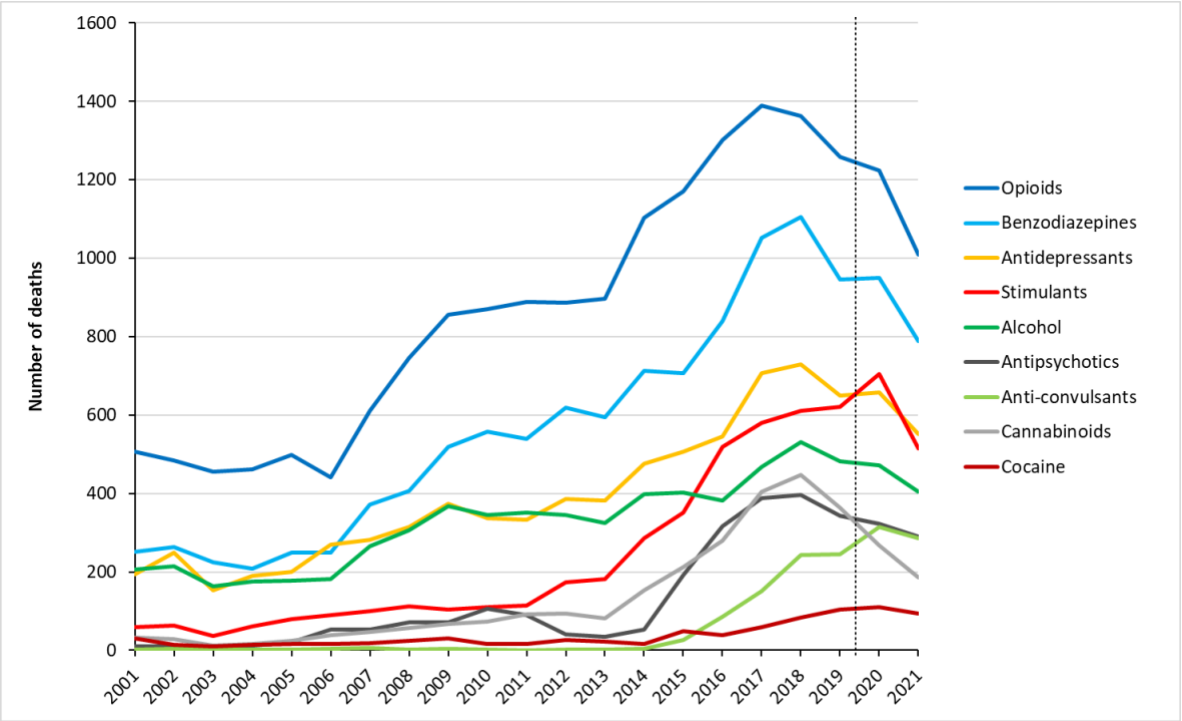
Age	Rank	Males	Females
20-29	1st	Suicide	Suicide
	2nd	Land transport accidents	Land transport accidents
	3rd	Accidental poisoning: drug/alcohol	Accidental poisoning: drug/alcohol
30-39	1st	Suicide	Suicide
	2nd	Accidental poisoning: drug/alcohol	Accidental poisoning: drug/alcohol
	3rd	Land transport accidents	Breast cancer
40-49	1st	Suicide	Breast cancer
	2nd	Ischaemic heart diseases	Suicide
	3rd	Accidental poisoning: drug/alcohol	Accidental poisoning: drug/alcohol
50-59	1st	Ischaemic heart diseases	Breast cancer
	2nd	Lung cancer	Lung cancer
	3rd	Suicide	Ischaemic heart diseases
		Accidental poisoning: drug/alcohol (6th)	Accidental poisoning: drug/alcohol (11th)
60+	1st	Ischaemic heart diseases	Dementia and Alzheimer disease
	2nd	Dementia and Alzheimer disease	Ischaemic heart diseases
	3rd	Lung cancer	Cerebrovascular diseases

Note: 'Land transport accidents' include those involving the death of a person due to any form of land vehicle, whether the person is a vehicle occupant, a rider or a pedestrian. It is a broader category than the road toll as it also includes deaths due to vehicles such as trains and agricultural equipment.

As shown in Figure 2, opioids continued to be the largest drug group identified in drug-induced deaths, followed by benzodiazepines, anti-depressants, and stimulants (including 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 trebled in recent years, from 182 in 2013 to 514 in 2021, while deaths involving anti-psychotics have increased from 35 in 2013 to 289 in 2021.[20] Deaths involving anti-convulsants were rare in the decade prior to 2014, possibly due to limited prescribing of pregabalin in Australia prior to this time.[21] These deaths increased from 26 in 2015 to 286 in 2021.

[20] 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.
[21] Pharmaceutical Benefits Advisory Committee, Drug Utilisation Sub-committee (2014). *Pregabalin: 12 month predicted versus actual analysis.* Canberra: Department of Health.

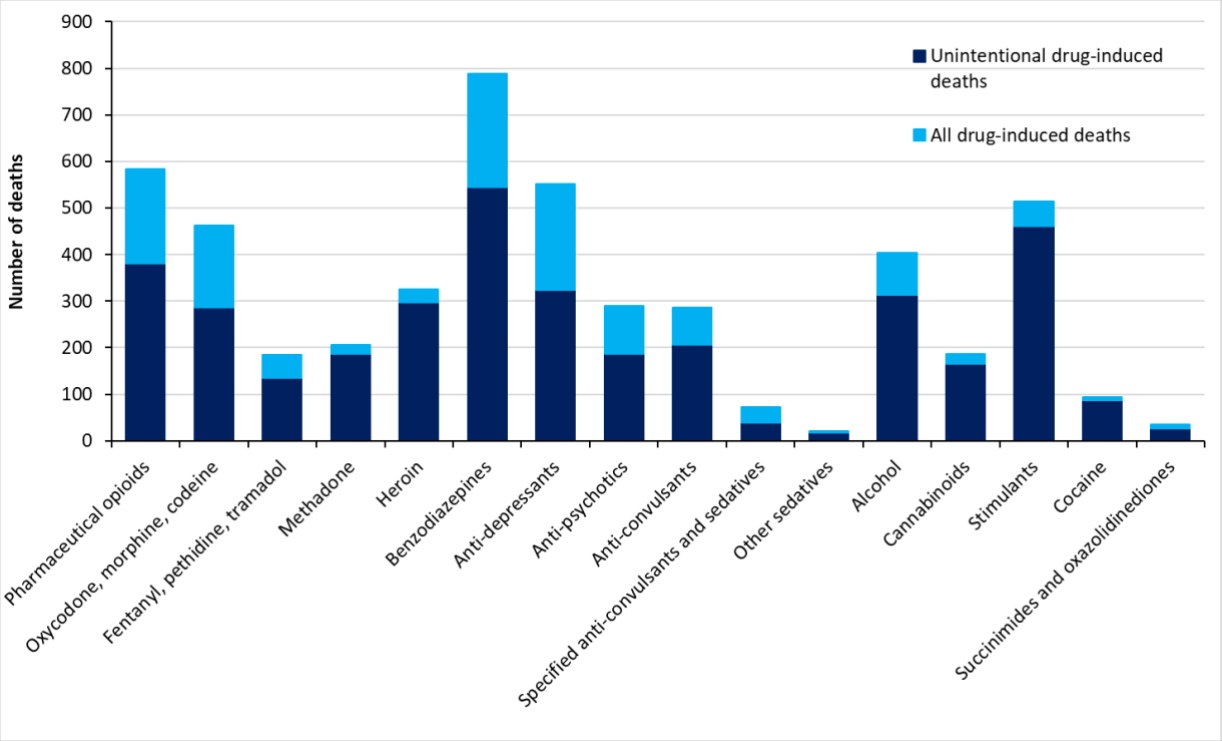
Figure 2. Number of drug-induced deaths in Australia, by drug type, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. Smaller drug groups including other sedatives (including ketamine), and succinimides and oxazolidinediones (including GHB) are not shown on the figure above, due to low numbers.

The proportion of all drug-induced deaths that were unintentional differed by substance type, with percentages ranging from 53.4% to 92.6% in 2021. The drugs with the highest proportion of unintentional drug-induced deaths (compared with total drug-induced deaths) were cocaine (92.6%), heroin (91.1%), methadone (90.3%), and cannabinoids (88.7%). The drugs with the lowest proportions of drug-induced deaths that were unintentional were 'specified anti-convulsants and sedatives' (53.4%), anti-depressants (58.8%) and anti-psychotics (64.7%).

Figure 3. Number of drug-induced deaths in 2021 by drug type: all deaths and unintentional deaths



Note: 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.

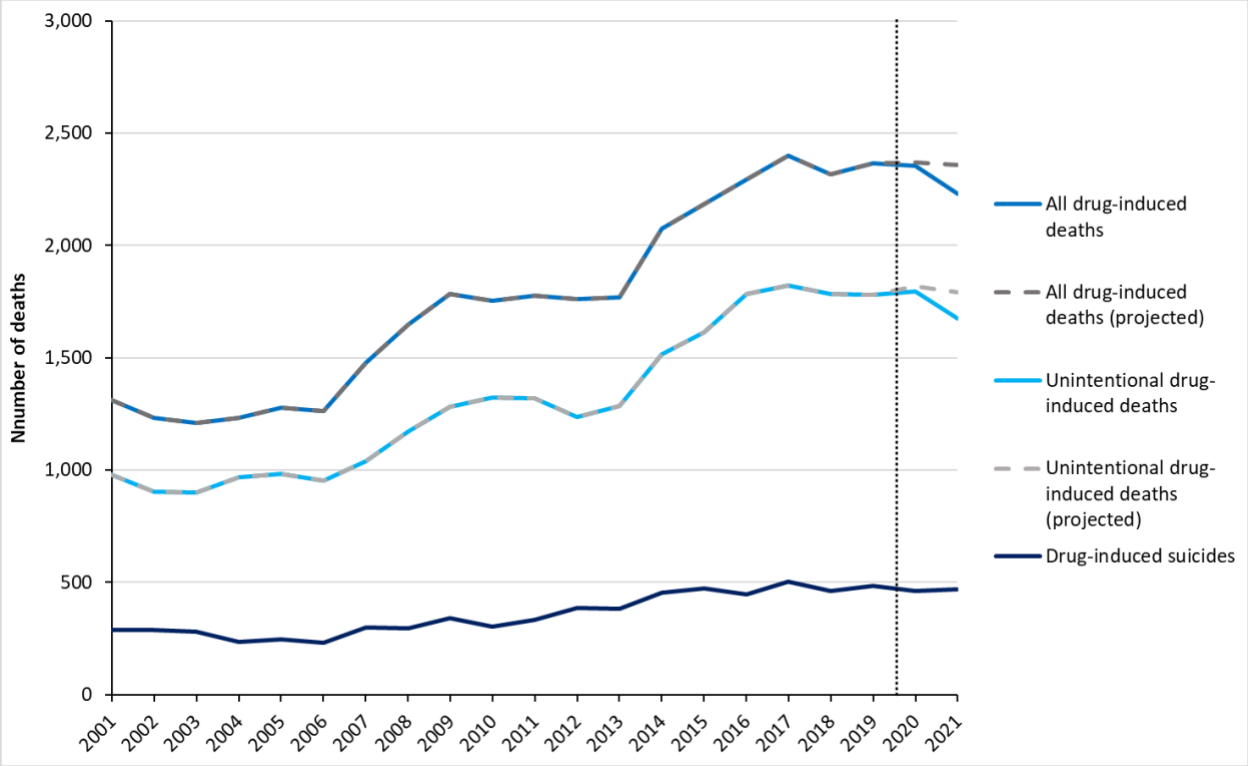
Unintentional drug-induced deaths comprise approximately three-quarters of all drug-induced deaths (Figure 4). This proportion has remained relatively constant between 2001 and 2021 (ranging from 70.2% to 78.6%, with an average of 74.5%). Both are continuing to trend upwards and are increasing more rapidly than the population is growing. From 2001 to 2021, the population of Australia increased by 32.9% (from 19,386,461 people in December 2001 to 25,773,300 in December 2021).[22] In comparison, over the same period the number of all drug-induced deaths has increased by 69.9% (from 1,313 to 2,231), and unintentional drug-induced deaths have increased by 70.7% (from 981 to 1,675).

Applying projections based on the observed increase in the number of deaths as the status of the data progresses from preliminary to revised to finalised,[23] the finalised number of all drug-induced deaths is projected to be 2,368 for 2020 and 2,358 for 2021, while the finalised number of unintentional drug-induced deaths is projected to be 1,819 for 2020 and 1,791 for 2021.

The number of drug-induced suicides – presented in more detail in the following chapter – has increased by 62.3%, from 289 in 2001 to 469 in 2021.[24]

[22] Australian estimated resident population data are available from ABS (2022). *National, state and territory population, December 2021.* Australian Bureau of Statistics.
[23] Further information on the status of the data is available in Appendix 1 – technical specifications.
[24] Prior to 2006, when the ABS moved to the online National Coronial Information System, suicide deaths may have been undercounted.

Figure 4. Number of unintentional drug-induced deaths and drug-induced suicides compared with all (total) drug-induced deaths, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. Data for projecting drug-induced suicides were not available.

5. *Intentional drug-induced deaths 2001-2021*

Case study: Margaret

Margaret* was 67 years old when she died. She had an extensive medical history, having been involved in a motor vehicle accident in her earlier years, resulting in a fractured pelvis, soft tissue injures and a period of hospitalisation. Margaret also suffered from osteoarthritis and osteoporosis, requiring physiotherapy, medication and yearly injections. These injuries left her unable to work and resulted in her early retirement. Margaret suffered from depression for which she was prescribed anti-depressants; she had stopped taking her anti-depressant medication approximately two months prior to her death. She was also diagnosed with insomnia.

Margaret had been prescribed lovan (an anti-depressant), lyrica (to treat neuropathic pain), mobic (a non-steroidal anti-inflammatory), oxycodone (a pharmaceutical opioid), and oxazepam (a benzodiazepine), among other medications used to treat heartburn, bacterial infections, and osteoporosis.

On the evening of her death, Margaret was found unresponsive, slumped over in a chair, with empty medication bottles nearby. A note was found that referenced the difficultly of living with depression and other life stressors.

Toxicological analysis identified a fatal concentration of oxycodone and an elevated concentration of oxazepam in Margaret's blood. The toxicity of these drugs is greatly increased when taken together, resulting in death due to depression of the central nervous system. Alcohol, which is also a central nervous system depressant, was also detected in Margaret's blood.

Margaret was found to have died as a result of self-induced mixed prescription drug toxicity.

*Not her real name

This chapter presents data on intentional drug-induced deaths, referred to as drug-induced suicides. 'Drug-induced suicide' deaths include intentional self-inflicted poisoning by exposure to a range of drug types including legal drugs, illicit drugs and/or alcohol.[25]

As seen in Table 2, the highest numbers of drug-induced suicides in 2021 were reported in Queensland (120 deaths), followed by NSW[26] (112 deaths) and Victoria (102 deaths). However, the highest rates of drug-induced suicide in 2021 were seen in the Australian Capital Territory, with 4 such deaths per 100,000 population, followed by Tasmania (3.1 per 100,000 population), and Queensland (2.1 per 100,000 population).

[25] There is no systematic definition to differentiate intentional from unintentional death, and coroners may not make a finding on intent for various reasons. Care should therefore be taken in interpreting figures relating to intentional self-harm. For more information on the coding of suicide, see ABS (2020). *Deaths due to intentional self-harm (suicide).*

[26] The implementation of JusticeLink in the NSW coronial system in 2012 significantly improved the quality of NSW data in the National Coronial Information System. There has therefore been an increase in the number of drug-induced suicides registered since 2012, coupled with fewer cases of deaths of undetermined intent.

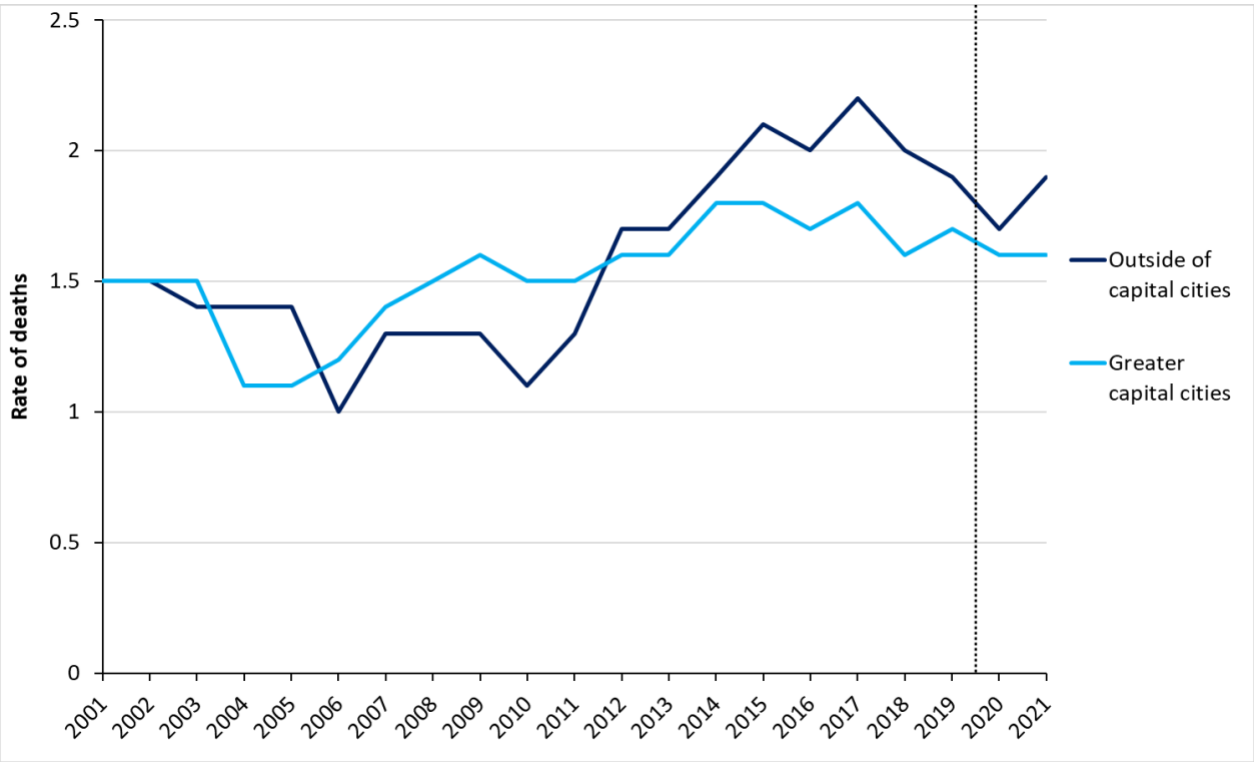
Table 2. Number of drug-induced suicides by state or territory, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
QLD	63	72	65	66	61	64	76	69	75	63	75	87	104	106	132	97	121	117	118	104	120
NSW	86	88	81	67	63	53	89	92	88	86	100	140	107	115	125	124	137	131	124	127	112
VIC	66	75	67	52	58	52	57	59	90	63	78	63	82	107	103	104	111	110	108	106	102
WA	33	18	23	20	21	15	37	30	47	51	38	55	38	55	50	57	59	54	54	48	58
SA	29	19	34	18	27	30	25	32	24	24	27	25	34	39	42	37	44	32	43	37	36
TAS	3	9	5	8	12	7	8	7	11	10	8	11	12	15	13	21	12	9	22	16	20
ACT	3	4	6	1	5	5	4	1	7	3	5	5	4	10	7	1	15	9	17	22	18
NT	4	2	0	0	2	1	4	3	0	2	3	0	1	6	3	4	2	2	0	1	1

Note: 2020 and 2021 data are preliminary, and likely to rise.

As shown in Figure 5, from 2006 to 2011 the rate of drug-induced suicides was proportionally higher in capital city areas than in regional Australia; the regions overtook capital city areas, however, in 2012. Since then, the rate of drug-induced suicides has increased by 11.8% in the regions, while the rate in capital cities has remained relatively stable. Preliminary data suggest the rate of drug-induced suicide outside of capital cities is increasing: in 2021, there were 1.9 drug-induced suicides per 100,000 people in rural and regional areas, compared with 1.6 per 100,000 in the capital cities.

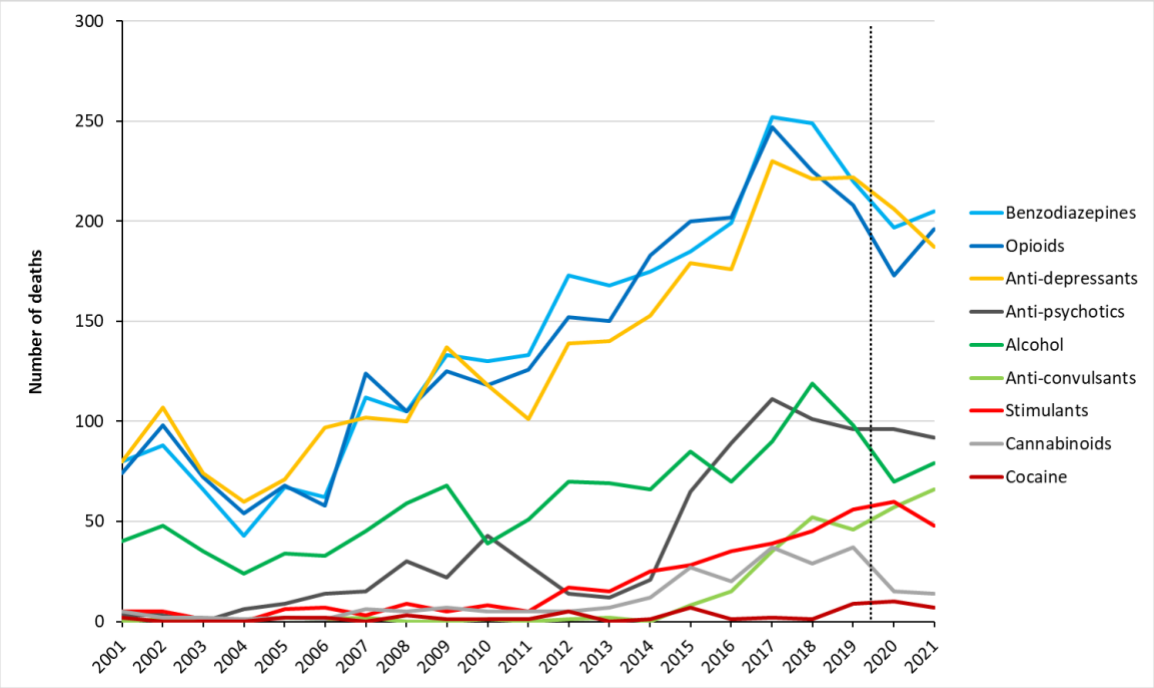
Figure 5. Drug-induced suicides by regionality, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The trends in the number of drug-induced suicides (Figure 6) are similar to those seen for all drug-induced deaths. However, there is a clear demarcation in these data that was less apparent in the data for all drug-induced deaths. For drug-induced suicides, benzodiazepines, opioids, and anti-depressants were far more commonly involved than other drug types. Anti-psychotics were the next most frequently reported drugs involved in drug-induced suicides, with a particularly sharp rise since 2014. The remaining drug types, including alcohol, were less likely to be involved in drug-induced suicides.

Figure 6. Number of drug-induced suicides by drug type, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

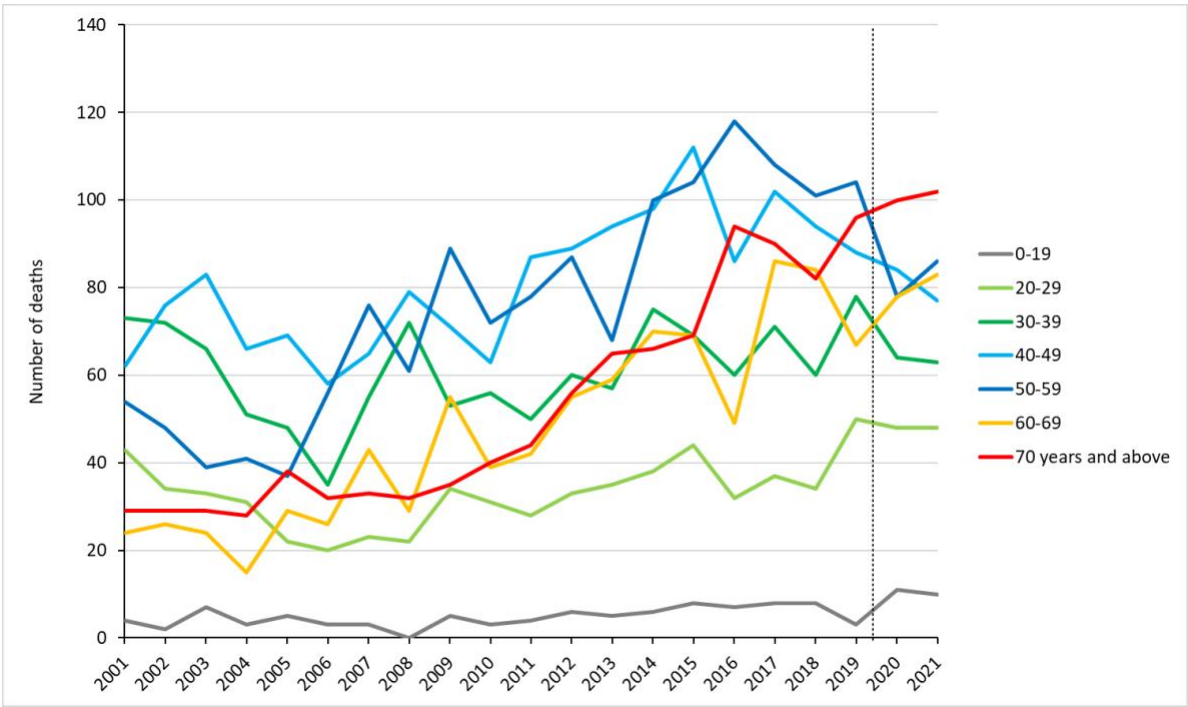
5.1. Demographic patterns in drug-induced suicides

There are distinct age-related patterns in the number of drug-induced suicides in Australia, as shown in Figure 7. In 2021, people aged 70 and above accounted for the highest proportion of drug-induced suicides, with one in five such deaths (21.7% or 201). Drug-induced suicides among this cohort have risen significantly over time from 29 in 2001 to 102 in 2021, with an average annual increase of 15%. Drug-induced suicides among people aged 60-69 have increased at a similar pace, from 24 in 2001 to 83 in 2021. Together, these two groups accounted for almost two in five (39.5%) of all drug-induced suicides in 2021.

Increases in drug-induced suicides are also seen among people aged 50-59 (from 37 in 2005 to 86 in 2021) aged 40-49 (from 58 in 2006 to 77 in 2021).

People below the age of 30 accounted for 12.4% of drug-induced suicides recorded in 2021.

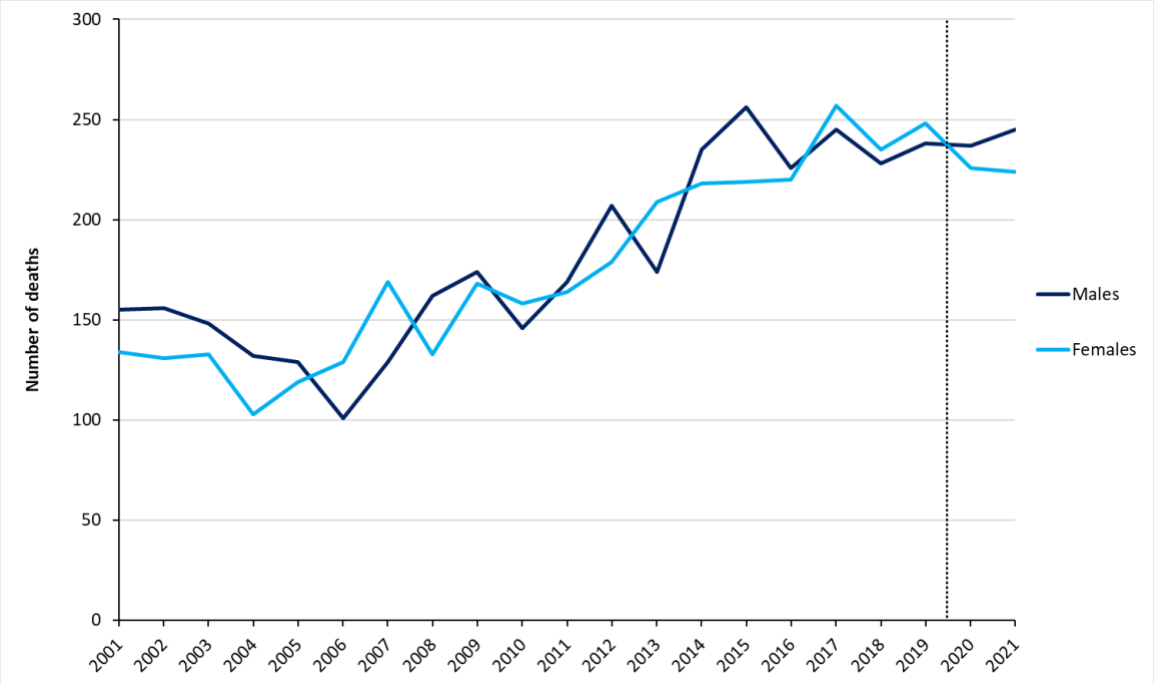
Figure 7. Number of drug-induced suicides by age group, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Unlike unintentional drug-induced deaths, which are seen among males far more commonly than females, trends in drug-induced suicides are very similar for males and females. Figure 8 shows that the number of such deaths increased at about the same pace for both groups. Among males, the number of drug-induced suicides has more than doubled, from a low of 101 in 2006 to 245 in 2021. Similarly, the number of such deaths among females has increased from 103 in 2004 to 224 in 2021.

Figure 8. Number of drug-induced suicides by sex, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

As shown in Table 3, during the period 2017-2021 the rate of drug-induced suicide was higher among people born in Australia than those born in any of the other regions. People born in Asia reported the lowest rate of drug-induced suicide in each of the five-year periods.

Table 3. Drug-induced suicides by region of birth, 2002-2006 to 2017-2021, rate per 100,000 population

	2002-2006	2007-2011	2012-2016	2017-2021
Australia	1.3	1.5	2.0	2.1
Oceania and Antarctica (excl. Australia)	1.1	1.3	1.6	1.6
Europe	1.4	1.5	1.5	2.0
Africa and the Middle East	np	0.7	1.2	0.9
Asia	0.4	0.6	0.6	0.4
Americas	np	np	1.4	1.5

Note: np (not available for publication) means that a value could not be calculated due to the low number of deaths. Data are aggregated over five-year periods.

Over the coming chapters, the report focuses on trends in, and characteristics of, unintentional drug-induced deaths.

6. *Unintentional drug-induced deaths 2001-2021*

Case study: Anna

Anna* was 26 years old when she died. She had a young son, a partner and many family members who loved her. She was described as a wonderful loving young woman, a loving mother and daughter and a best friend.

Anna had an extensive medical history which included recurrent back pain, sciatic nerve problems, seizures, Grave's disease, obesity, anxiety, self-harm, suicidal ideation, and depression. She was also troubled by extreme interpersonal trauma and the effects of family dysfunction.

Anna's family environment was characterised by long-term dependence on prescription medication. Medications were not stored safely or securely in the house and were often shared among family members. Anna had been prescribed opioids, benzodiazepines, and anti-depressants. Her prescription drug use had increased in recent years, following the death of a family member. She had begun showing signs of prescription drug dependence and drug-seeking behaviours. On the evening of her death, Anna was found slumped in her chair and appeared to be in a deep sleep. Anna's partner attempted to wake her, but thought she had simply 'passed out' so did not call for an ambulance right away. By the time ambulance officers were called and arrived at the scene, she was pronounced dead.

It was determined that Anna had died from an unintentional overdose. Toxicological analysis identified several prescription drugs including various opioids (codeine, morphine and oxycodone), benzodiazepines, and anti-depressants. Her death was caused predominantly by the combination of codeine and doxepin (an antidepressant drug). It was also determined that Anna was probably not informed of the dangers associated with mixing different medication types and consuming increasingly large quantities. When taken together, these drugs can cause profound respiratory depression and coma. The effect of these two drugs would have been exacerbated by the presence of diazepam and oxycodone.

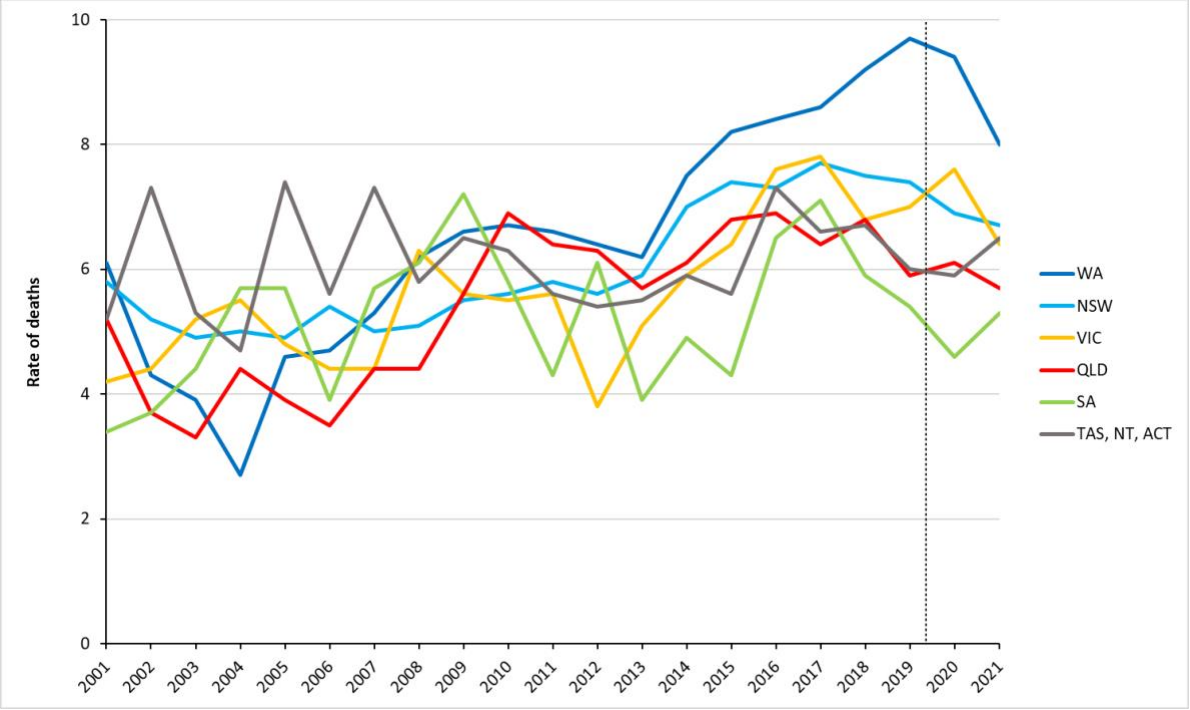
The delay in medical intervention played a critical role in Anna's death. Had she received medical attention (including the administration of naloxone followed by hospital care) upon being found slumped and unresponsive, it is likely that she would have survived.

* Not her real name

This chapter presents data on trends in unintentional drug-induced deaths, analysed by factors of interest such as region, drug type and various demographics characteristics. 'Unintentional drug-induced death' 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 9, the most notable changes in the rates of unintentional drug-induced deaths are the increases seen in Western Australia, New South Wales, and Victoria. Western Australia has experienced a significant increase in the rate of unintentional drug-induced deaths since 2004, from 2.7 deaths per 100,000 population to 8 per 100,000 population in 2021. It has had the highest rate of unintentional drug-induced deaths in Australia since 2011. The greatest increase in recent years, though, has been observed in Victoria, where rates of unintentional drug-induced deaths increased from 3.8 per 100,000 in 2012 to 6.4 per 100,000 in 2021. These data are also provided as numbers of unintentional drug-induced deaths, rather than rates, in Table 4.

Figure 9. Unintentional drug-induced deaths by state, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. Numbers of deaths cannot be reliably converted to rates per 100,000 in Tasmania, Northern Territory, and the Australian Capital Territory due to low numbers; they are therefore presented as an aggregate.

Table 4. Number of unintentional drug-induced deaths by state or territory, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NSW	379	343	328	337	332	370	349	357	397	404	426	412	448	533	568	574	605	592	594	556	554
VIC	203	216	255	276	243	226	231	335	306	303	315	217	299	352	379	467	487	433	455	505	421
QLD	182	134	123	166	153	140	179	184	243	302	286	287	261	286	318	329	306	337	295	316	296
WA	116	82	75	53	91	96	111	135	150	153	157	155	152	190	207	215	221	240	262	259	226
SA	50	55	68	88	88	63	94	98	115	95	74	104	65	84	77	112	124	104	98	85	97
ACT	17	17	22	15	24	11	22	22	18	20	16	12	23	21	16	28	27	28	22	28	36
TAS	21	35	20	21	36	30	32	28	40	28	36	30	27	38	31	47	36	34	34	30	24
NT	13	20	10	12	16	16	23	12	12	20	9	20	12	11	18	12	16	18	19	17	21

Note: 2020 and 2021 data are preliminary, and likely to rise.

When considering unintentional drug-induced deaths in 2021 by state/territory and residential location, the rate of deaths ranged from 5.1 deaths per 100,000 people in Greater Adelaide to 7.9 deaths per 100,000 in Greater Perth (Table 5). In NSW, Victoria, Queensland, and South Australia, the rate of unintentional drug-induced deaths was higher outside the capital city. For Australia overall, there were 6.6 unintentional drug-induced deaths per 100,000 people outside of capital city areas and 6.2 per 100,000 within capital cities.

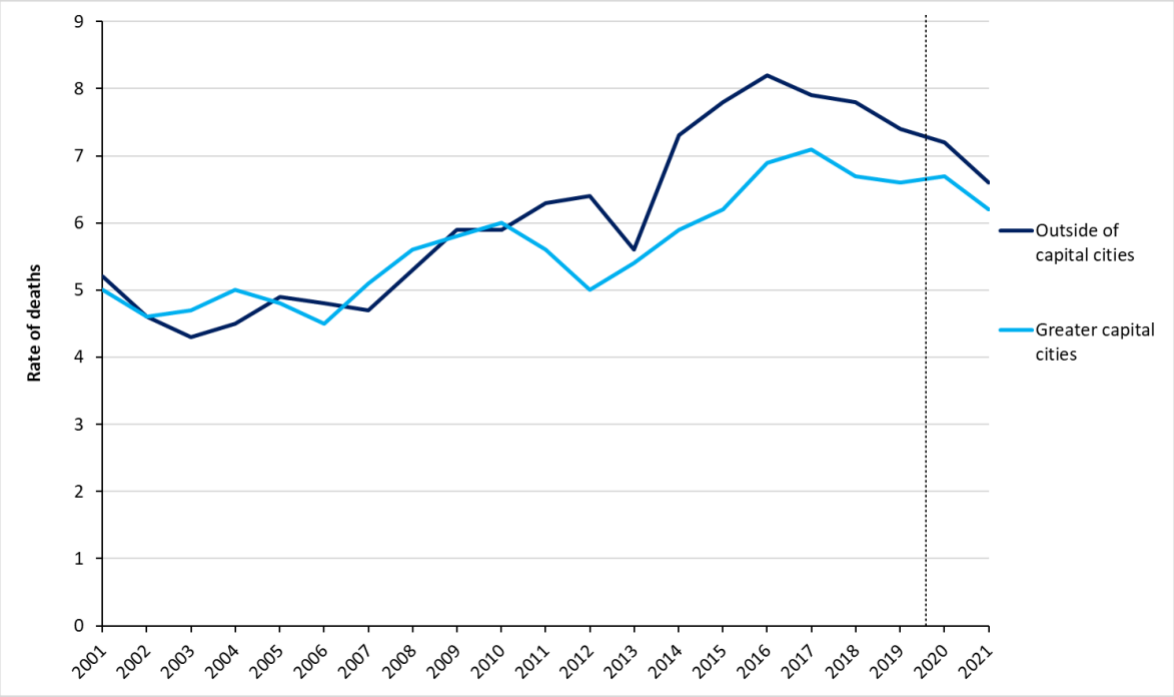
Table 5. Unintentional drug-induced deaths by usual residence in 2021

Region of usual residence	Number	Rate (per 100,000)
New South Wales		
Greater Sydney	333	6.2
Rest of New South Wales	218	7.4
Victoria		
Greater Melbourne	315	6.2
Rest of Victoria	99	6.6
Queensland		
Greater Brisbane	132	5.2
Rest of Queensland	160	6.0
Western Australia		
Greater Perth	176	7.9
Rest of Western Australia	45	7.5
South Australia		
Greater Adelaide	72	5.1
Rest of South Australia	23	5.4
Tasmania, Northern Territory, Australian Capital Territory (combined)		
Greater Hobart, Darwin, Australian Capital Territory	57	6.7
Rest of Tasmania and Northern Territory	22	5.4
Australia		
Greater capital cities total	1,085	6.2
Rest of states total	567	6.6

Note: np (not available for publication) means that a value could not be calculated due to the low number of deaths. Individual rates are not available for Tasmania, Northern Territory, and the Australian Capital Territory.

As shown in Figure 10, 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. Since 2011, when the rates began to diverge, the rate of unintentional drug-induced deaths in rural and regional Australia has increased by 4.8% while the rate in capital cities has increased by 10.7%. In 2021, there were 6.6 unintentional drug-induced deaths per 100,000 people in rural and regional areas, compared with 6.2 per 100,000 in the capital cities. Greater detail on these geographic trends is provided in Chapter 8.

Figure 10. Unintentional drug-induced deaths by regionality, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Providing a deeper level of detail for the non-capital city areas, Table 6 shows the number and rate of unintentional drug-induced deaths for inner regional areas, outer regional areas and remote or very remote areas in Australia. Inner regional areas reported the highest rate of unintentional drug-induced deaths over the five-year period 2017-2021 (7.4 deaths per 100,000 people), while the lowest rate was seen in remote or very remote areas (6.1 per 100,000 people).

Table 6. Unintentional drug-induced deaths by remoteness area, 2011-2021, number and rate per 100,000 population

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2017-2021 (number)	2017-2021 (rate)
Major cites	908	847	895	1,022	1,098	1,209	1,289	1,228	1,246	1,287	1,197	6,247	6.8
Inner regional	242	230	226	320	305	347	341	359	310	303	284	1,597	7.4
Outer regional	123	114	117	117	154	182	149	127	162	141	140	719	6.8
Remote or very remote	32	28	27	35	43	27	22	35	29	34	30	150	6.1

Note: 2020 and 2021 data are preliminary, and likely to rise.

As shown in Table 7, the rate of unintentional drug-induced deaths was highest during each of the five-year periods among people born in Australia. People born in Asia had the lowest rate of unintentional drug-induced deaths in each period.

The rate of unintentional drug-induced deaths among people born in Australia has increased considerably over time compared with other regions, from 5 deaths per 100,000 population in 2002-2006 to 8.8 in 2017-2021.

Table 7. Unintentional drug-induced deaths by region of birth, 2002-2006 to 2017-2021, rate per 100,000 population

	2002-2006	2007-2011	2012-2016	2017-2021
Australia	5	6.4	7.6	8.8
Oceania and Antarctica (excl. Australia)	3.8	5.1	5.1	5.6
Europe	4.2	5	5.2	5.9
Africa and the Middle East	3	2.6	3	3.5
Asia	1.9	1.5	1.3	1.4
Americas	3.7	5	5.1	4.4

Note: np (not available for publication) means that a value could not be calculated due to the low number of deaths. Data are aggregated over five-year periods.

Table 8 shows the rate of unintentional drug-induced deaths associated with different drug types for people born in different world regions. There are some notable differences across region of birth. For example, while opioids as a broad drug class have the highest death rate for all regions of birth, pharmaceutical opioids are associated with the highest rate of death for all regions of birth except Asia, for which heroin is the opioid with the highest death rate.

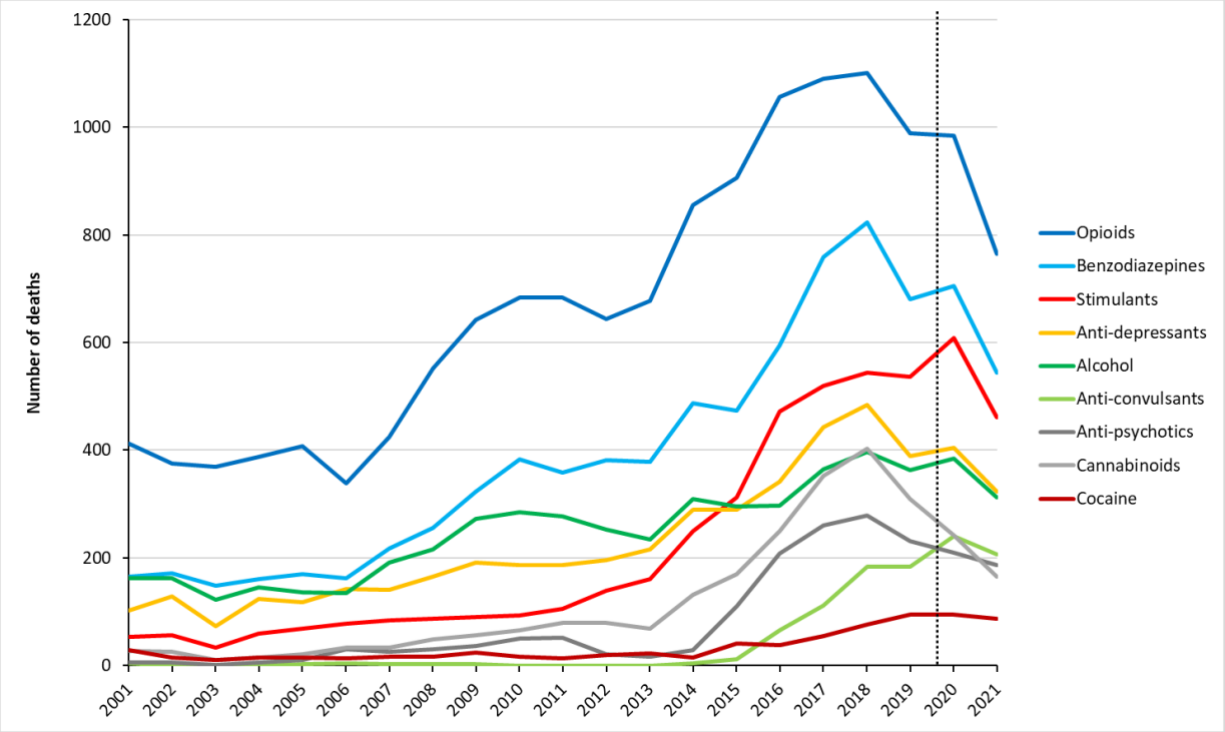
Table 8. Unintentional drug-induced deaths by drug type and region of birth, 2017-2021, rate per 100,000 population

	Australia	Oceania and Antarctica	Europe	Africa and the Middle East	Asia	Americas
Opioids	5.3	2.6	3.2	1.6	0.6	2.1
Heroin	2.2	1	1.6	0.6	0.4	0.9
Oxycodone, morphine, codeine	2	1.1	1.4	0.6	0.1	np
Methadone	1.2	0.5	0.5	np	np	np
Fentanyl, pethidine, tramadol	1.1	0.5	0.5	0.4	np	np
Pharmaceutical opioids	2.7	1.4	1.6	1	0.2	1.2
Cannabinoids	1.7	1	0.7	0.5	0.1	np
Benzodiazepines	3.8	1.9	2.3	1.2	0.4	1.5
Anti-depressants	2.2	1	1.4	0.6	0.1	np
Anti-psychotics	1.3	0.6	0.7	0.4	0.1	np
Stimulants	2.9	1.8	1.5	1	0.4	1
Alcohol	1.8	1.2	1.4	0.8	0.4	1

Note: np (not available for publication) means that a value could not be calculated due to the low number of deaths. Data are aggregated over the five-year period. 'Oceania and Antarctica' data exclude Australia. 'Americas' includes North and South America, Central America and the Caribbean.

The trends in the number of unintentional drug-induced deaths (Figure 11) mirror those among all drug-induced deaths (intentional and unintentional combined, seen in Figure 2). Opioids, benzodiazepines, and stimulants have the highest overall involvement in unintentional drug-induced deaths, and all have increased substantially over the past 15 years. There has also been a substantial 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 7. While the overall trend for alcohol is upwards, since 2009 this appears to be stabilising.

Figure 11. Number of unintentional drug-induced deaths by drug type, 2001-2021



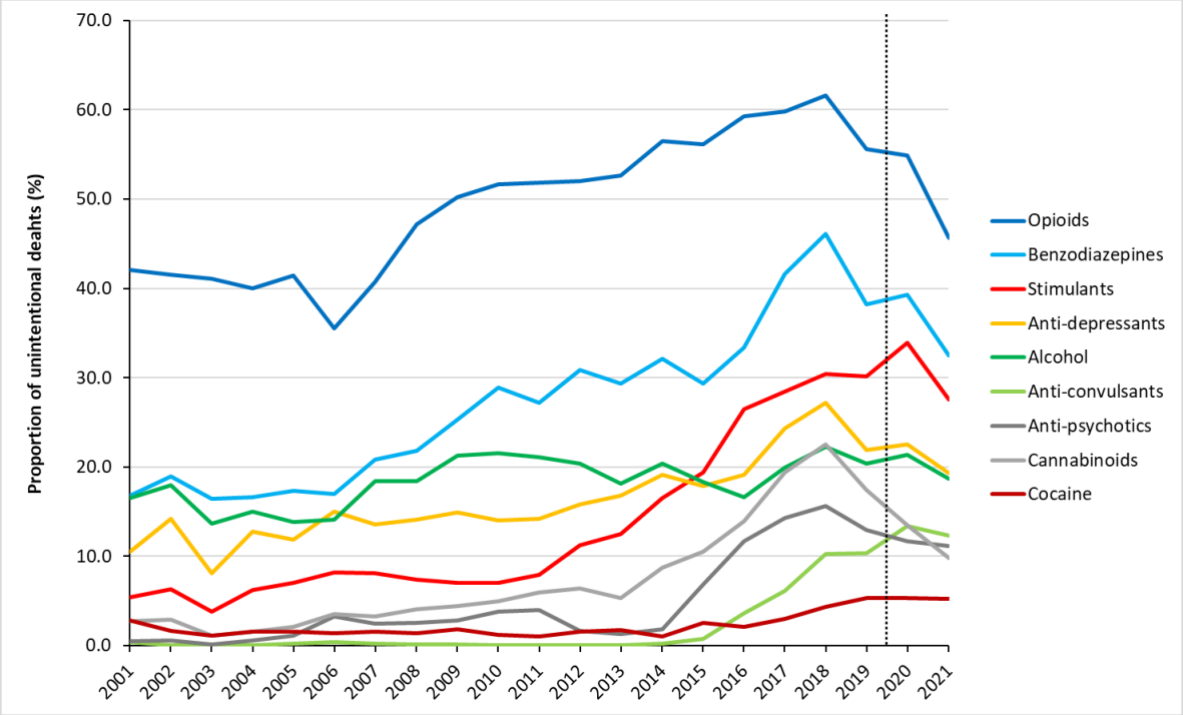
Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Figure 12 presents the number of unintentional drug-induced deaths involving each drug type as a proportion of the total number of unintentional drug-induced deaths each year.

Opioids contributed to the highest proportion of unintentional drug-induced deaths in 2021 (45.7%). Their relative contribution to these deaths has fluctuated over time, from 42.1% of unintentional drug-induced deaths in 2001 to a high of 61.6% in 2018. Benzodiazepines, on the other hand, were involved in approximately one-third (32.5%) of unintentional drug-induced deaths in 2021 – almost double the 16.8% in 2001. The contribution of anti-depressants to the total number of unintentional drug-induced deaths almost doubled over time, from 10.5% in 2001 to 19.3% in 2021.

The largest increases over time in the proportion of unintentional drug-induced deaths were seen for stimulants, anti-convulsants, anti-psychotics. In 2021, stimulants were involved in more than one quarter (27.5%) of such deaths; in 2001, this was only 5.4%. Anti-convulsants were involved in 12.3% of such deaths in 2021 compared with only 0.4% in 2001. Similarly, the contribution of anti-psychotics to unintentional drug-induced deaths increased from 0.5% in 2001 to 11.2% in 2021. While the proportion of unintentional drug-induced deaths that involved these drug types remains low, the increase over time is substantial.

Figure 12. Unintentional drug-induced deaths by drug type, 2001-2021, proportion of unintentional deaths (%)



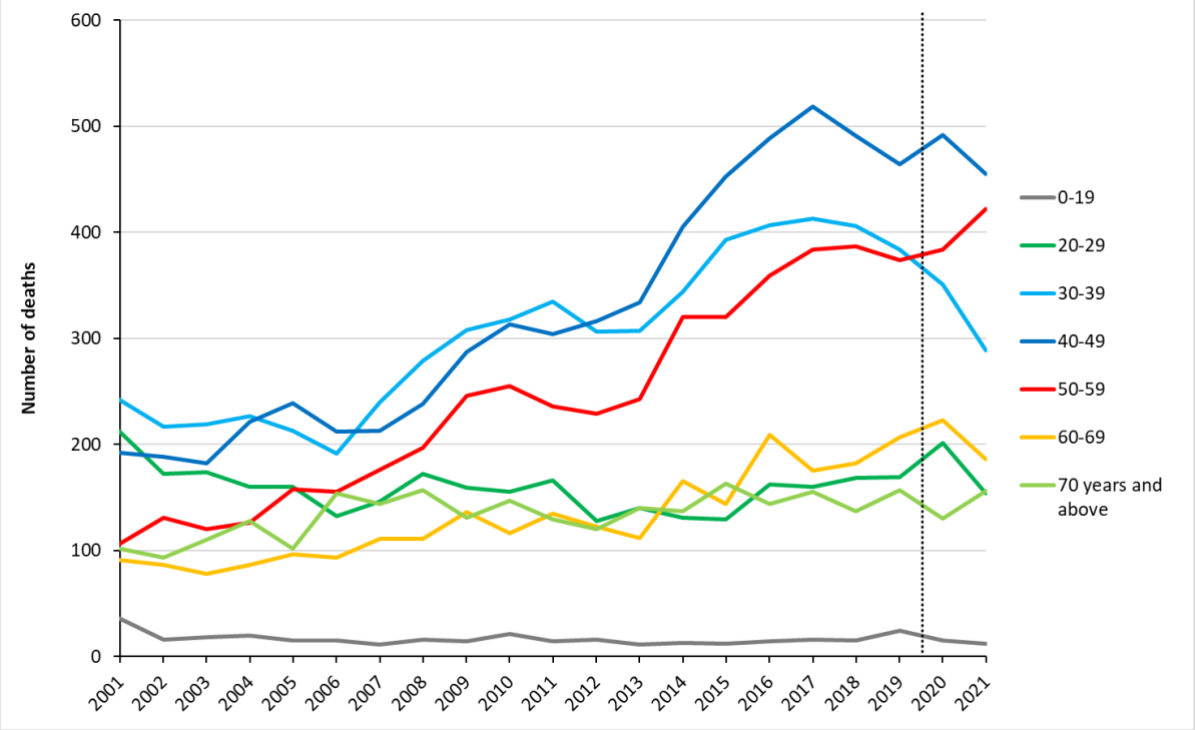
Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. The percentages do not sum to 100% as more than one drug type may have been detected.

6.1. Demographic patterns in unintentional drug-induced deaths

There are distinct age-related patterns of harms in unintentional drug-induced deaths, as shown in Figure 13. Since 2001, deaths in the 40-49, 50-59 and 60-69 age groups have all increased substantially, with the greatest increase observed in those aged 50-59 (from 106 in 2001 to 422 in 2021, an increase of 298.1%). Deaths among those aged 60-69 have more than doubled, from 91 in 2001 to 186 in 2021 – an increase of 104.4%. In contrast, deaths in the 20-29 age group have decreased, from 212 in 2001 to 154 in 2021, a decrease of 27.4%. Deaths among people aged 19 and below have decreased from 36 deaths in 2001 to 12 deaths in 2021 - a decrease of 66.7%.

The highest number of deaths is seen in the 40-49 age group, with 455 unintentional drug-induced deaths in 2021, accounting for 27.2% of all unintentional drug-induced deaths in 2021 (an increase of 137.0% since 2001). There were fewer deaths among those aged 30 and under, accounting for 9.9% of all unintentional deaths, while one in five deaths (20.4%) was among those aged 60 and above.

Figure 13. Number of unintentional drug-induced deaths by age group, 2001-2021

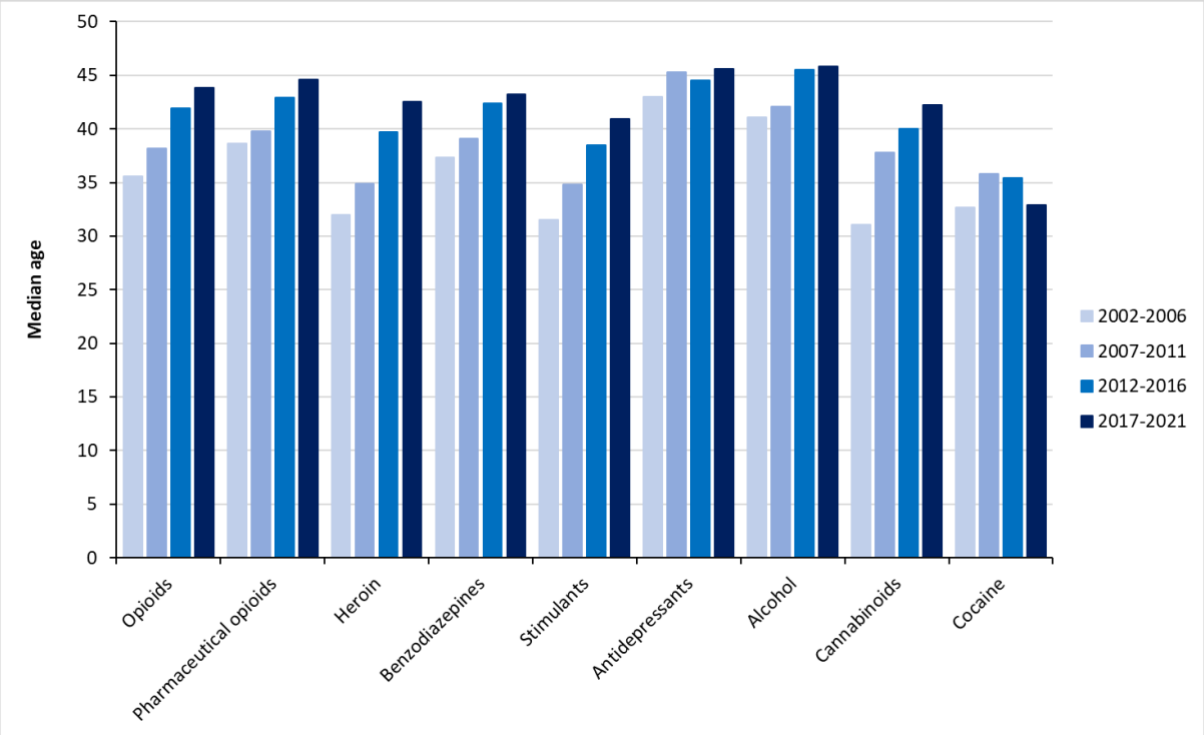


Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Figure 14 shows the median age of unintentional drug-induced deaths for different types of drugs over four periods since 2001. For each drug type except cocaine and anti-depressants, there is a clear pattern of increasing median age at death over the two decades. The largest increases in median age have occurred for drug-induced deaths involving cannabinoids (with the median age increasing from 31.1 years in 2002-2006 to 42.2 years in 2017-2021) and heroin (increasing from a median age of 32.0 years to 42.5 years).

The highest median ages at death in 2017-2021 were seen for alcohol (45.8 years of age) and anti-depressants (45.6 years), while the lowest was recorded for cocaine (32.9 years).

Figure 14. Unintentional drug-induced deaths, by drug type and median age, 2002-2021

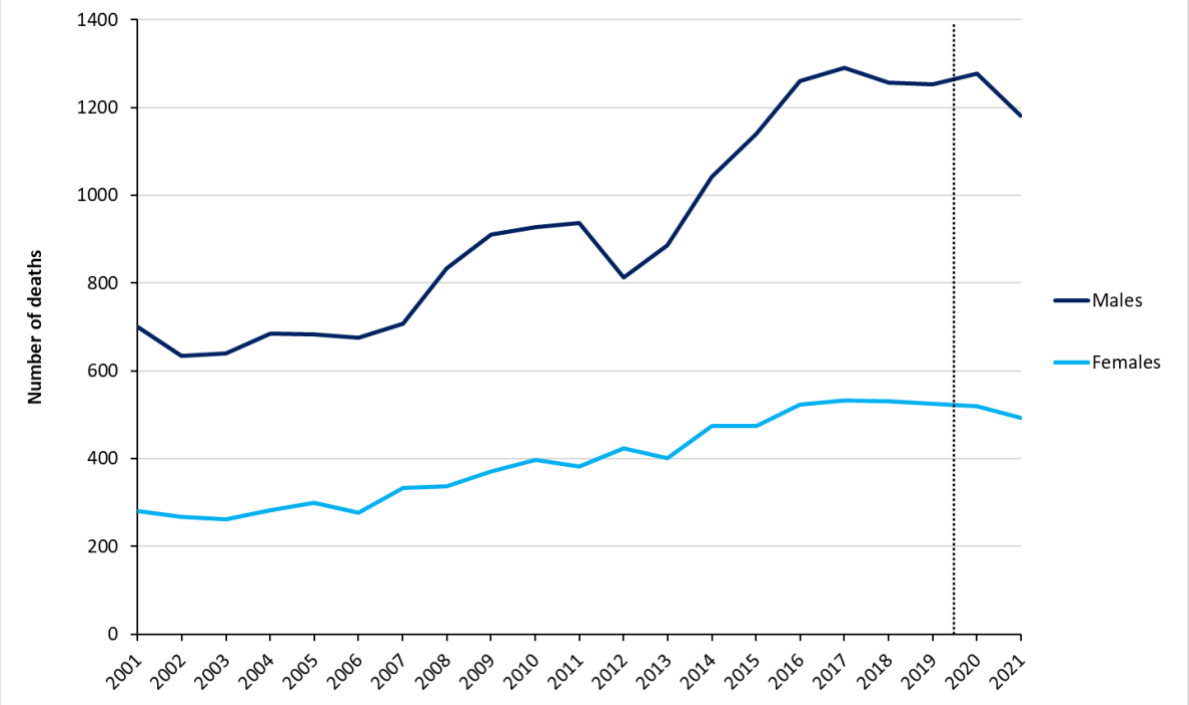


Note: Data are aggregated over the five-year periods.

Unintentional drug-induced deaths remain more common for males than females, though long-term trends are increasing for both sexes (Figure 15). 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 45.3%, from 813 in 2012 to 1,181 in 2021. During the same period, the number of deaths among females increased by 16.5%, from 424 to 494.

In 2021, males accounted for 70.5% of unintentional drug-induced deaths.

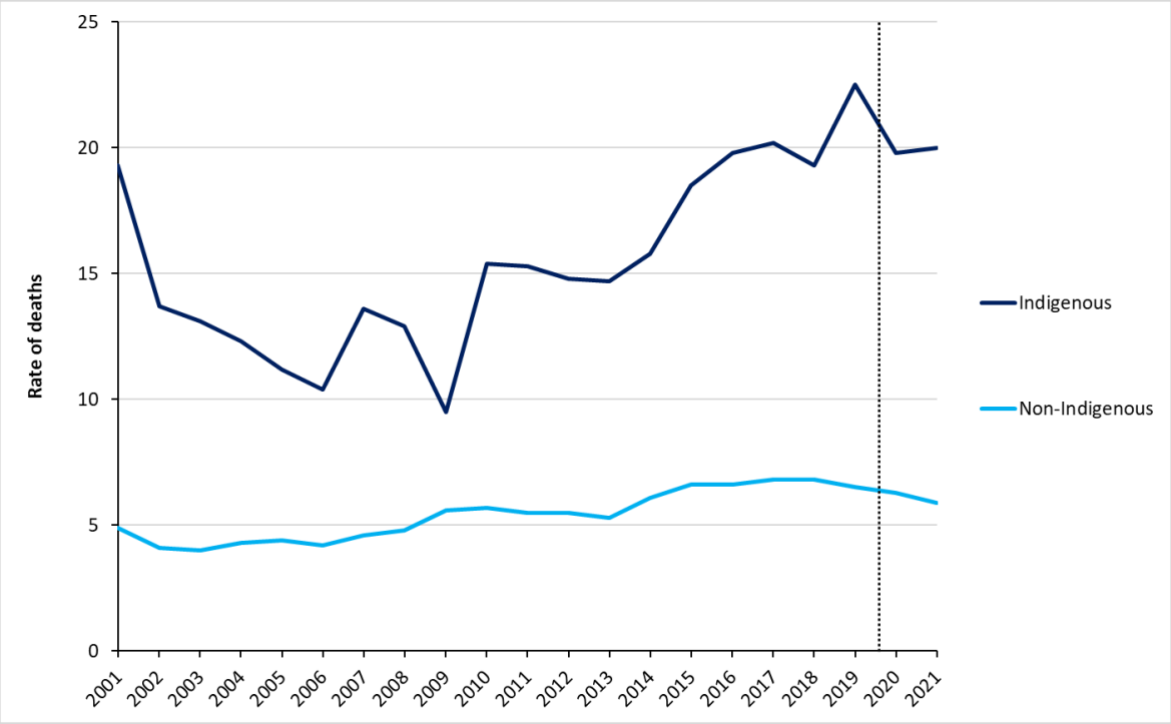
Figure 15. Number of unintentional drug-induced deaths by sex, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The rate of unintentional drug-induced death has been higher for Indigenous Australians than non-Indigenous Australians over the entire period for which data are presented in this report (Figure 16).[27] Rates of death for non-Indigenous Australians have gradually increased from 2001 to 2021 (from 4.9 to 5.9 deaths per 100,000 population). For Indigenous Australians, the rate of death showed a downward trend until 2009, but increased between 2009 and 2021, from 9.5 to 20 deaths per 100,000 population. These rate calculations may, however, be more variable due to smaller overall numbers of deaths among Indigenous Australians.

Figure 16. Unintentional drug-induced deaths by Indigenous status, 2001-2021, rate per 100,000 population (NSW, Qld, SA, WA, NT)



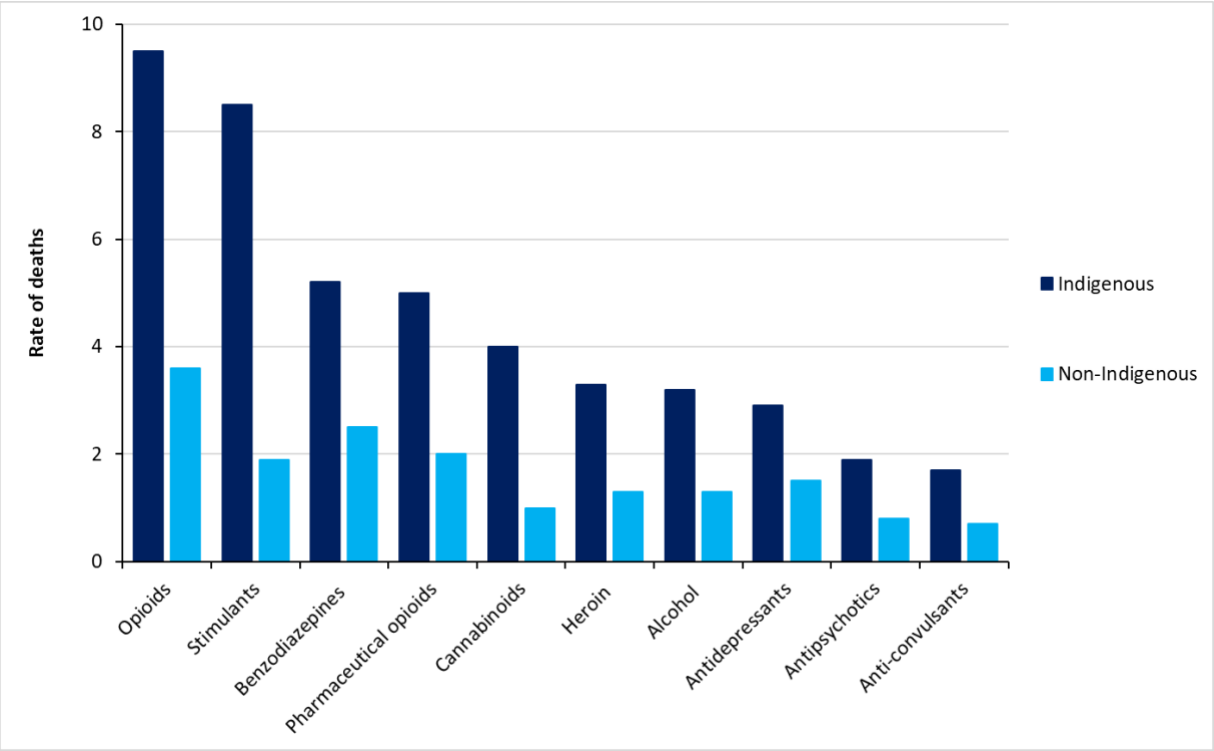
Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

[27] Data on Indigenous status are only reported for NSW, Qld, WA, SA and the NT as these are the only states with an appropriate level of Indigenous identification and sufficient number of Indigenous deaths for the ABS to include the data in their causes of death analysis.

In the five-year period to 2021, the rate of unintentional drug-induced death was higher for Indigenous people in the five jurisdictions in every drug type category (Figure 17). The difference was most pronounced for stimulants, with a rate of 8.5 deaths per 100,000 Indigenous people compared with 1.9 per 100,000 non-Indigenous people. The difference between cohorts was also large for opioids, with a rate of 9.5 per 100,000 Indigenous people compared with 3.6 per 100,000 non-Indigenous people.

These data are presented aggregated across the five-year period, as annual counts are too small to enable reliable calculations.

Figure 17. Unintentional drug-induced deaths by drug type and Indigenous status, 2017-2021, rate per 100,000 population (NSW, Qld, SA, WA, NT)

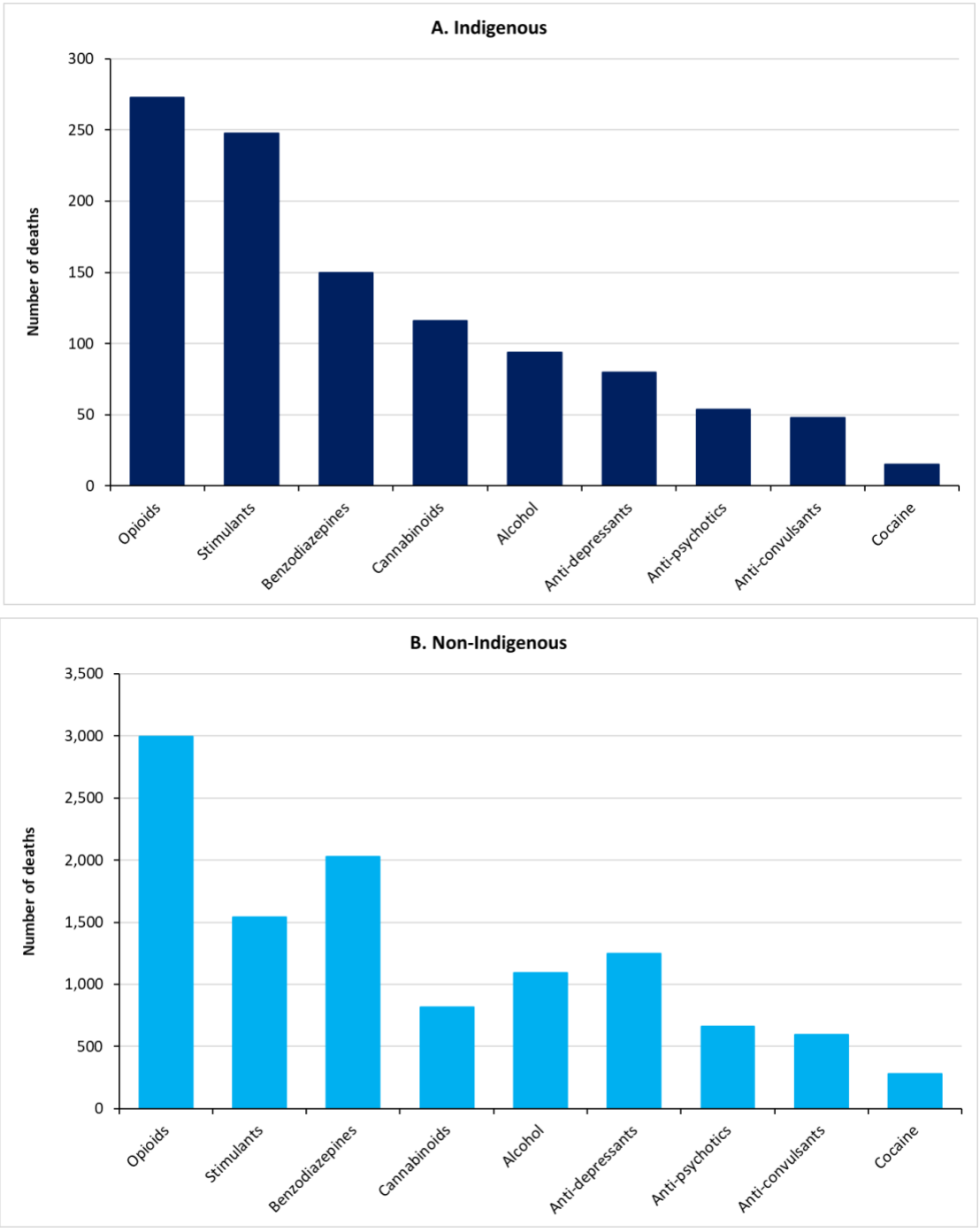


Note: Data are aggregated over the five-year period.

During the five years from 2017 to 2021, there were 536 unintentional drug-induced deaths among Indigenous people and 5,572 among non-Indigenous people in those states for which data are available (Figure 18). Opioids are the largest group of drugs identified in unintentional drug-induced deaths for both groups, contributing to almost half of these deaths (48.5%) among Indigenous people and more than half (53.8%) among non-Indigenous people during the five years. However, there are some notable differences between the two cohorts. For Indigenous people, the next most common drug involved in unintentional drug-induced deaths is stimulants, contributing to 44.0% of deaths, followed by benzodiazepines (26.6%). The reverse is observed among non-Indigenous people: benzodiazepines are the next most common drug involved in unintentional drug-induced deaths during this period, contributing to one-third (36.5%) of all deaths, followed by stimulants (27.7%).

Compared with deaths involving non-Indigenous people, unintentional drug-induced deaths among Indigenous people were more likely to involve cannabinoids (14.6% among non-Indigenous people compared with 20.6% among Indigenous people), less likely to involve anti-depressants (22.4% compared with 14.2%), and slightly less likely to involve alcohol (19.6% compared with 16.7%).

Figure 18. Number of unintentional drug-induced deaths by drug type and Indigenous status, 2017-2021 (NSW, Qld, SA, WA, NT)

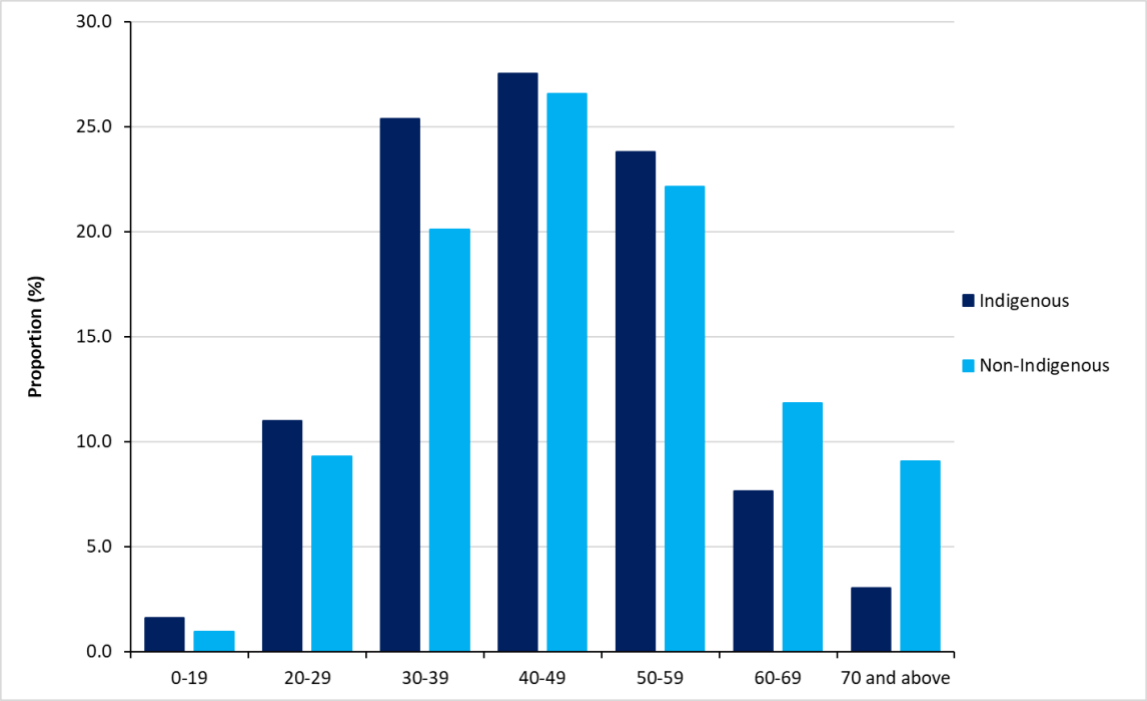


Note: Data are aggregated over the five-year period.

The age distribution of unintentional drug-induced deaths by Indigenous status shows that a higher proportion of deaths occurs in those aged less than 40 among Indigenous people compared with non-Indigenous people. For Indigenous people, 36.4% of deaths were seen among people aged 20 to 39, with 10.7% among people aged 60 and older. Among non-Indigenous people, 29.4% of deaths were among those aged 20 to 39, with 20.9% among those aged 60 and older (Figure 19).

The different age distributions of unintentional drug-induced deaths for the two cohorts likely reflect the younger age profile of the Indigenous Australian population as a whole.

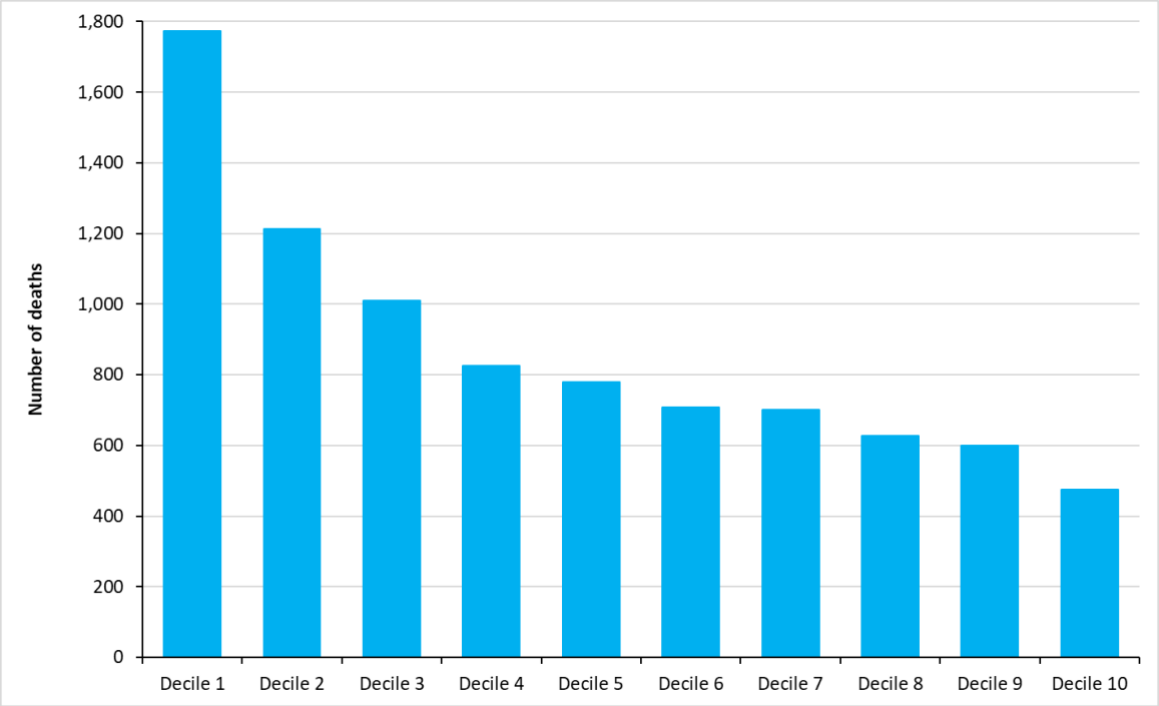
Figure 19. Age distribution (%) of unintentional drug-induced deaths by Indigenous status, 2017-2021 (NSW, Qld, SA, WA, NT)



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

While unintentional drug-induced deaths occur in all socio-economic areas of usual residence, there is a clear socio-economic gradient visible in Figure 20. In the aggregated data from 2017 to 2021, 1,774 unintentional drug-induced deaths occurred in the most disadvantaged areas (Decile 1 of socioeconomic advantage), compared with 474 deaths in the most advantaged areas (Decile 10 of socioeconomic advantage). The most disadvantaged areas (Decile 1) accounted for one in five such deaths (20.0%), compared with one in 20 such deaths (5.5%) in the most advantaged areas (Decile 10).

Figure 20. Number of unintentional drug-induced deaths by socio-economic status of area of usual residence, 2017-2021



Note: Decile 1 is the most disadvantaged area 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). Data are aggregated over the five-year period.

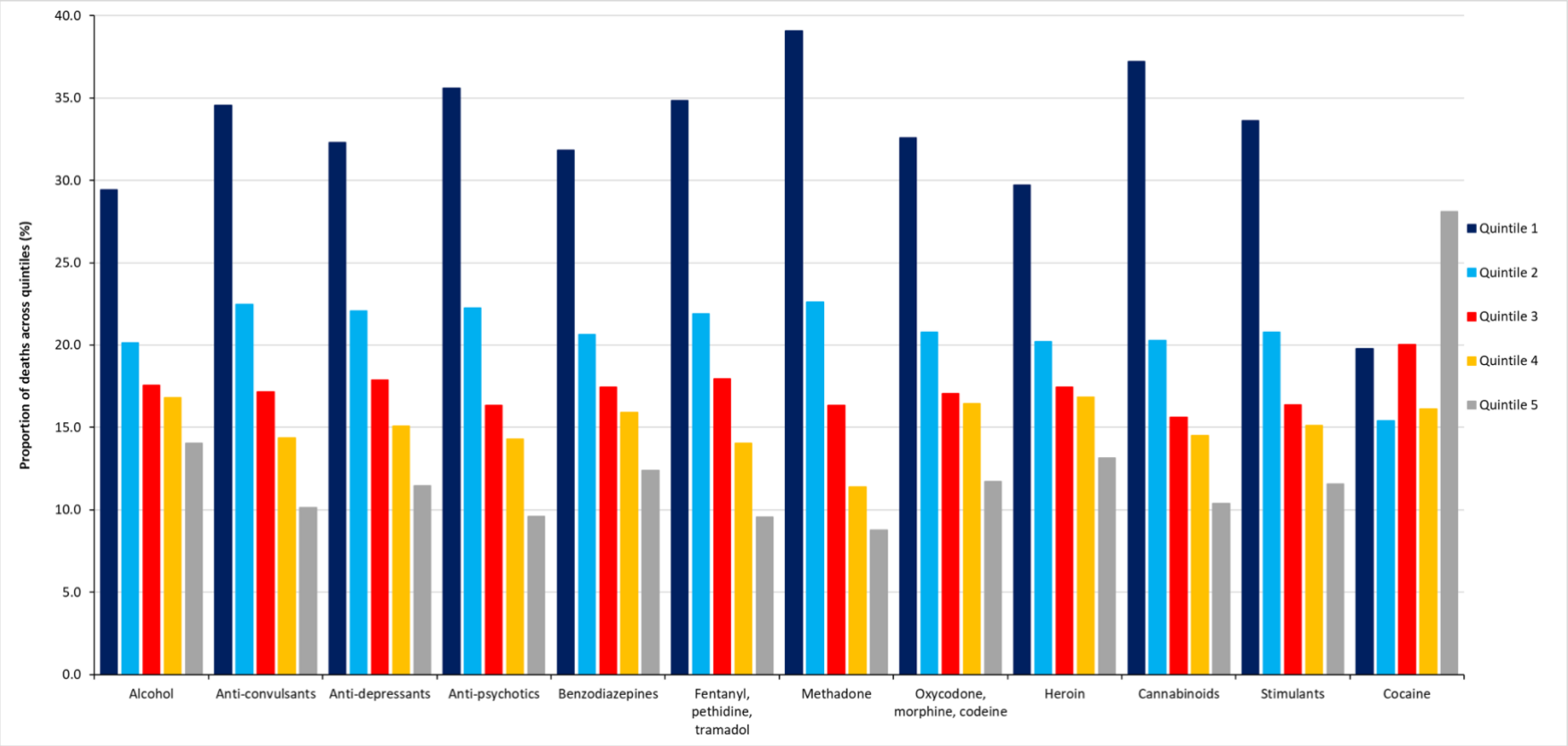
There are substantial differences across drug types in the relationship between drug-induced deaths and socio-economic status of areas of usual residence, as shown in Figure 21. Data are presented in quintiles, dividing the total into five equal groups.[28] Quintile 1 represents the most disadvantaged areas in terms of socio-economic status, while Quintile 5 represents the most advantaged.

There is a clear relationship between drug-induced death and socio-economic status of the area of usual residence. For all drug types except cocaine, the highest proportion of deaths occurs in the most disadvantaged areas (Quintile 1). The greatest disparity in deaths across areas is seen for methadone, which has the highest proportion of people in the most disadvantaged areas (Quintile 1 – 39.1%) and lowest proportion in the most advantaged areas (Quintile 5 – 8.8%).

In contrast to the other drug types, for cocaine, as the socio-economic status of the area increases from disadvantaged to more advantaged, the proportion of drug-induced deaths in each quintile generally increases, with 19.8% of unintentional drug-induced deaths involving cocaine being observed in the most disadvantaged areas (Quintile 1), compared with one-quarter of deaths (28.1%) in the most advantaged areas (Quintile 5).

[28] 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 21. Unintentional drug-induced deaths by drug type and socio-economic status of area, percentage distribution across quintiles, 2017-2021



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). Data are aggregated over the five-year period.

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

Case study: Sam

Sam* was 32 years old when he died. He was described as a warm and compassionate man who came from a close and supportive family. He had a history of major depressive episodes and alcohol dependence, stemming from an experience of childhood abuse.

Sam had attended multiple alcohol detoxification and rehabilitation programs; however, following an arrest for public drunkenness, he was admitted to a psychiatric hospital as a voluntary patient. He was prescribed medication to assist with alcohol withdrawal and was assessed as having lowered mood and suicidal ideation. He showed symptoms of bipolar disorder, for which he was prescribed an anti-psychotic. During this time, he maintained a close and supportive relationship with his family.

Following the accidental death of his partner, Sam became severely depressed and began using heroin, amphetamines and cannabis. He began opioid dependence treatment and was prescribed methadone. Not long after beginning treatment, Sam was found deceased in his accommodation. He was surrounded by empty alcohol bottles and medication blister packs.

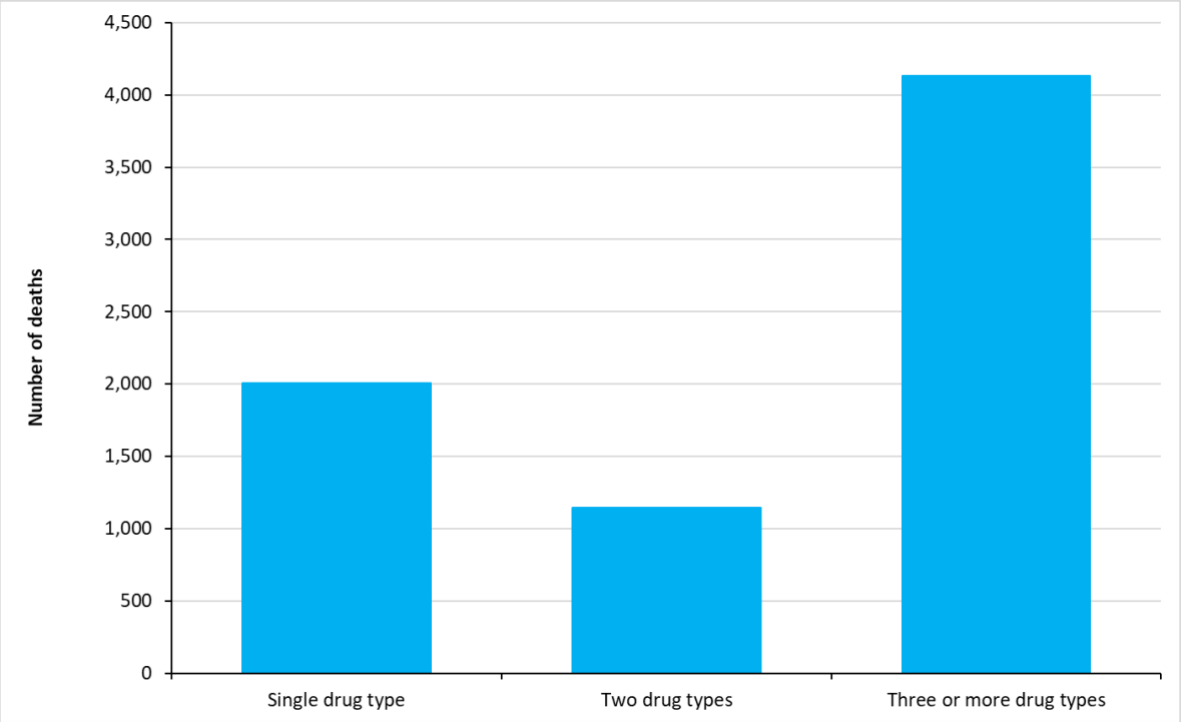
Toxicological analysis detected recent use of opioids (methadone and heroin), amphetamines and benzodiazepines in his blood. When taken in combination, opioids may combine with benzodiazepines causing profound central nervous system and respiratory centre depression.

*Not his real name

Figure 22 shows that deaths associated with multiple drug types have been far more common than those associated with a single type of drug. Over the five years to 2021, more than two-thirds of all unintentional drug-induced deaths involved two or more drug types (72.5%), with less than one-third (27.5%) involving one drug type only.

While these data show deaths by the number of drug types detected, they are not able to identify the specific drugs within each type. It is therefore possible that a death due to a single drug type actually involves multiple drugs within that type. For example, a death involving opioids as a single drug type may actually involve oxycodone, fentanyl and heroin.

Figure 22. Number of unintentional drug-induced deaths, single drug type and multiple drug types detected, 2017-2021

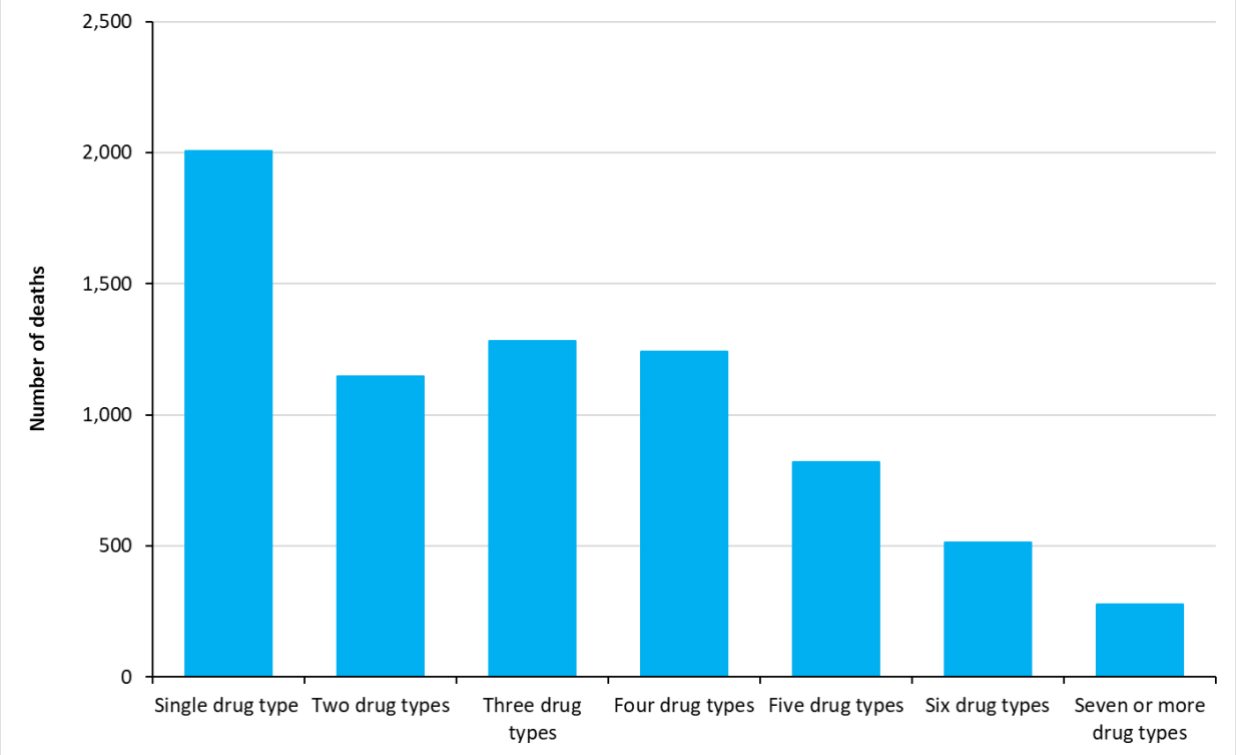


Note: Data are aggregated over the five-year period.

Figure 23 provides more detail about the number of drug types involved in poly-substance drug-induced deaths over the five years to 2021, showing the number of deaths involving four, five, six and seven or more different drug types. While more deaths were associated with a single drug type than any other specific number of drug types, there are nonetheless many deaths that involve multiple types of substances. For example, 278 unintentional drug-induced deaths involved seven or more different types of drugs and 513 involved six types of drugs – together, these accounted for one in ten unintentional drug-induced deaths (10.9%).

Over the five-year period, deaths involving four or more substance types accounted for almost two in five unintentional drug-induced deaths (39.1%).

Figure 23. Number of unintentional drug-induced deaths, by specific number of drug types detected, 2017-2021



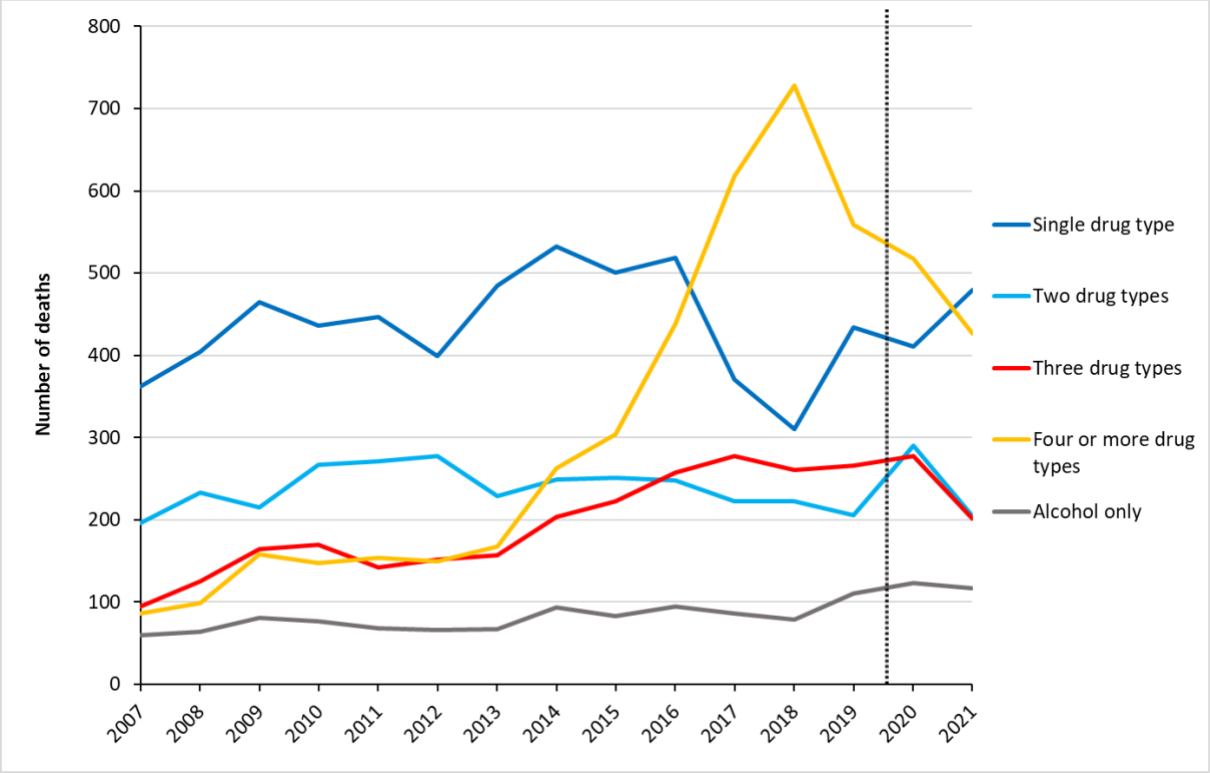
Note: Data are aggregated over the five-year period.

From 2013 to 2018 there was a sharp increase in the number of unintentional drug-induced deaths that involve four or more types of substances. While the number of these deaths decreased from 728 in 2018 to 427 in 2021, it remains far higher than it was in 2013 (Figure 24).

Unintentional drug-induced deaths involving a single drug type decreased substantially from 2016 to 2018, but preliminary data show that these deaths are once again increasing, with 479 deaths recorded in 2021. Deaths involving three drug types have slowly increased from 95 in 2007 to 201 in 2021 and are now at a similar level as those involving two drug types. Despite reaching a peak of 290 deaths in 2020, the number of deaths involving two drug types has remained relatively stable over time, with 205 deaths recorded in 2021. Unintentional drug-induced deaths involving alcohol on its own have remained fairly stable.

From 2017 to 2020, there were more unintentional deaths involving four or more substance types than single drug types. Preliminary data from 2021 suggest a reversal in this trend, with a higher number of deaths involving a single drug type for the year.

Figure 24. Number of unintentional drug-induced deaths, by number of drug types detected, 2007-2021

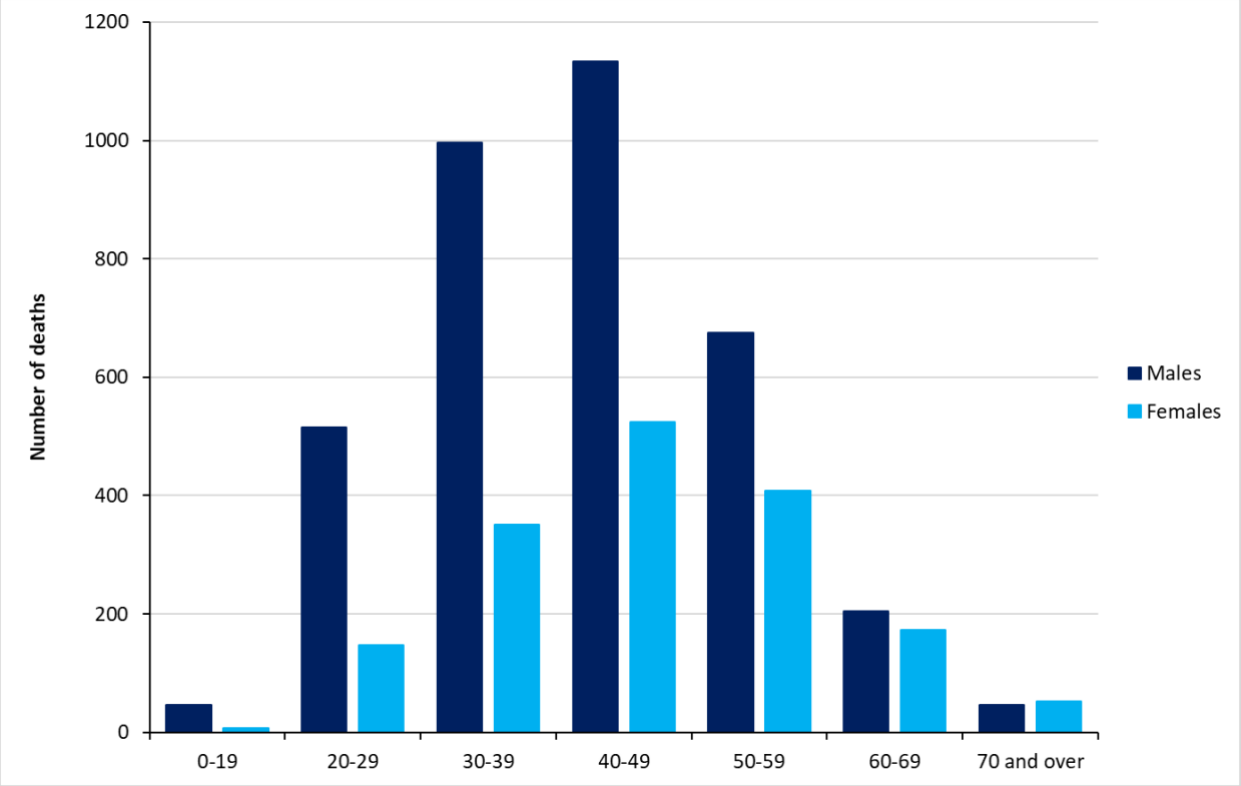


Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. Data are only available from 2007.

There are clear sex differences in the number of unintentional drug-induced deaths involving multiple drugs types, although the overall age distribution for the two cohorts is broadly similar. Figure 25 shows that male poly-substance deaths are more likely to be recorded among younger cohorts aged 20 to 39 (41.8% compared with 30.0% for females), while the older cohorts aged 50 and above account for a higher proportion of female poly-substance deaths (38.1% compared with 25.6% for males).

Unintentional poly-substance deaths are most commonly seen in middle age. For both males and females, the most common age group in poly-substance unintentional deaths is the 40-49 group, comprising 31.3% of deaths for males and 31.5% for females. While the next most common age group for males is 30-39 year olds (accounting for 27.5% of poly-substance deaths), for females the next most common cohort is those aged 50-59 years, who account for one-quarter (24.5%) of such deaths.

Figure 25. Number of unintentional drug-induced deaths with multiple drug types detected, by age and sex, 2017-2021



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

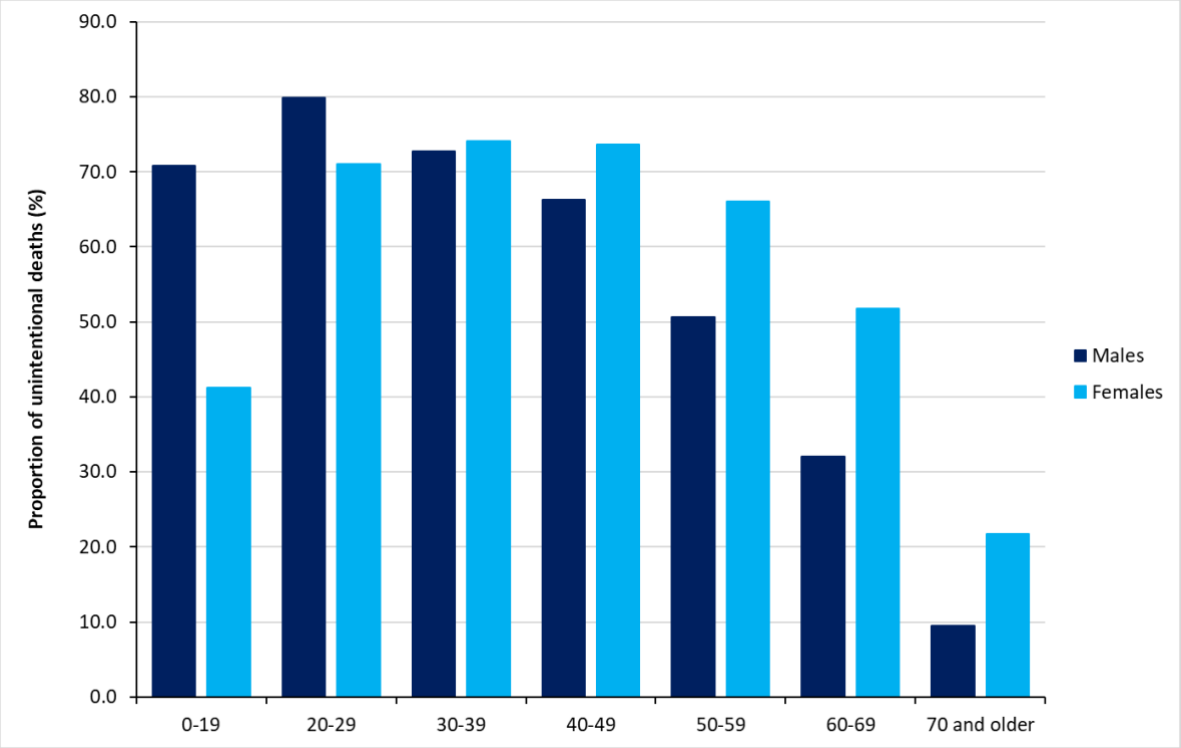
Figure 26 places the age and sex distribution of unintentional poly-substance deaths in the context of all unintentional drug-induced deaths, showing the proportion of unintentional deaths for each age and sex group that was accounted for by poly-substance deaths during the period 2017-2021.

Among males, the age group in which poly-substance deaths accounted for the highest proportion of unintentional deaths was the 20-29 cohort, in which almost four in five unintentional deaths (79.8%) involved multiple drug types. The next highest proportion of unintentional drug-induced deaths that involved multiple drug types were seen among the 30-39 age group (72.8%) and those aged 19 and below (70.8%).

Among females, the highest proportions of unintentional drug-induced deaths that involved multiple drug types were seen among the 30-39 age group (74.1%), the 40-49 cohort (73.6%), and the 20-29 cohort (71.0%). Around two-thirds of unintentional drug-induced deaths among females over the five-year period involved multiple drug types among those aged 50-59 (66.0%).

Notable sex differences may be seen among the older age cohorts. For those aged 60-69, poly-substance deaths accounted for 32.1% of unintentional drug-induced deaths among males but 51.8% among females. Similarly, these deaths accounted for 9.5% of unintentional drug-induced deaths among males but 21.8% among females for those aged 70 and over.

Figure 26. Unintentional drug-induced deaths that involve multiple drug types, as a proportion of all unintentional drug-induced deaths, by age and sex, 2017-2021



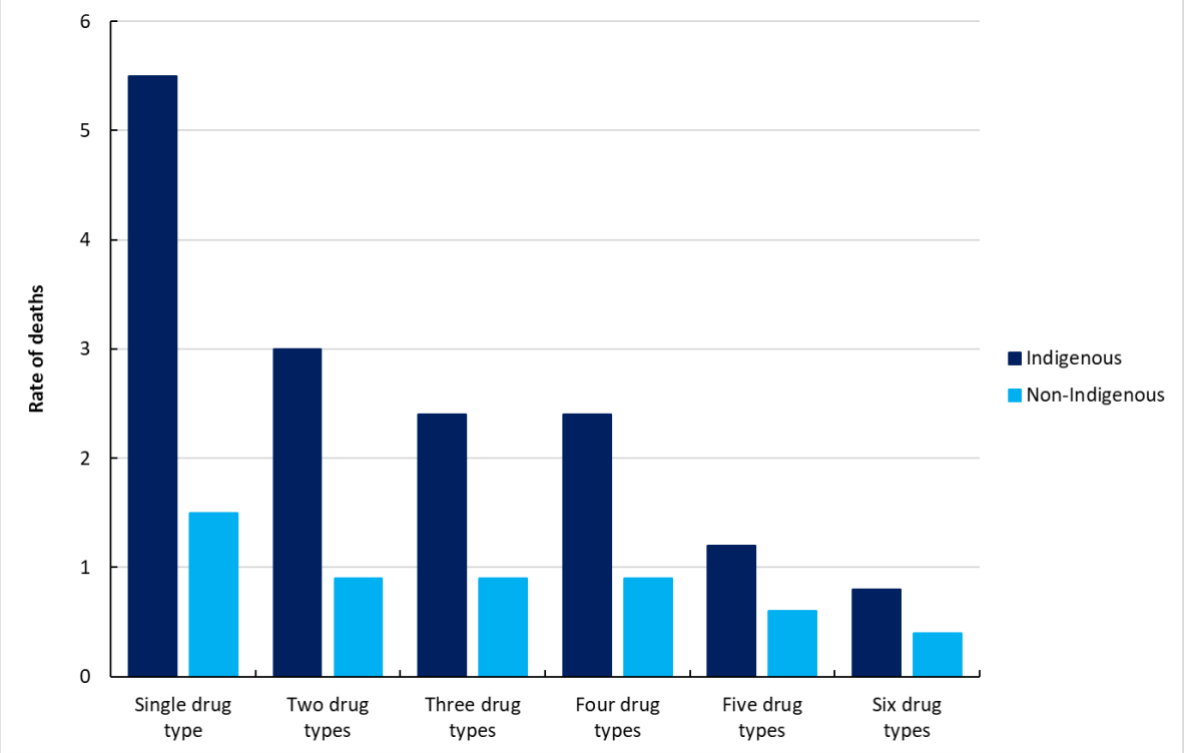
Note: Data are aggregated over the five-year period.

There are notable differences in the rate of unintentional drug-induced death involving multiple drug types among Indigenous and non-Indigenous Australians (Figure 27). In the five years to 2021, Indigenous Australians recorded a higher rate of unintentional drug-induced deaths involving multiple drug types compared with non-Indigenous Australians. The difference was most pronounced for unintentional drug-induced deaths involving two drug types (with 3 deaths per 100,000 Indigenous Australians compared with 0.9 deaths per 100,000 non-Indigenous Australians), three drug types (2.4 deaths compared with 0.9 deaths per 100,000, respectively) and four drug types (2.4 deaths compared with 0.9 deaths per 100,000, respectively).

Indigenous Australians also recorded a higher rate of of unintentional drug-induced death involving a single drug type compared with non-Indigenous Australians, with a rate of 5.5 deaths compared with 1.5 deaths per 100,000, respectively.

These data are presented aggregated across the five-year period, as annual counts are too small to enable reliable calculations.

Figure 27: Unintentional drug-induced deaths by indigenous status, number of drugs present, poly-drug use, 2017-2021, rate per 100,000 (NSW, Qld, SA, WA, NT)



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

The most common drug type involved in unintentional poly-substance deaths over the five years to 2021 was opioids, which were involved in 81.0% of such deaths. Pharmaceutical opioids were involved in more than two in five (44.3%) poly-substance deaths, heroin was involved in one-third (32.2%) of these deaths and methadone in almost one-fifth (18.9%) of such deaths.

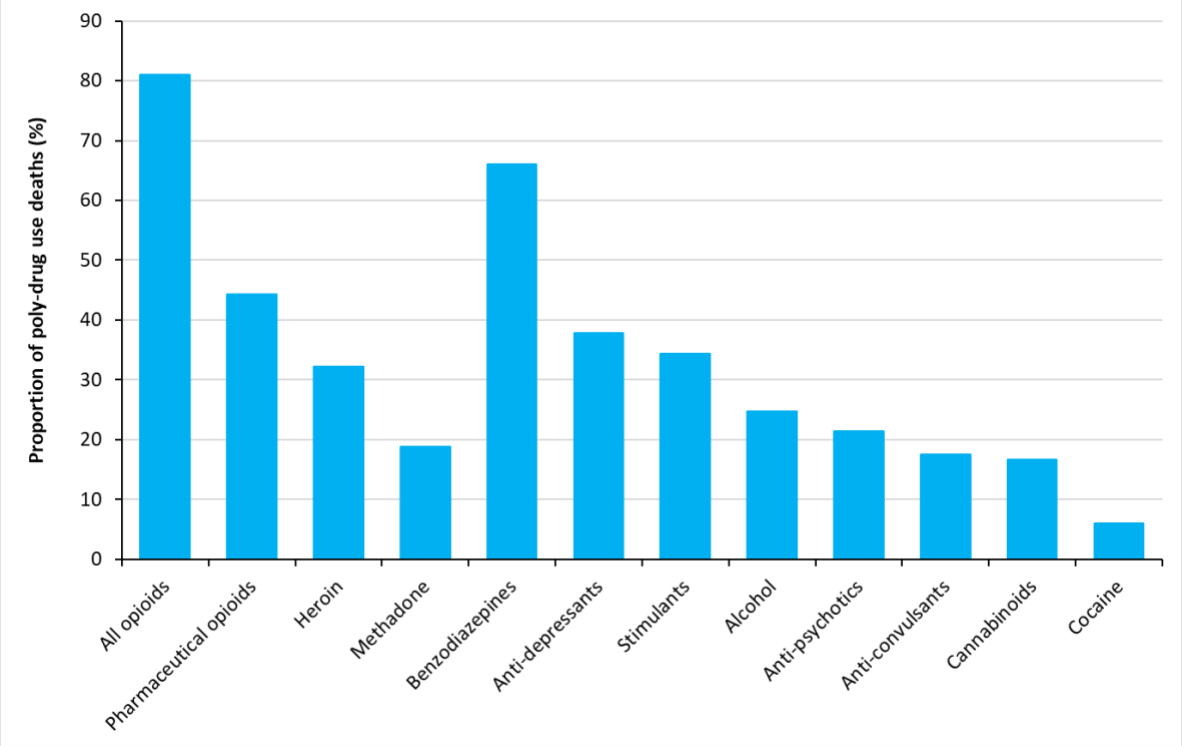
The only other drug type that was involved in more than half of poly-substance deaths was benzodiazepines, which were involved in two-thirds (66.0%) of these deaths.

Anti-depressants (37.9%) and stimulants (34.4%) were each involved in at least one-third of poly-substance deaths, while alcohol was involved in 24.7% of poly-substance deaths. The remaining drug types contributed to one-fifth or fewer of these deaths (Figure 28).

That more than one-third of unintentional poly-substance deaths involved anti-depressants suggests the susceptibility of patients with co-occurring mental health issues to fatal overdose.

The average number of additional drug types detected in these deaths is high, ranging from 3.77 other drug types for poly-substance deaths involving heroin to 4.81 other drug types for poly-substance deaths involving anti-psychotics.

Figure 28. Proportion of unintentional drug-induced deaths with multiple drug types detected, by drug type involved, 2017-2021



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

Table 9 shows the range of drug types involved in unintentional poly-substance deaths. In particular, it highlights the role of poly-substance use of pharmaceutical drugs in these deaths and the vulnerability of people taking medication for mental health issues when also taking benzodiazepines and opioids in particular.

A number of key findings on pharmaceutical drugs may be seen in Table 9:

- Among unintentional poly-substance deaths involving pharmaceutical opioids, seven out of ten (72.1%) also involved benzodiazepines and 44% involved anti-depressants.
- Among unintentional poly-substance deaths involving methadone, almost three-quarters (74.1%) also involved benzodiazepines, 38.8% involved anti-depressants and 29.2% involved pharmaceutical opioids.
- Among unintentional poly-substance deaths involving heroin, 64.2% also involved benzodiazepines, 42.4% involved stimulants, and 26.7% involved anti-depressants.
- Almost half (48.4%) of unintentional poly-substance deaths involving benzodiazepines also involved pharmaceutical opioids and 41.2% involved anti-depressants.
- Among unintentional poly-substance deaths involving anti-depressants, 71.8% also involved benzodiazepines and more than half (51.4%) also involved pharmaceutical opioids.
- Among unintentional poly-substance deaths involving stimulants, more than half (56.6%) also involved benzodiazepines, almost two fifths also involved heroin (39.7%), and one third also involved pharmaceutical opioids (37.7%).
- Among unintentional poly-substance deaths involving alcohol, three in five (61.8%) involved benzodiazepines, 335.8% involved anti-depressants, and 3.9% involved pharmaceutical opioids.
- Among unintentional poly-substance deaths involving cannabinoids, almost two thirds (65.6%) involved benzodiazepines, 44.1% also involved stimulants and 40.2% involved pharmaceutical opioids.
- Among unintentional poly-substance deaths involving anti-psychotics, 73.7% also involved benzodiazepines, 49.7% involved anti-depressants, and 43.5% involved pharmaceutical opioids.
- Among unintentional poly-substance deaths involving anti-convulsants and neuropathic pain modulators, 74.4% involved benzodiazepines and 60.2% also involved pharmaceutical opioids.
- Among unintentional poly substance deaths involving cocaine, more than half (56.1%) also involved benzodiazepines, and 42.1% also involved stimulants.

Table 9. Unintentional poly-substance deaths, proportion (%) of each drug type where additional drug types were detected, by additional drug type, 2017-2021

	Drug type as a proportion of all poly-drug use deaths involving:										
	Pharmaceutical opioids	Methadone	Heroin	Benzo-diazepines	Anti-depressants	Stimulants	Alcohol	Cannabinoids	Anti-psychotics	Anti-convulsants	Cocaine
	%	%	%	%	%	%	%	%	%	%	%
Involving pharmaceutical opioids	-	29.2	19.0	48.4	51.4	33.4	33.9	40.2	43.5	60.2	30.8
Involving methadone	12.4	-		21.2	19.4	17.7	10.8	22.3	26.7	18.4	6.5
Involving heroin	13.9	20.3	-	31.3	22.8	39.7	27.7	36.9	16.1	25.5	34.6
Involving benzodiazepines	72.1	74.1	64.2	-	71.8	56.6	61.8	65.6	73.7	74.4	56.1
Involving anti-depressants	44.0	38.8	26.7	41.2	-	25.3	35.8	30.4	49.7	49.9	15.0
Involving stimulants	26.0	32.3	42.4	29.5	23.0	-	18.5	44.1	29.4	25.0	42.1
Involving alcohol	18.9	14.1	21.2	23.1	23.4	13.3	-	18.4	19.8	11.5	30.5
Involving cannabinoids	15.2	19.7	19.2	16.6	13.5	21.5	12.5	-	16.5	14.2	9.3
Involving anti-psychotics	21.1	21.4	17.8	24.0	28.2	18.3	17.2	21.2	-	27.7	6.9
Involving anti-convulsants and neuropathic pain modulators	23.8	23.6	10.0	19.7	23.1	12.7	8.1	14.8	22.6	-	6.5
Involving cocaine	4.2	4.5	6.5	5.2	2.4	7.4	7.5	3.4	1.9	2.3	-

7. Analysis of specific drug types

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

7.1. Opioids

Key findings:

- Opioids are the most common drug type associated with unintentional drug-induced deaths in 2021, contributing to 45.7% of such deaths (or 765).
- The number of unintentional drug-induced deaths involving opioids has almost doubled from 413 in 2001 to 765 in 2021.
- Since 2001, there has been an increase in the number of unintentional drug-induced deaths involving heroin (from 101 to 297 in 2021), methadone (from 95 to 186 in 2021), and fentanyl/pethidine/tramadol (from 14 to 134 in 2021).
- From 2017-2021, there were 195 unintentional drug-induced deaths involving pharmaceutical opioids as the sole drug type, accounting for 7.7% of all unintentional drug-induced deaths involving such drugs.
- From 2017-2021, there were 377 unintentional drug-induced deaths involving heroin alone – accounting for almost one fifth (18.1%) of all unintentional drug-induced deaths involving heroin.
- From 2017-2021, seven out of ten (72.1%) unintentional poly-substance deaths involving pharmaceutical opioids also involved benzodiazepines and 44% also involved anti-depressants.
- From 2017-2021, 64.2% of unintentional poly-substance deaths involving heroin also involved benzodiazepines and 42.4% also involved stimulants.
- People aged 50 and over accounted for one in three (33.9%) unintentional drug-induced deaths involving pharmaceutical opioids in the five years to 2021, while those aged under 30 accounted for 13.8% of these deaths.
- People aged 50 and over accounted for 26.2% of unintentional drug-induced deaths involving heroin during the five years to 2021, while those aged under 30 accounted for 12.1% of these deaths.
- Unintentional deaths involving opioids among females were more likely to involve pharmaceutical opioids (61.8% of such deaths) than heroin (28.8%).

- Unintentional deaths involving opioids among males were equally likely to involve pharmaceutical opioids (47.0% of such deaths) and heroin (47.9%).

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.

The data cannot distinguish between the illicit or licit use of pharmaceutical opioids. Additionally, the raw data are grouped in such a way that information is not available on individual drugs within the various categories.

Opioid medications are prescribed to treat chronic or severe pain; as of 2020, there were 10 opioids approved for use in Australia, along with more than 126 different formulations.[29] Australia reports a relatively high prevalence of pharmaceutical opioid use compared with other countries. In a recent study comparing per capita pharmaceutical opioid use across 66 countries, Australia ranked sixth highest behind Canada, Switzerland, Germany, Spain, and Denmark.[30] In 2020-21, approximately 14.0 million opioid prescriptions[31] were dispensed under the Pharmaceutical Benefits Scheme (PBS) to almost 3.0 million patients nationwide. This equates to 48,198 prescriptions and 10,895 patients per 100,000 population. Oxycodone was the most common type of opioid prescribed in Australia (with approximately 5.0 million prescriptions dispensed to 1.2 million patients), followed by codeine (approximately 3.7 million scripts dispensed to 1.6 million patients) and tramadol (approximately 1.9 million scripts dispensed to 454,912 patients).[32] Findings from Australia's National Wastewater Analysis Program suggest that Australians consumed approximately 80 milligrams (mg) of oxycodone (or 4 doses) and 0.8 mg of fentanyl (or 4 doses) per 1,000 people per day from August 2020 to October 2022.[33]

[29] Dunlop, A. J., Lokuge, B., & Lintzeris, N. (2021). Opioid prescribing in Australia: too much and not enough. *The Medical Journal of Australia*, *215*(3), 117.
[30] Ju, C., Wei, L., Man, K. K., Wang, Z., Ma, T. T., Chan, A. Y., et al. (2022). Global, regional, and national trends in opioid analgesic consumption from 2015 to 2019: a longitudinal study. *The Lancet Public Health*, *7*(4), e335-e346.
[31] These data include opioid prescriptions for the treatment of chronic pain; they do not include prescriptions for the treatment of opioid use disorder.
[32] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Pharmaceuticals.*
[33] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: Report 18.* Canberra: ACIC.

Approximately 2.7% of Australians reported having used a prescription opioid for illicit or non-medical purposes in 2019. In the same year, approximately 0.3% of the population reported recent heroin use.[34] Estimates obtained via wastewater analysis suggest that Australians consumed almost 150 mg of heroin (or 7 doses) per 1,000 people per day, from August 2020 to October 2022. [35]

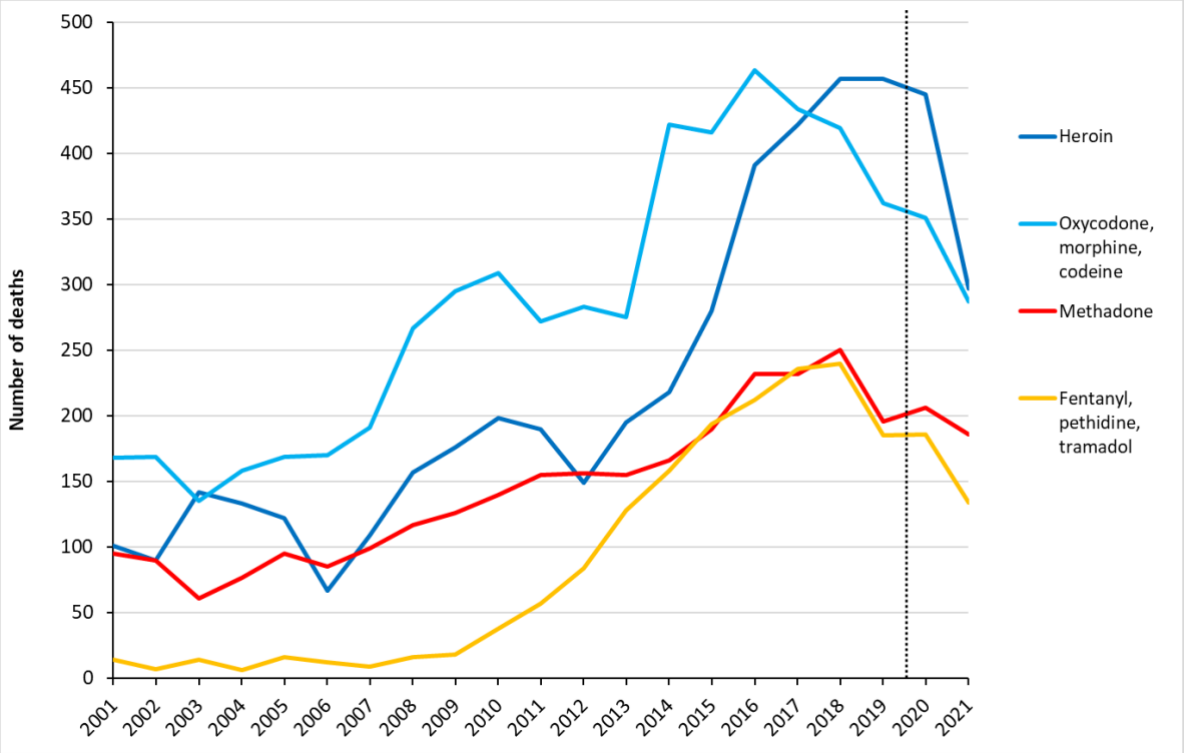
There were 765 unintentional drug-induced deaths involving opioids in 2021, with a rate of 3.1 deaths per 100,000 population. Opioids (collectively) were involved in 45.7% of all unintentional drug-induced deaths; they are the group of drugs most commonly identified in unintentional drug-induced deaths. This is predominantly due to heroin and the oxycodone / morphine / codeine group (Figure 29). In 2021, there were 297 unintentional drug-induced deaths involving heroin (representing 38.8% of unintentional drug-induced deaths involving opioids) and 287 involving oxycodone / morphine / codeine (37.5% of unintentional drug-induced deaths involving opioids). There were an additional 186 deaths involving methadone (24.3% of unintentional drug-induced deaths involving opioids) and 134 unintentional drug-induced deaths involving fentanyl / pethidine / tramadol (17.5% of unintentional drug-induced deaths involving opioids).[36] The rate of death was higher for heroin (1.2 deaths per 100,000 population) and oxycodone/morphine/codeine (1.1 deaths per 100,000 population), compared with methadone (0.8 deaths per 100,000 population) and fentanyl/pethidine/tramadol (0.5 deaths per 100,000 population). As a group, pharmaceutical opioids were involved in 49.8% of unintentional drug-induced deaths involving opioids in 2021, with 381 deaths. There were no deaths involving opium in 2021.

The number of unintentional drug-induced deaths involving opioids has more than doubled since 2006, increasing from 338 to 765 in 2021. Over the same period, deaths involving heroin increased by more than 300% (from 67 in 2006 to 297 in 2021), deaths involving methadone more than doubled (from 85 to 186 in 2021) and deaths involving fentanyl / pethidine / tramadol increased by more than 1,000% (from 12 to 134 in 2021). Despite preliminary data suggesting the number of deaths involving heroin decreased from 445 in 2020 to 297 in 2021, the number of such deaths has still doubled since 2012.

While the number of unintentional drug-induced deaths involving oxycodone / morphine / codeine increased steadily to a high of 463 deaths in 2016, it has continued to fall since then to 287 in 2021. This reduction 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.

[34] Australian Institute of Health and Welfare (2020). *National Drug Strategy Household Survey 2019*.
[35] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: Report 18.* Canberra: ACIC.
[36] 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.

Figure 29. Number of unintentional drug-induced deaths by opioid type, 2001-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The states show markedly different trends in rates per 100,000 population, by opioid type (Figure 30).[37] For heroin (Figure 30A), 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 2.1 deaths per 100,000 population in 2021. The rate in Western Australia has also been increasing substantially, such that the state had the second highest rate in 2021, with 1.5 deaths per 100,000 population.[38]

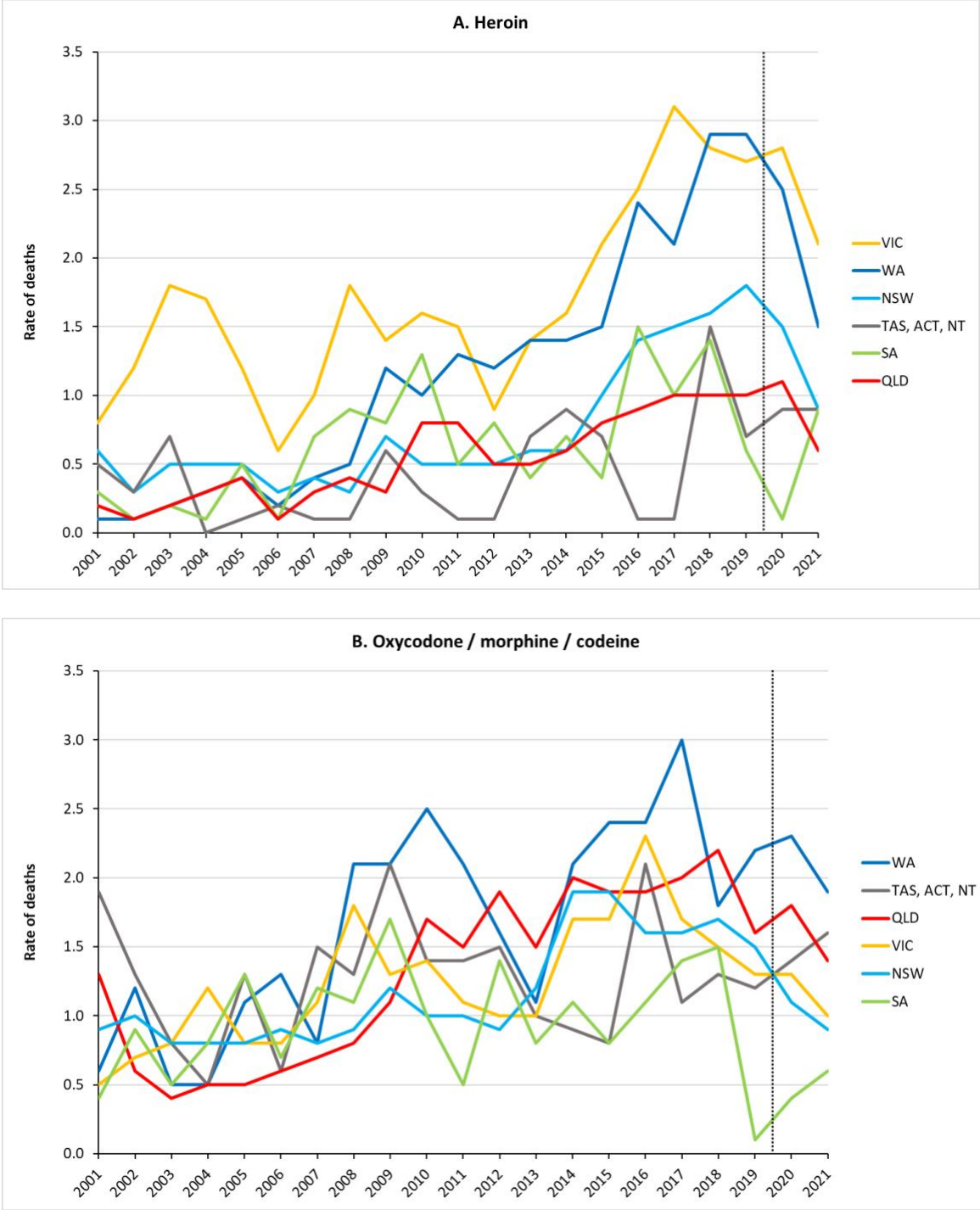
There has been high variability in the rates of unintentional drug-induced deaths involving oxycodone / morphine / codeine (Figure 30B). While Western Australia continues to have a higher rate than other jurisdictions, most states and territories appear to be seeing a drop in such deaths.

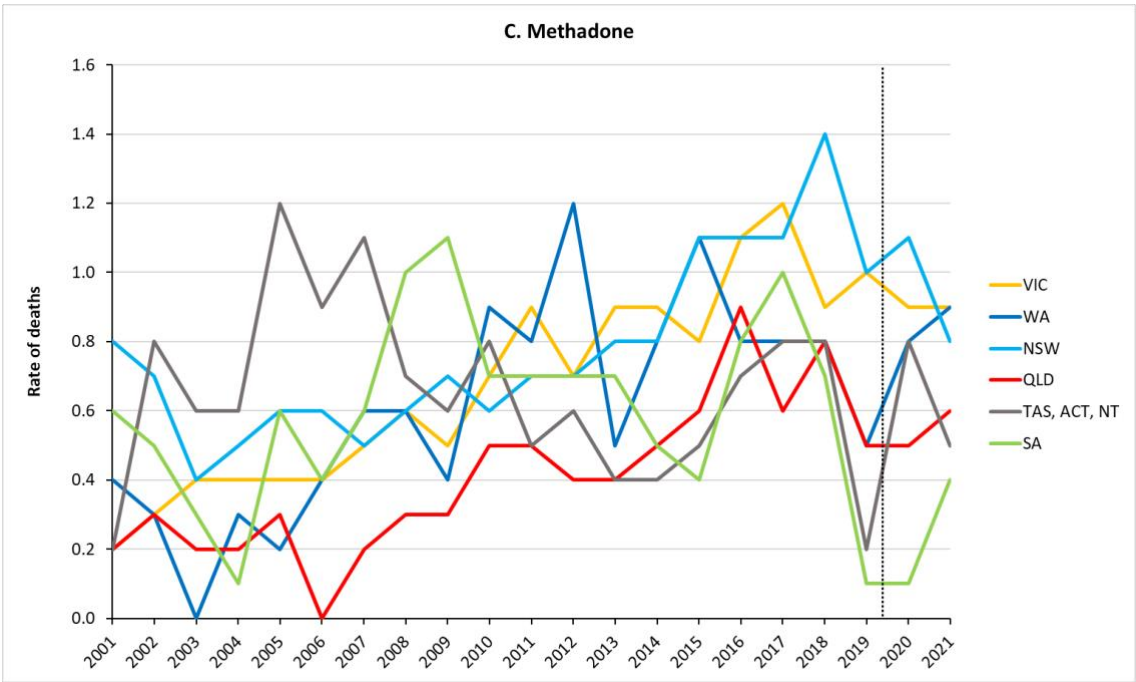
For methadone (Figure 30C), the rates of unintentional drug-induced death are lower than for heroin or oxycodone / morphine / codeine. Despite substantial variability (and uncertainty) in the rates due to small numbers, the overall trend appears to be increasing in Victoria, which had the highest rate of unintentional drug-induced deaths involving methadone in 2021 (0.9 deaths per 100,000 population). While New South Wales had previously seen a spike in its rate of unintentional drug-induced deaths involving methadone, there was a drop from 1.1 per 100,000 population in 2020 to 0.8 in 2021.

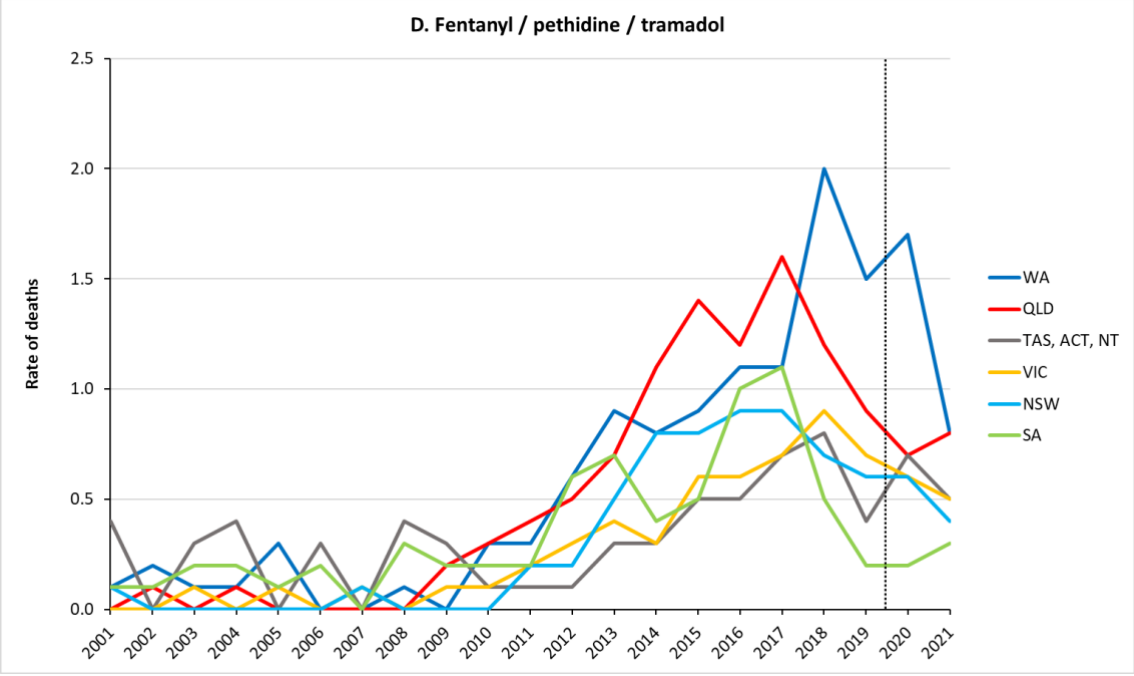
For fentanyl / pethidine / tramadol (Figure 30D), higher rates of deaths in recent years have been observed in Western Australia and Queensland, with 0.8 deaths per 100,000 population in both states in 2021.

[37] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.
[38] The smaller population size in Western Australia means that there is more uncertainty in the estimates for that state.

Figure 30. Unintentional drug-induced deaths by state for each opioid type, 2001-2021, rate per 100,000 population







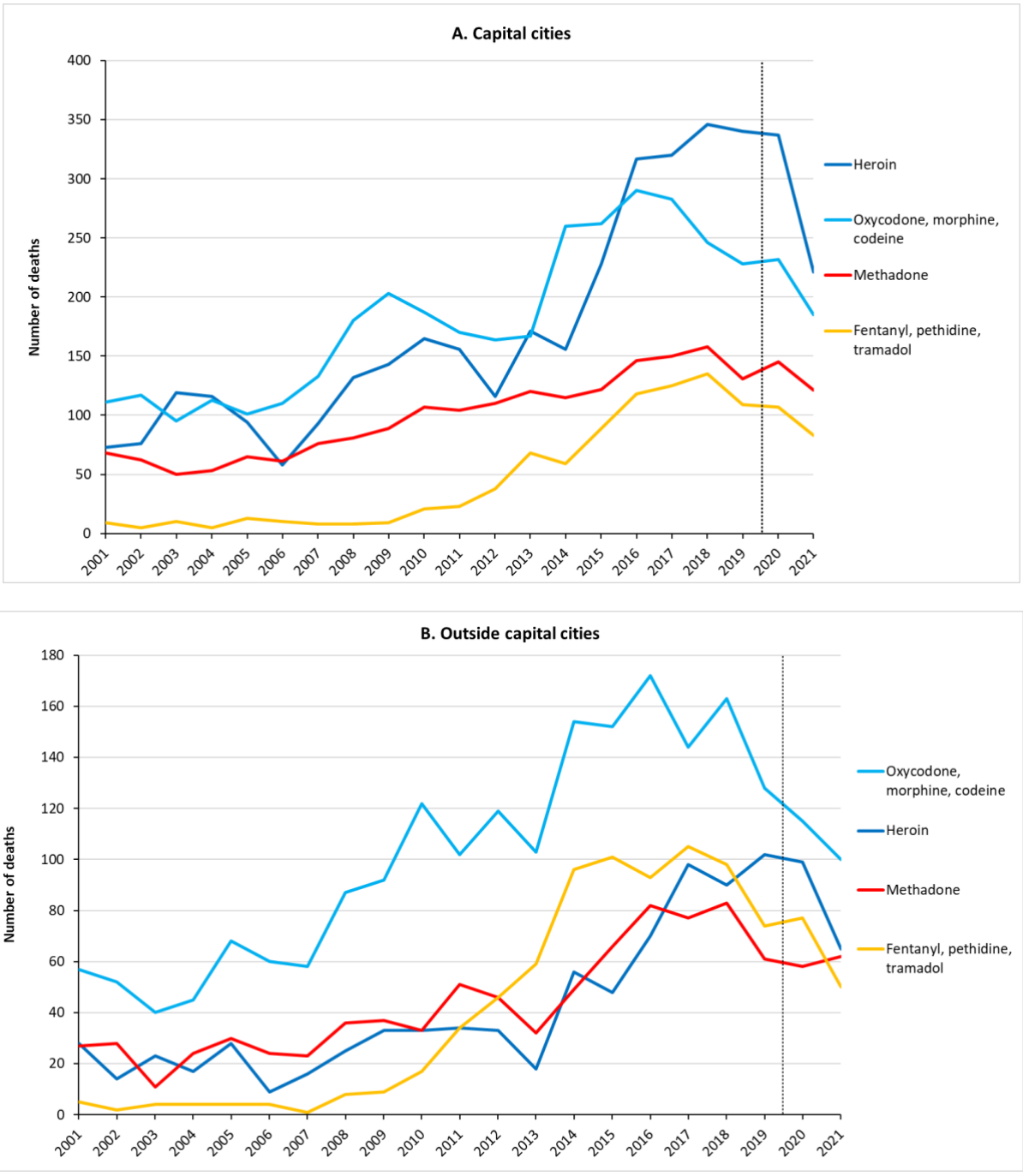
Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. Numbers of deaths cannot be reliably converted to rates per 100,000 in Tasmania, Northern Territory, and Australian Capital Territory due to low numbers and are therefore presented as an aggregate.

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 opioids involved (Figure 31).

In the capital cities (Figure 31A), the number of unintentional drug-induced deaths involving heroin has increased overtime (from 156 deaths in 2014 to 221 in 2021), despite preliminary data suggesting a decrease in deaths from 2020 to 2021. Since 2016, the number of deaths involving heroin has exceeded those involving oxycodone / morphine / codeine (with 185 deaths in 2021).

In rural and regional areas (Figure 31B), unintentional drug-induced deaths involving opioids predominantly involved heroin (65 deaths in 2021) or oxycodone / morphine / codeine (100 deaths in 2021). Like trends observed in capital cities, the number of deaths involving heroin in regional and rural areas has increased from 18 deaths in 2013 to 65 in 2021, despite preliminary data suggesting a decrease in the number of such deaths from 2020 to 2021. The number of deaths involving fentanyl / pethidine / tramadol has steadily increased from 2008 (from only 8 to 50 in 2021).

Figure 31. Number of unintentional drug-induced deaths by opioid type, 2001-2021, within (A) and outside of (B) capital cities



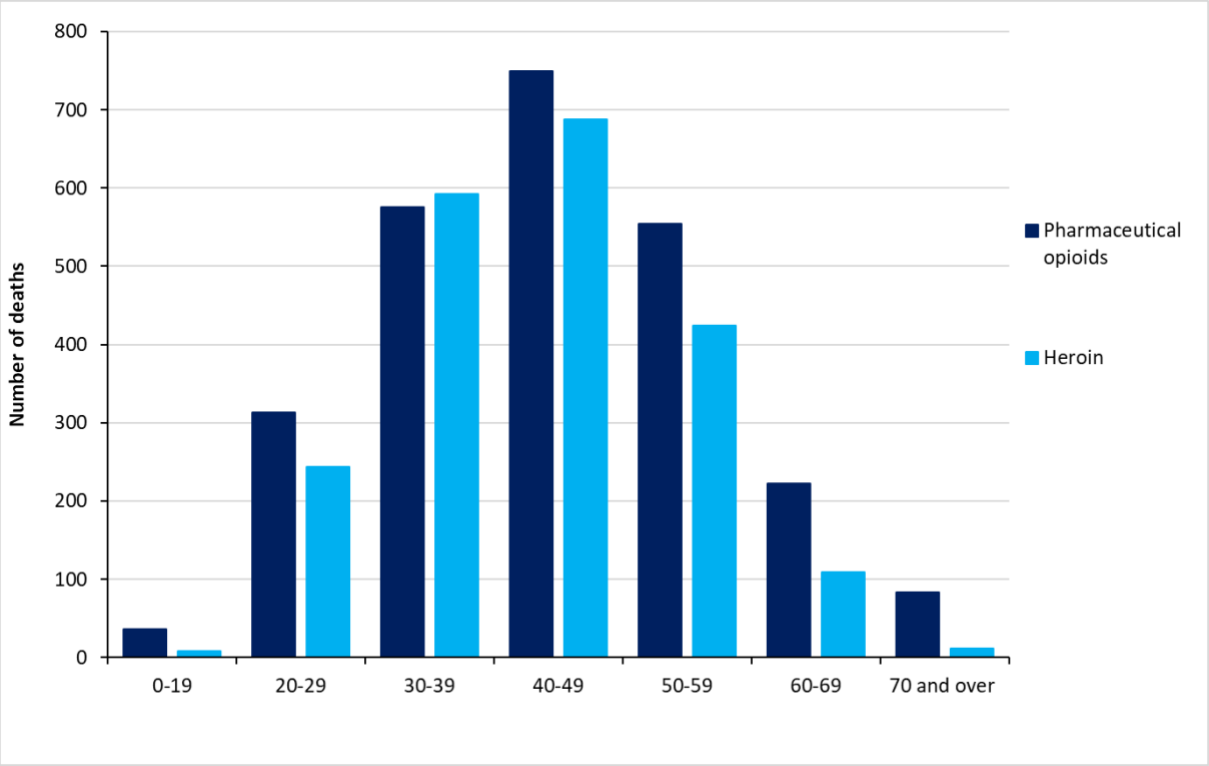
Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Older age groups are more prevalent in unintentional drug-induced deaths involving pharmaceutical opioids than those involving heroin (Figure 32). In the period 2017 to 2021, the most common age group for unintentional deaths involving heroin was 40-49 (with 688 deaths, or 33.1% of unintentional drug-induced deaths involving heroin), although the number of these deaths in the 30-39 cohort was also high (593 deaths). The 40-49 age group also reported the most unintentional drug-induced deaths involving pharmaceutical opioids (with 749 deaths, or 29.6% of unintentional deaths involving these drugs).

One-third (33.9%) unintentional drug-induced deaths involving pharmaceutical opioids were observed in people aged 50 and above: 21.9% among the 50-59 age group (554 deaths) and 12.1% among people aged 60 and above (306 deaths).

In comparison, around one in four (26.2%) of unintentional drug-induced deaths involving heroin were observed in people aged 50 and above: 20.4% among the 50-59 age group (424 deaths) and 5.8% among people aged 60 and above (121 deaths).

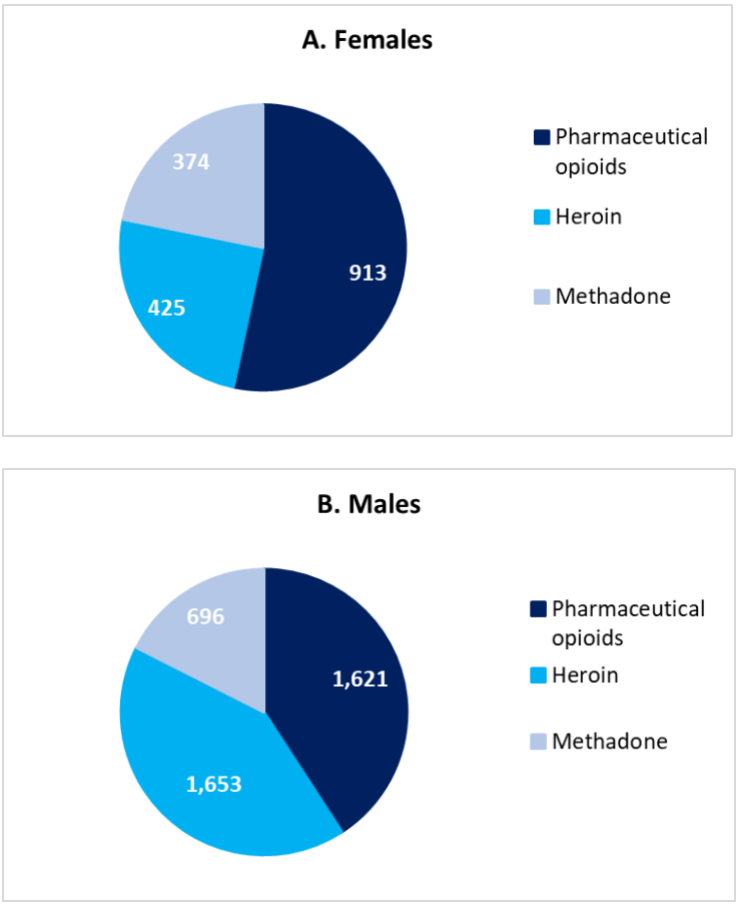
Figure 32. Number of unintentional drug-induced deaths by opioid type and age group, 2017-2021



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

As shown in Figure 33, pharmaceutical opioids contribute to a significant number of unintentional drug-induced deaths involving opioids among both males and females. Females had a higher proportion of unintentional drug-induced deaths involving pharmaceutical opioids than males (61.8% among females, compared with 47.0% among males), while males had a higher proportion of unintentional drug-induced deaths involving heroin (47.9% among males, compared with 28.8% among females). Methadone was associated with about one in four unintentional drug-induced deaths involving opioids among females (25.3%) and one in five of such deaths among males (20.2% for males).

Figure 33. Number of unintentional drug-induced deaths by opioid type and sex, 2017-2021

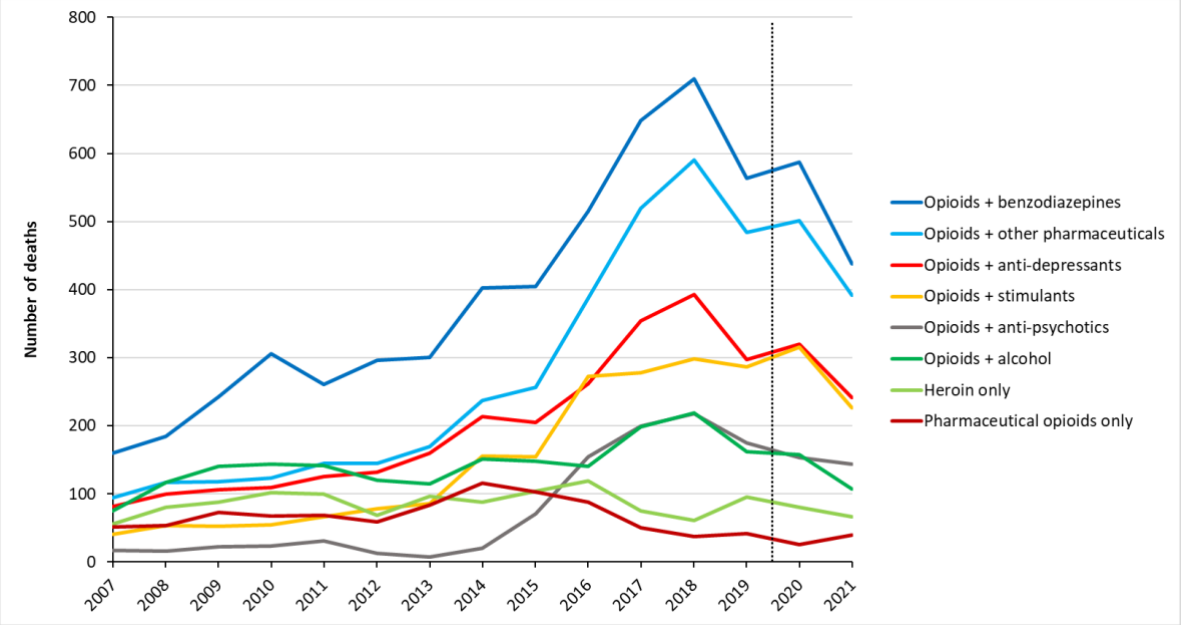


Note: Data are aggregated over the five-year period.

Unintentional drug-induced deaths involving opioids predominantly occur in a poly-drug context, as shown in Figure 34. The most common combination of drugs is opioids with benzodiazepines, and this category of poly-drug use has nearly trebled, from 160 deaths in 2007 to 438 in 2021. The combination of opioids with a broad range of other pharmaceuticals accounts for the second-highest number of unintentional drug-induced deaths involving opioids (392 deaths in 2021). 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.

In the five years to 2021, there were 195 unintentional drug-induced deaths involving pharmaceutical opioids as the sole drug type, accounting for 7.7% of all unintentional drug-induced deaths involving such drugs. In the same period, there were 377 unintentional drug-induced deaths involving heroin alone, accounting for almost one-fifth (18.1%) of all unintentional drug-induced deaths involving heroin. The number of unintentional drug-induced deaths involving pharmaceutical opioids alone has decreased from a high of 116 such deaths in 2014 to 40 deaths in 2021.

Figure 34. Number of unintentional drug-induced deaths involving opioids by sole-drug and poly-drug use categories, 2007-2021



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. '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. 'Pharmaceutical opioids' includes oxycodone, morphine, codeine, fentanyl, pethidine, tramadol, tapentadol, buprenorphine and hydromorphone.

7.2. Benzodiazepines

Key findings:

- Benzodiazepines remain the second most common drug type associated with unintentional drug-induced deaths in 2021, contributing to 32.5% of unintentional drug-induced deaths (544 such deaths).
- The proportion of unintentional drug-induced deaths involving benzodiazepines has doubled from 16.8% in 2001 to 32.5% in 2021.
- From 2017-2021, there were 28 unintentional drug-induced deaths involving benzodiazepines as the sole drug type, accounting for only 0.8% of all unintentional drug-induced deaths involving benzodiazepines.
- From 2017-2021, almost half (48.4%) of unintentional poly-substance deaths involving benzodiazepines also involved pharmaceutical opioids and 41.2% involved anti-depressants.
- Benzodiazepines were the drug type most commonly found in poly-drug deaths that involved pharmaceutical drugs: they appeared in 74.4% of poly-drug deaths involving anti-convulsants, 74.1% of poly-drug deaths involving methadone, 73.7% of poly-drug deaths involving anti-psychotics and 72.1% of poly-drug deaths involving pharmaceutical opioids.
- People aged 50 and above accounted for almost three in ten (28.8%) unintentional drug-induced deaths involving benzodiazepines during the five years to 2021, while those aged under 30 accounted for 13.8% of such deaths.
- Males accounted for two-thirds (66.8%) of the unintentional drug-induced deaths involving benzodiazepines during the five years to 2021.

Benzodiazepines are a class of drugs prescribed for problems relating to anxiety and sleep. In 2020-21, there were approximately 5.2 million benzodiazepine prescriptions dispensed to 1.4 million patients under the PBS, at a rate of 18,133 prescriptions per 100,000 population.[39] Over the last decade, 'novel' benzodiazepines (a term referring to a subset of new psychoactive substances that includes pharmaceutical benzodiazepines not available for use in Australia, and illicitly manufactured benzodiazepines) have become increasingly prevalent in the illicit drug market in Australia.[40] Novel benzodiazepines often have a higher potency compared with prescription benzodiazepines; they

[39] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Pharmaceuticals.*

[40] Bade, R., Ghetia, M., White, J. M., & Gerber, C. (2020). Determination of prescribed and designer benzodiazepines and metabolites in influent wastewater. *Analytical Methods* 28, 3637-3644.

have been detected in drug-induced deaths in Australia since 2015.[41] The data presented here cannot distinguish between the use of pharmaceutical or novel benzodiazepines.

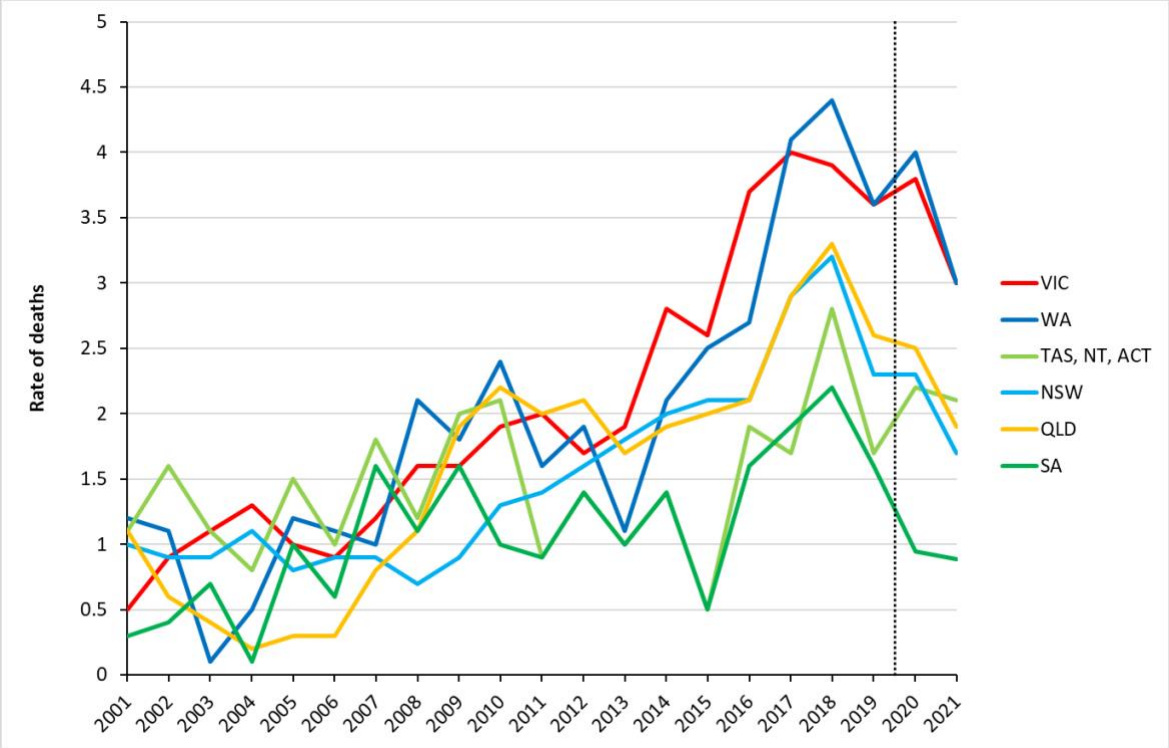
There were 544 unintentional drug-induced deaths involving benzodiazepines in 2021, with a rate of 2.2 deaths per 100,000 population. Benzodiazepines were detected in one-third (32.5%) of all unintentional drug-induced deaths; they are the second-most common drug group identified, behind opioids.

Unintentional deaths involving benzodiazepines primarily occurred in a poly-substance context: in the five years to 2021, there were 28 unintentional drug-induced deaths involving benzodiazepines as the sole drug type, accounting for only 0.8% of all unintentional drug-induced deaths involving benzodiazepines. Benzodiazepines were the drug type most commonly found in poly-drug deaths that involved pharmaceutical drugs: they appeared in 74.4% of poly-drug deaths involving anti-convulsants, 74.1% of poly-drug deaths involving methadone, 73.7% of poly-drug deaths involving anti-psychotics and 72.1% of poly-drug deaths involving pharmaceutical opioids.

As shown in Figure 35,[42] rates of unintentional drug-induced deaths involving benzodiazepines have risen sharply since 2013 in Victoria (from 1.9 to 3 deaths per 100,000 population in 2021), and Western Australia (from 1.1 to 3 deaths per 100,000 population). While this steep increase is not replicated in other states, a more gradual rise has occurred in both New South Wales and Queensland. The combined rate of unintentional drug-induced deaths involving benzodiazepines in Tasmania, the ACT and the Northern Territory has also increased since 2013 (from 1 to 2.1 deaths per 100,000 population in 2021).

[41] Darke, S., Peacock, A., Duflou, J., Farrell, M., & Lappin, J. (2022). Characteristics of fatal 'novel' benzodiazepine toxicity in Australia. *Forensic Science International*, *331*, 111140.
[42] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.

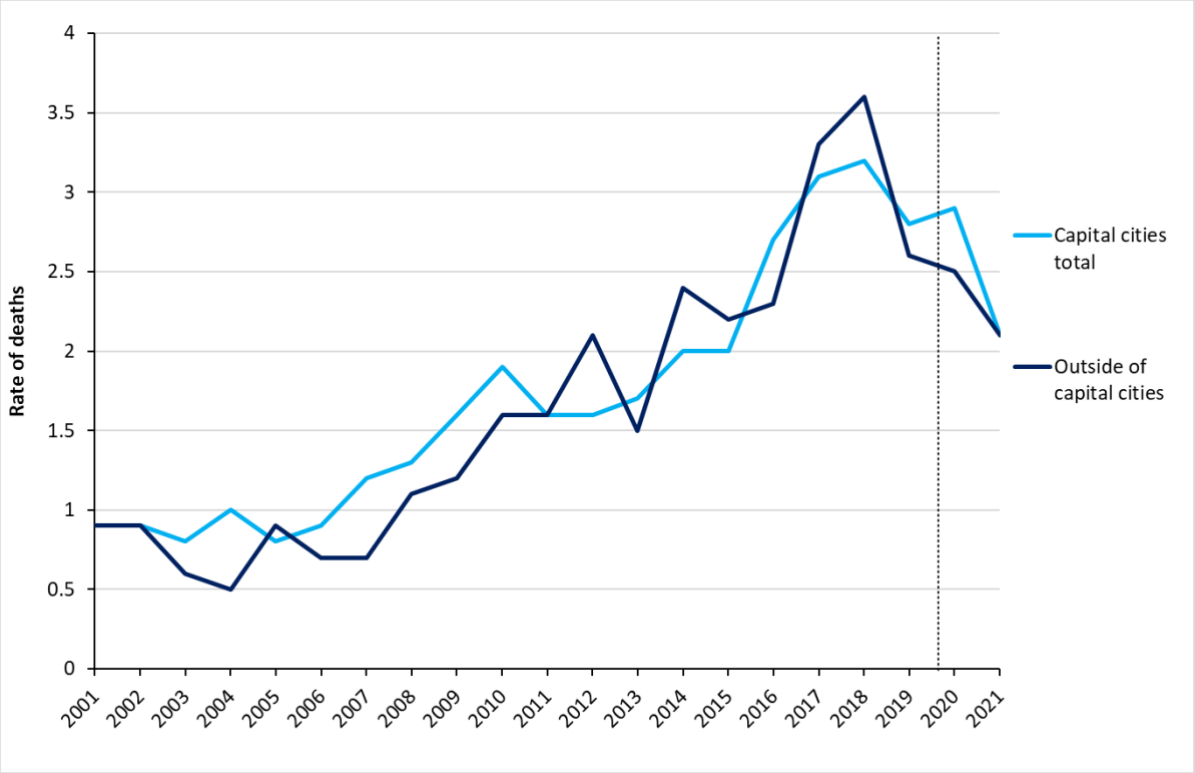
Figure 35. Unintentional drug-induced deaths involving benzodiazepines by state and territory, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 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.

Unintentional drug-induced deaths involving benzodiazepines are increasing both within and outside of capital cities, with broadly comparable rates over time. In 2021, the rate of unintentional drug-induced deaths involving benzodiazepines was 2.1 deaths per 100,000 population both within and outside of capital cities (Figure 36). While preliminary data suggest the rate of unintentional drug-induced deaths involving benzodiazepines has decreased in recent years within capital cities (from 3.1 deaths per 100,000 population in 2017 to 2.1 in 2021) and outside of capital cities (from 3.3 deaths per 100,000 in 2017 to 2.1 in 2021), both rates have increased considerably since 2003.

Figure 36. Unintentional drug-induced deaths involving benzodiazepines by regionality, 2001-2021, rate per 100,000 population

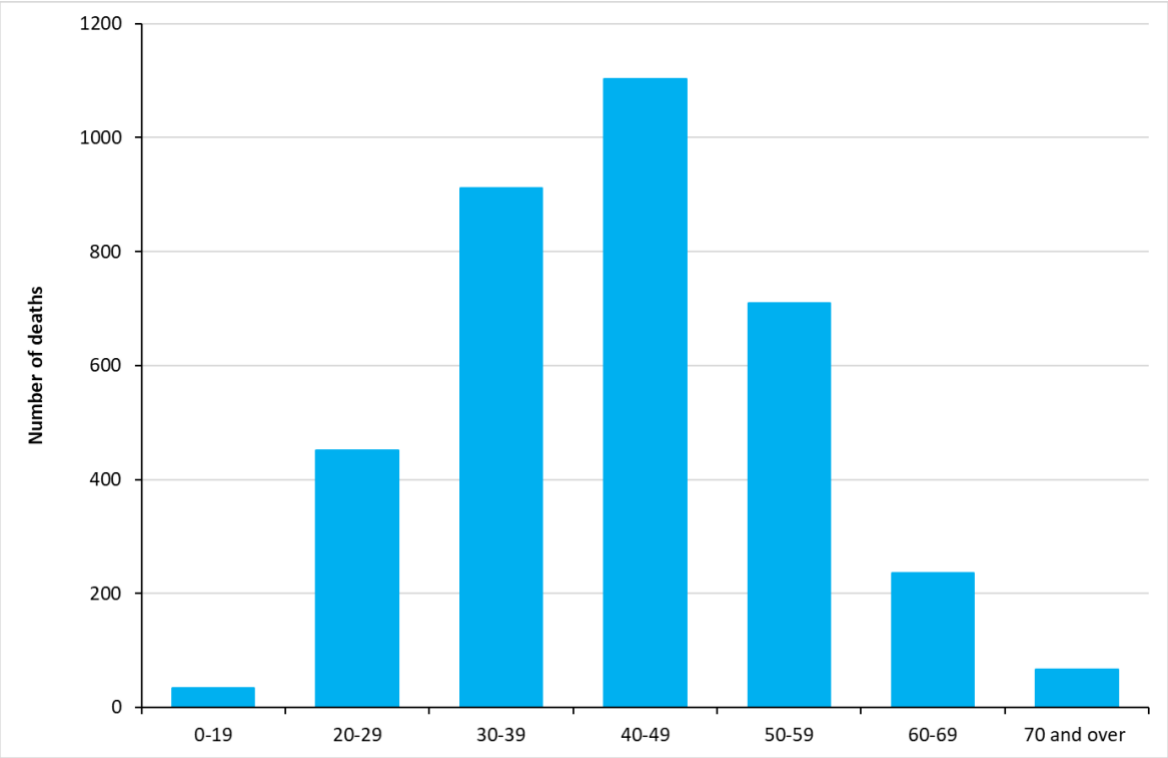


Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The number of unintentional drug-induced deaths involving benzodiazepines over the period 2017 to 2021 was highest among people aged 40-49 (accounting for 31.4% of unintentional drug-induced deaths involving benzodiazepines), followed by those aged 30-39 (26.0% of unintentional drug-induced deaths involving benzodiazepines), as shown in Figure 37.

More than one-quarter (28.8%) of unintentional drug-induced deaths involving benzodiazepines during this period involved people aged 50 and above: 20.2% among the 50-59 age group (710 deaths) and 8.6% among people aged 60 and above (303 deaths).

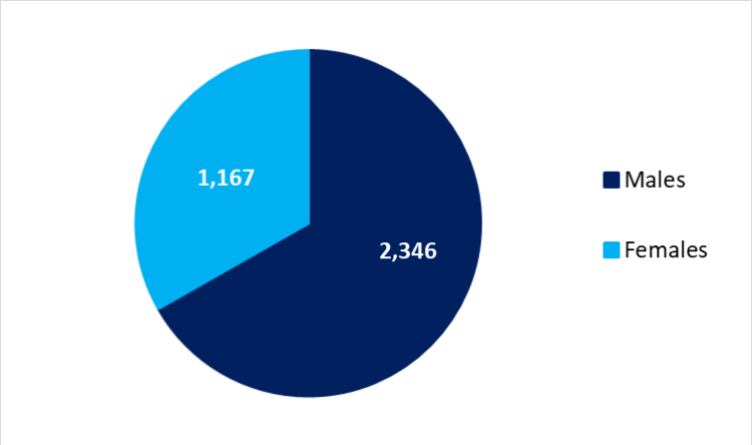
Figure 37. Number of unintentional drug-induced deaths involving benzodiazepines by age group, 2017-2021



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 2,346 deaths among males accounting for more than two-thirds of the deaths involving benzodiazepines (66.8%), compared with 1,167 deaths among females, over the period 2017 to 2021, as shown in Figure 38.

Figure 38. Number of unintentional drug-induced deaths involving benzodiazepines by sex, 2017-2021



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

7.3. Stimulants

Key findings:

- Stimulants contributed to 27.5% of unintentional drug-induced deaths in 2021 (461 such deaths).
- The proportion of unintentional drug-induced deaths involving stimulants has increased from just 5.4% in 2001 to 27.5% in 2021.
- The number of unintentional drug-induced deaths involving stimulants has increased almost ten-fold in the past two decades, from 53 deaths in 2001 to 461 in 2021.
- From 2017-2021, there were 412 unintentional drug-induced deaths involving stimulants as the sole drug type, accounting for almost one fifth (18.5%) of all unintentional drug-induced deaths involving stimulants.
- From 2017-2021, 56.6% of unintentional poly-substance deaths involving stimulants also involved benzodiazepines, 39.7% also involved heroin, and 37.7% also involved pharmaceutical opioids.
- People aged 50 and older accounted for 21.0% of the unintentional drug-induced deaths involving stimulants during the five years to 2021, while those aged under 30 accounted for 16.8% of these deaths.
- Males accounted for 74.3% of the unintentional drug-induced deaths involving stimulants during the five years to 2021.

This group includes methamphetamine (including 'ice'), amphetamine (including prescription stimulant medications used to treat attention deficit hyperactivity disorder and narcolepsy), and ecstasy (MDMA).

Methamphetamine accounts for more than 80% of all illicit stimulant use in Australia and is the second most consumed illicit drug after cannabis.[43] Australians are estimated to have consumed 8,838 kilograms of methamphetamine in 2020-21; this figure has fluctuated over time from 8,405 kg in 2016-17 to 11,147 kg in 2019-20. In comparison, it is estimated that 1,231 kilograms of MDMA was consumed in 2020-21; a decline from the 2,630 kilograms estimated to have been consumed in 2019-20. [44] Australia has a large methamphetamine market compared with other countries. In a

[43] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: report 19*.
[44] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: Report 19.* Canberra: ACIC.

recent study comparing stimulant consumption in 25 countries spanning Europe, Asia and Oceania, Australia reported the third highest methamphetamine consumption on a per capita basis.[45]

At the same time, prescribing rates for amphetamines have increased in Australia since 2016-17. Approximately 2.0 million stimulant prescriptions were dispensed to 288,098 patients under the PBS in 2020-21. On average, the number of stimulant prescriptions dispensed in Australia has increased by 14.2% each year since 2016-17.[46] Prescription stimulant medications are becoming increasingly prevalent among stimulant-related poisonings and hospitalisations.[47]

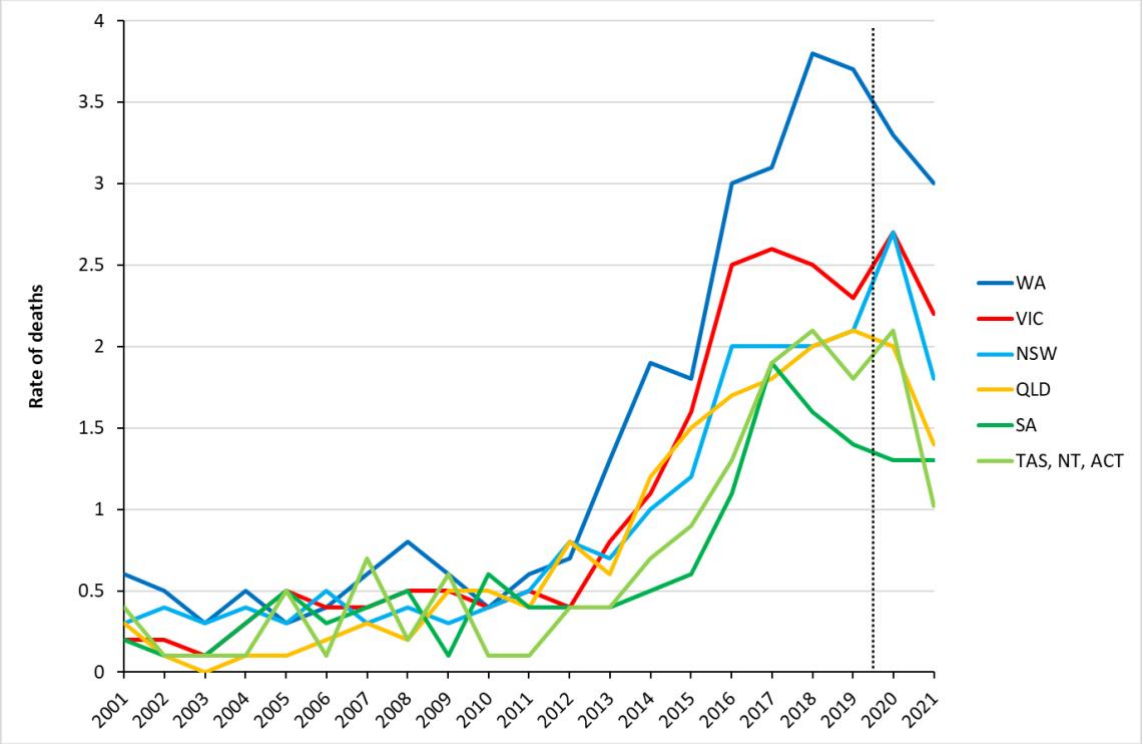
There were 461 unintentional drug-induced deaths involving stimulants in 2021, with a rate of 1.9 deaths per 100,000 population. Stimulants were detected in 27.5% of all unintentional drug-induced deaths. Their involvement in unintentional drug-induced deaths has risen substantially over time: in 2001, stimulants accounted for only 5.4% of all unintentional drug-induced deaths. Stimulants were the third-most commonly detected drug in these deaths in 2021.

In the five years to 2021, there were 412 unintentional drug-induced deaths involving stimulants as the sole drug type, accounting for almost one-fifth (18.5%) of all unintentional drug-induced deaths involving stimulants.

The rates of unintentional drug-induced deaths involving stimulants are increasing in all states and territories (Figure 39).[48] Since 2013, the highest rates of death involving stimulants have occurred in Western Australia, increasing from 1.3 deaths per 100,000 population in 2013 to 3 in 2021.

[45] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: report 19*.
[46] Australian Institute of Health and Welfare (2022). *Mental health-related prescriptions.*
[47] Martin, C., Harris, K., Wylie, C., & Isoardi, K. (2023). Rising prescription stimulant poisoning in Australia: a retrospective case series. *Toxicology Communications*, *7*(1), 2174689.
[48] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.

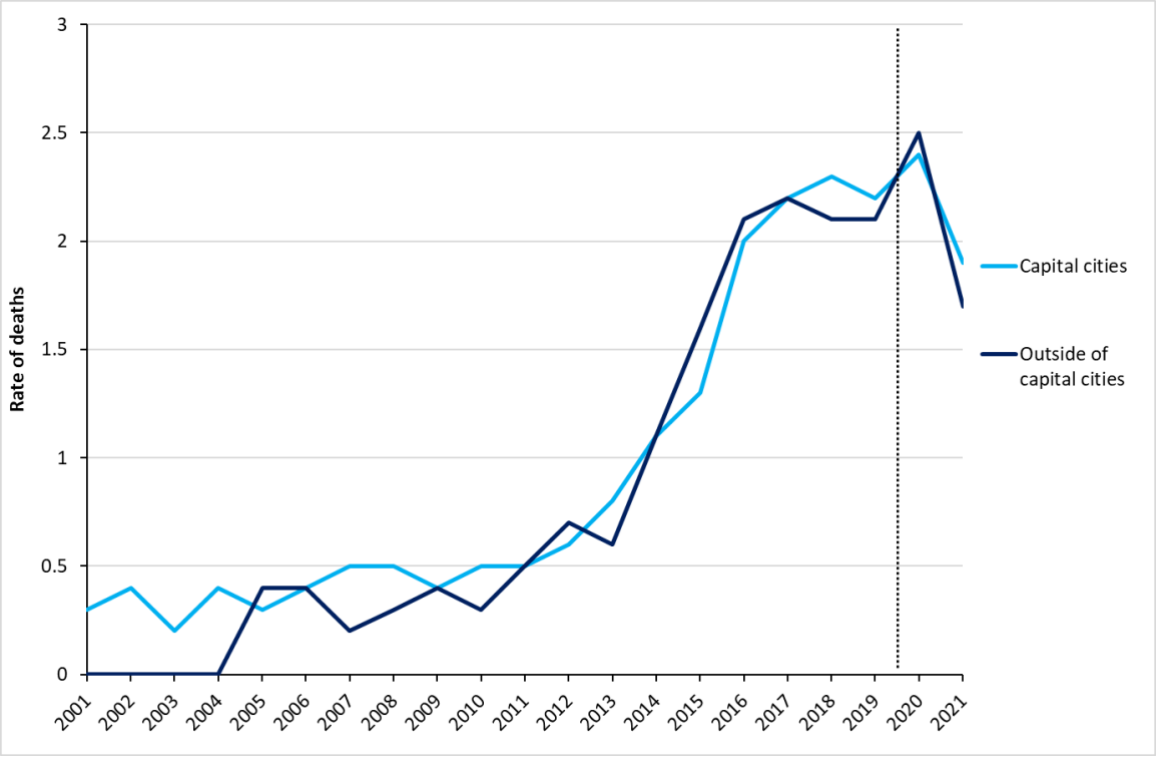
Figure 39. Unintentional drug-induced deaths involving stimulants by state and territory, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 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.

Unintentional drug-induced deaths involving stimulants are increasing both within and outside of capital cities (Figure 40). While capital cities had higher death rates for several years from 2006 to 2010, the rates for the two regions have been tracking closely since 2011. From 2011 to 2021, the rates of unintentional drug-induced deaths involving stimulants increased within capital cities (from 0.5 to 1.9 deaths per 100,000 population) and outside of capital cities (from 0.5 to 1.7 deaths per 100,000).

Figure 40. Unintentional drug-induced deaths involving stimulants by regionality, 2001-2021, rate per 100,000 population

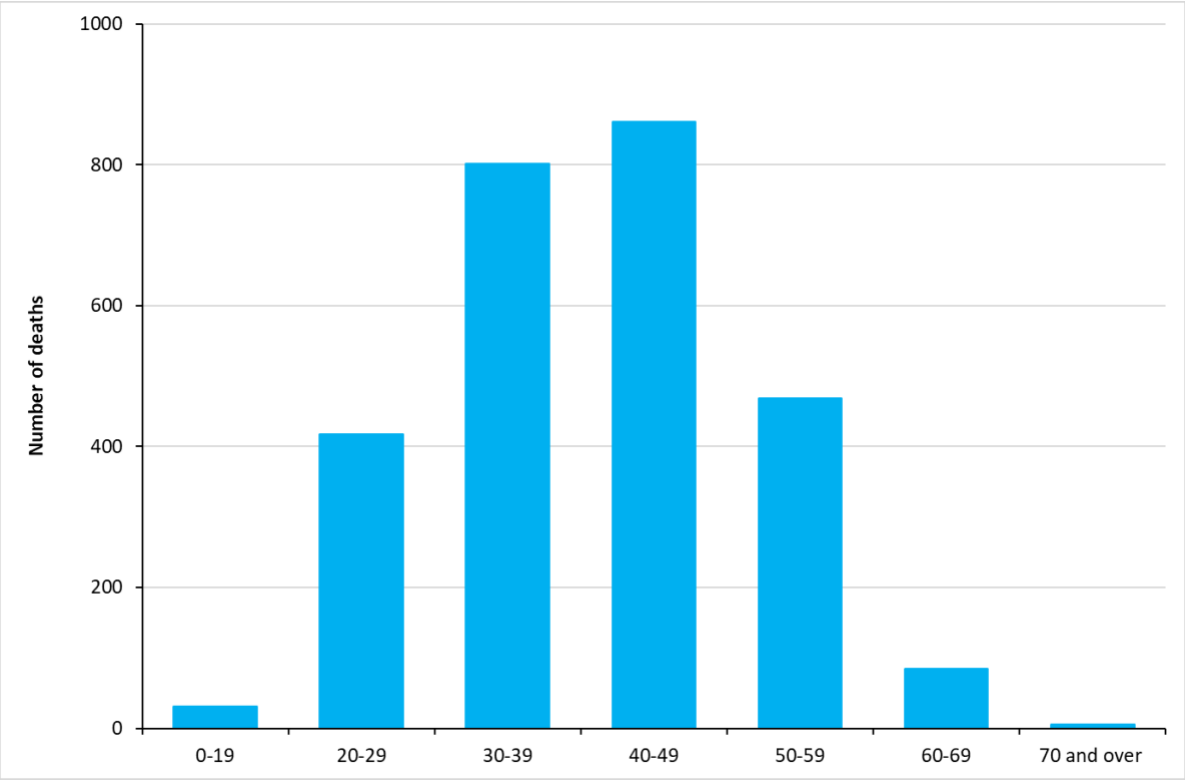


Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The number of unintentional deaths involving stimulants over the period 2017 to 2021 was highest among people aged 40-49 (accounting for 32.2% of deaths involving stimulants), followed by people aged 30-39 (accounting for 30.0%), as shown in Figure 41.

While young people aged under 30 accounted for 16.8% of unintentional drug-induced deaths involving stimulants over the five years (with 448 such deaths), there were 560 such deaths among people aged 50 and older, representing at least one in five (21.0%) unintentional drug-induced deaths involving stimulants.

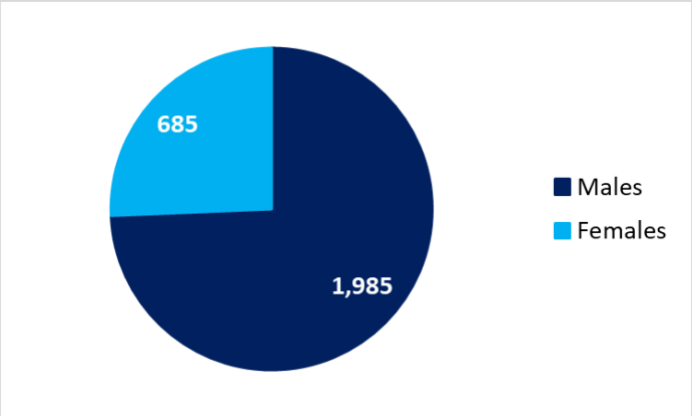
Figure 41. Number of unintentional drug-induced deaths involving stimulants by age group, 2017-2021



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

Males had almost three times more unintentional drug-induced deaths involving stimulants than females over the five-year period, with 1,985 deaths among males accounting for almost three-quarters of deaths involving stimulants (74.3%), compared with 685 deaths among females (Figure 42).

Figure 42. Number of unintentional drug-induced deaths involving stimulants by sex, 2017-2021



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

7.4. Anti-depressants

Key findings:

- Anti-depressants contributed to 19.3% of unintentional drug-induced deaths in 2021 (324 such deaths).
- The proportion of unintentional drug-induced deaths involving anti-depressants has almost doubled from 10.5% in 2001 to 19.3% in 2021.
- From 2017-2021, there were 48 unintentional drug-induced deaths involving anti-depressants as the sole drug type, accounting for 2.3% of all unintentional drug-induced deaths involving anti-depressants.
- From 2017-2021, 71.8% of unintentional poly-substance deaths involving anti-depressants also involved benzodiazepines and 51.4% also involved pharmaceutical opioids.
- People aged 50 and over accounted for 34.7% of the unintentional deaths involving anti-depressants during the five years to 2021, while those aged under 30 accounted for 10% of these deaths.
- Males accounted for 57.4% of the unintentional drug-induced deaths involving anti-depressants during the five years to 2021.

This group includes tricyclic and tetracyclic anti-depressants, monoamine-oxidase-inhibitor anti-depressants, and other unspecified anti-depressants such as selective serotonin reuptake inhibitors.[49] In 2020-21, approximately 31.2 million anti-depressant prescriptions were dispensed under the PBS, to 3.5 million patients, accounting for 73% of all mental health-related prescriptions dispensed nationwide. On average, the number of anti-depressant prescriptions dispensed has increased 5.3% annually from 20.8 million scripts in 2012-13. [50]

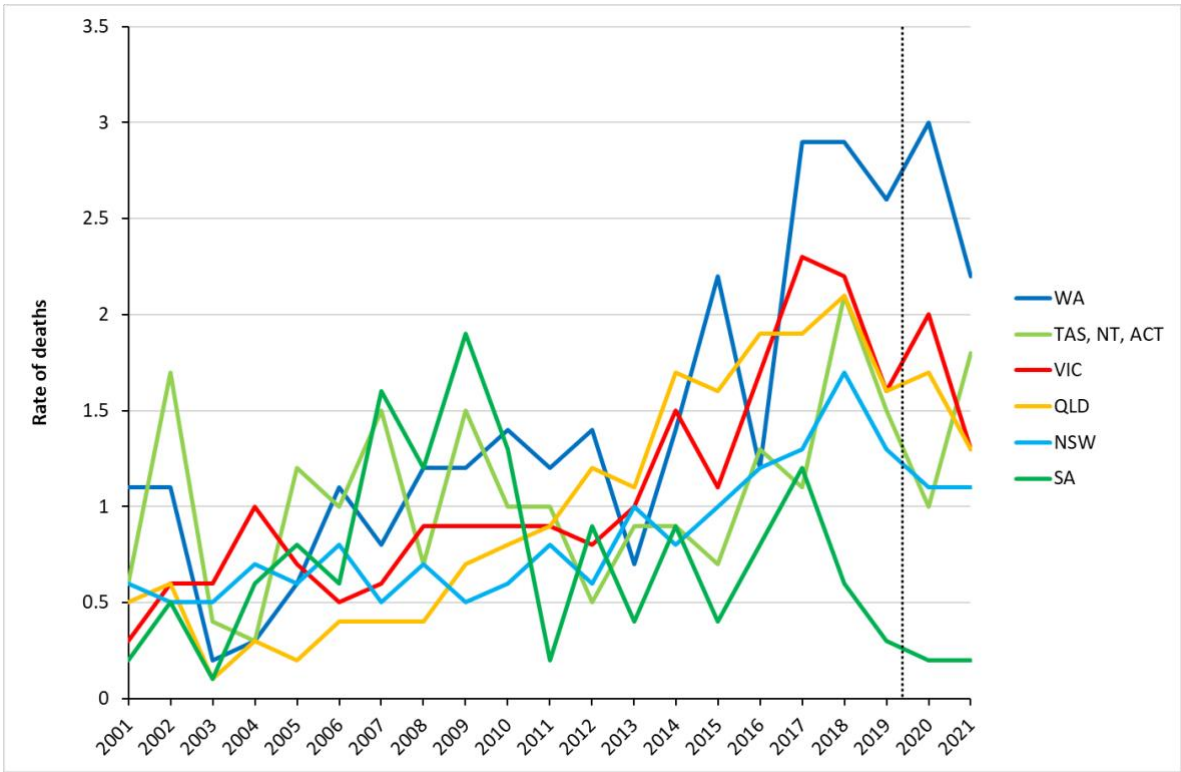
There were 324 unintentional drug-induced deaths involving anti-depressants in 2021, accounting for almost one fifth (19.3%) of all unintentional drug-induced deaths, or 1.3 deaths per 100,000 population. They were the fourth-most common drug detected in these deaths in 2021.

Unintentional drug-induced deaths involving anti-depressants generally occur in a poly-drug context. From 2017-2021, there were 48 unintentional drug-induced deaths involving anti-depressants as the sole drug type, accounting for 2.3% of all unintentional drug-induced deaths involving these drugs.

[49] 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.
[50] Australian Institute of Health and Welfare (2022). *Mental health-related prescriptions.*

The rates of unintentional drug-induced deaths involving anti-depressants appear to be increasing in Western Australia, which has more than trebled from 0.7 deaths per 100,000 population in 2013 to 2.2 in 2021 (Figure 43).[51] However, rates are highly variable for all states and territories.

Figure 43. Unintentional drug-induced deaths involving anti-depressants by state and territory, 2001-2021, rate per 100,000 population

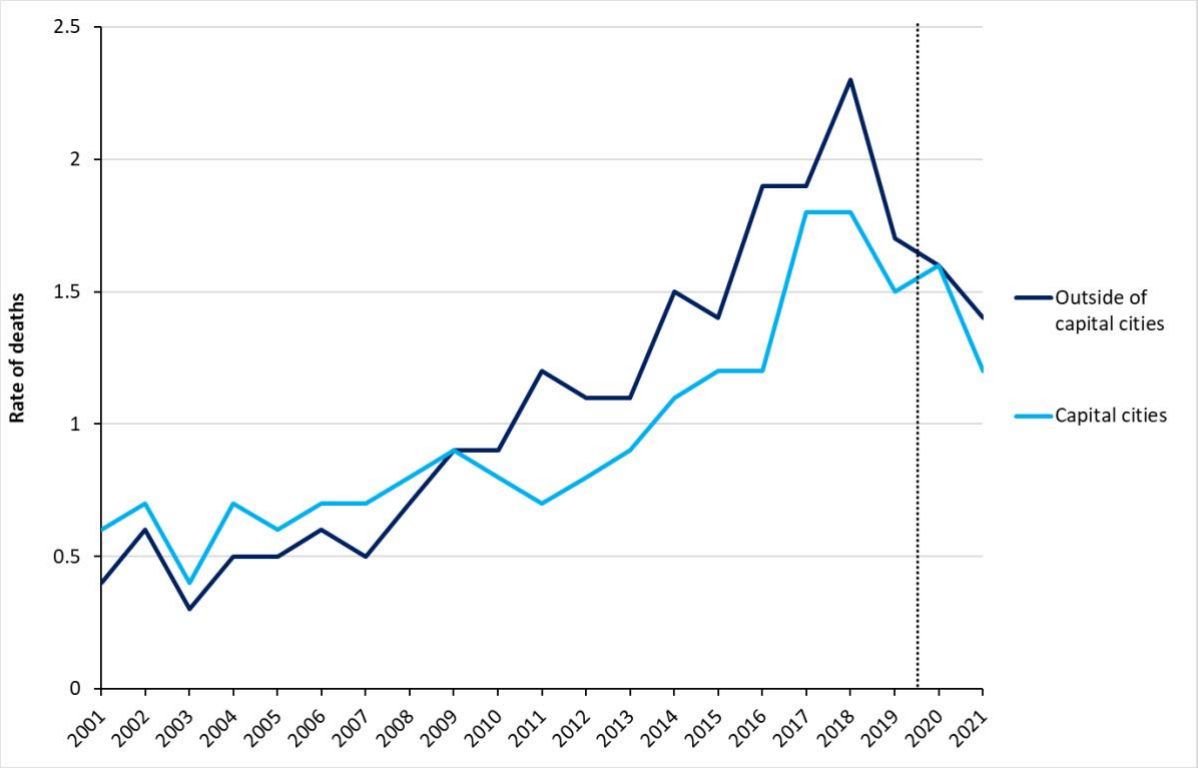


Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. Numbers of deaths cannot be reliably converted to rates per 100,000 in Tasmania, Northern Territory, and Australian Capital Territory due to low numbers and are therefore presented as an aggregate.

[51] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.

Unintentional drug-induced deaths involving anti-depressants have increased both within and outside of capital cities, tracking quite similarly over time (Figure 44). While capital cities had higher death rates from 2001 to 2008, rates of unintentional drug-induced deaths involving anti-depressants have been higher outside of capital cities since 2010. The rates of these deaths increased more for regional areas than capital cities in the period from 2001 to 2021, from 0.4 to 1.4 deaths per 100,000 population in the regions, compared with an increase from 0.6 to 1.2 deaths per 100,000 population in the cities.

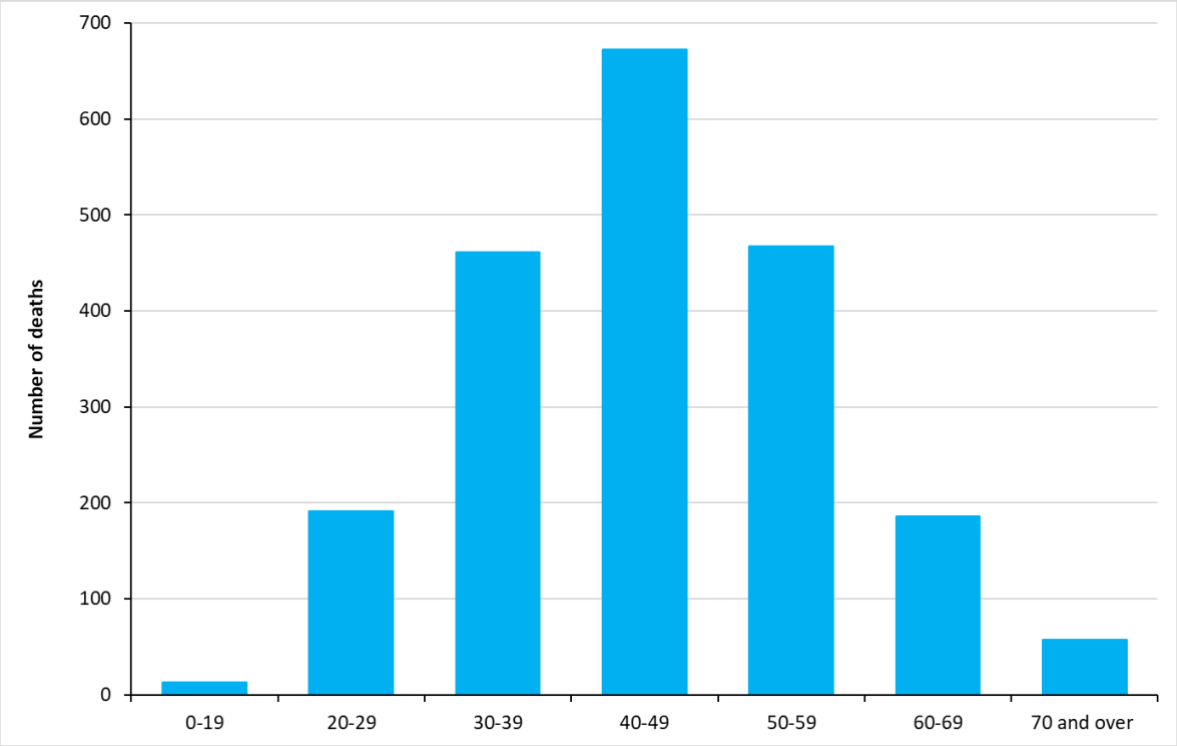
Figure 44. Unintentional drug-induced deaths involving anti-depressants by regionality, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

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 2017 to 2021 was highest among people aged 40-49 (accounting for 32.8% of deaths involving anti-depressants), followed by those aged 50-59 (22.8% of deaths) and those aged 30-39 (22.5% of deaths). Approximately 11.9% of all unintentional deaths involving anti-depressants were observed among people aged 60 and over, as shown in Figure 45.

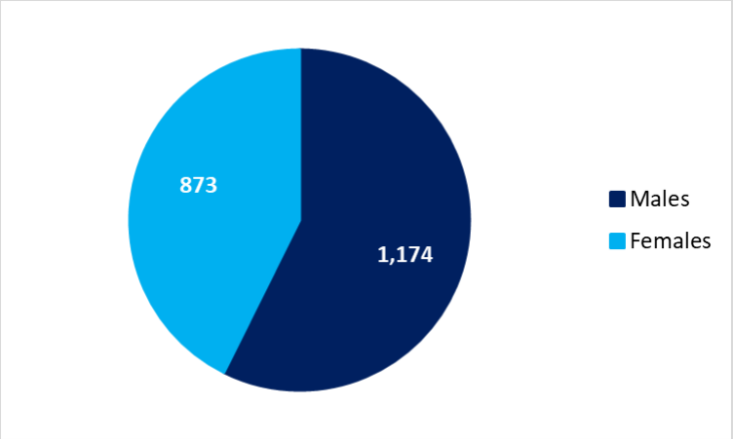
Figure 45. Number of unintentional drug-induced deaths involving anti-depressants by age group, 2017-2021



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 1,174 deaths among males during the five-year period from 2017 to 2021, accounting for 57.4% of all such deaths, compared with 873 deaths among females (Figure 46).

Figure 46. Number of unintentional drug-induced deaths involving anti-depressants by sex, 2017-2021



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

7.5. Alcohol

Key findings:

- Alcohol contributed to 18.7% of unintentional drug-induced deaths in 2021 (313 such deaths).
- The proportion of unintentional drug-induced deaths involving alcohol has remained relatively stable compared with other drug types, accounting for 16.5% of unintentional deaths in 2001 compared with 18.7% in 2021.
- From 2017-2021, there were 515 unintentional drug-induced deaths involving alcohol as the sole drug type, accounting for more than one-quarter (28.3%) of all unintentional deaths involving alcohol.
- From 2017-2021, 61.8% of unintentional poly-substance deaths involving alcohol also involved benzodiazepines and 35.8% also involved anti-depressants.
- People aged 50 and over accounted for 37.0% of the unintentional deaths involving alcohol during the five years to 2021, while those aged under 30 accounted for 9.5% of these deaths.
- Males accounted for 73.2% of the unintentional drug-induced deaths involving alcohol during the five years to 2021.

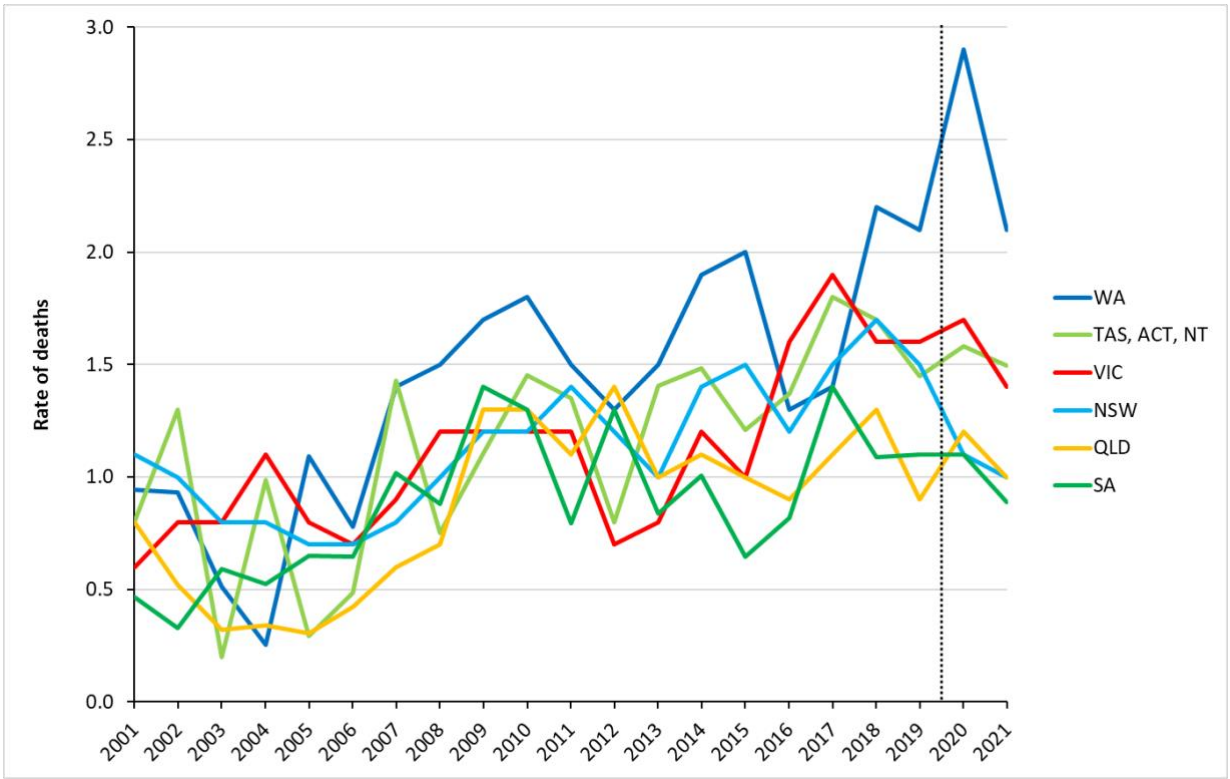
Alcohol is a central nervous system depressant, and when mixed with other depressants in a poly-drug setting, can exacerbate effects and lead to respiratory depression (slow and/or ineffective breathing).[52] The consumption of alcohol is widespread in Australia. The 2019 National Drug Strategy Household Survey found that three quarters (77%) of Australians aged 14 and over had consumed alcohol in the previous 12 months.[53] From August 2020 to October 2022, Australians are estimated to have consumed 15 litres of ethanol per 1,000 people per day – or between approximately 1,100 to 1,250 standard drinks per 1,000 people per day.[54]

There were 313 unintentional drug-induced deaths involving alcohol in 2021, accounting for almost one-fifth (18.7%) of all unintentional drug-induced deaths, or 1.2 deaths per 100,000 population. Alcohol was the fifth-most common drug detected in these deaths in 2021.

[52] ABS (2018). *Drug induced deaths in Australia: A changing story*. Australian Bureau of Statistics.
[53] Australian Institute of Health and Welfare (2020). *National Drug Strategy Household Survey 2019*.
[54] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: report 19*.

As shown in Figure 47,[55] rates of unintentional drug-induced deaths involving alcohol have increased over time, particularly in Western Australia, where they have increased from 0.9 deaths per 100,000 population in 2001 to 2.1 deaths in 2021, and Victoria, which increased from 0.6 deaths per 100,000 in 2001 to 1.4 deaths per 100,000 in 2021. Earlier peaks and volatility in Tasmania, the Australian Capital Territory and the Northern Territory are likely due to small numbers being calculated as a rate with small populations and should be interpreted cautiously.

Figure 47. Unintentional drug-induced deaths involving alcohol by state and territory, 2001-2021, rate per 100,000 population

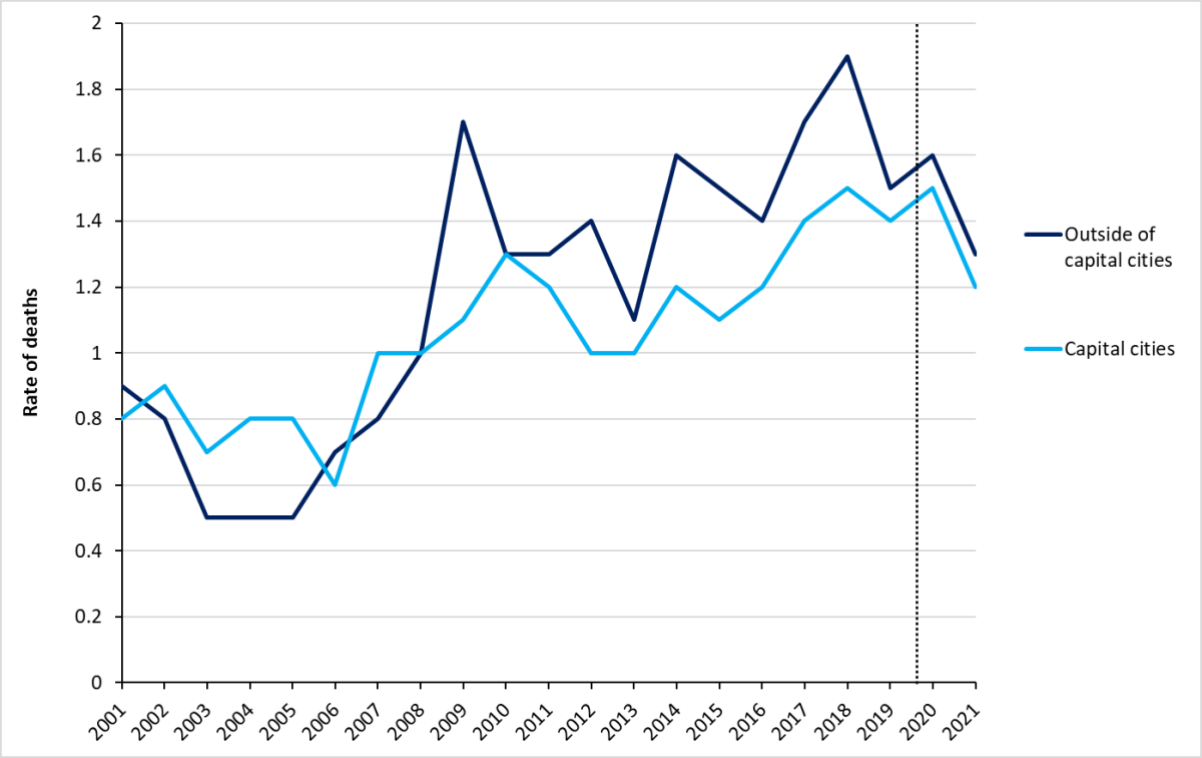


Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise. Numbers of deaths cannot be reliably converted to rates per 100,000 in Tasmania, Northern Territory, and Australian Capital Territory due to low numbers and are therefore presented as an aggregate.

[55] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.

As shown in Figure 48, unintentional drug-induced deaths involving alcohol are increasing both within and outside of capital cities. Capital cities had higher death rates for several years from 2001 to 2009, at which point the rate of deaths in regional and rural areas increased to 1.7 per 100,000 population, compared with 1.1 deaths per 100,000 in capital cities. In 2021, the rate of unintentional drug-induced deaths involving alcohol was 1.3 per 100,000 population outside of capital cities, and 1.2 per 100,000 population within capital cities. While preliminary data suggest the rate of deaths outside of capital cities has decreased following a peak of 1.9 deaths per 100,000 in 2018, rates are still substantially higher than in 2003.

Figure 48. Unintentional drug-induced deaths involving alcohol by regionality, 2001-2021, rate per 100,000 population

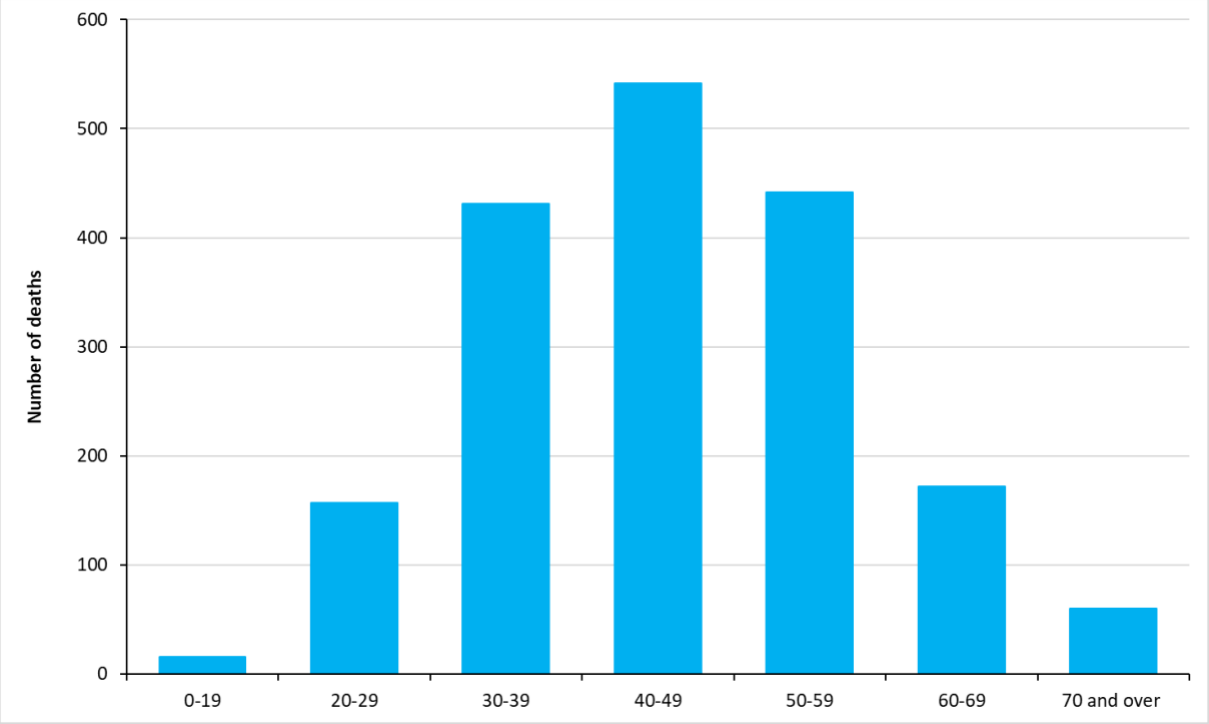


Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Older age groups are more prevalent in unintentional drug-induced deaths involving alcohol compared with other drug types. As shown in Figure 49, the number of unintentional drug-induced deaths involving alcohol over the period 2017 to 2021 was highest among people aged 40-49, who accounted for more than one-quarter (29.8%) of these deaths, followed by those aged 50-59.

More than one-third (37.0%) of all unintentional drug-induced deaths involving alcohol during this period involved people aged 50 and above: 24.3% among the 50-59 age group (442 deaths) and 12.7% among people aged 60 and above (232 deaths). Deaths among people aged under 30 accounted for less than one in ten (9.5%) of the unintentional drug-induced deaths involving alcohol over the five-year period.

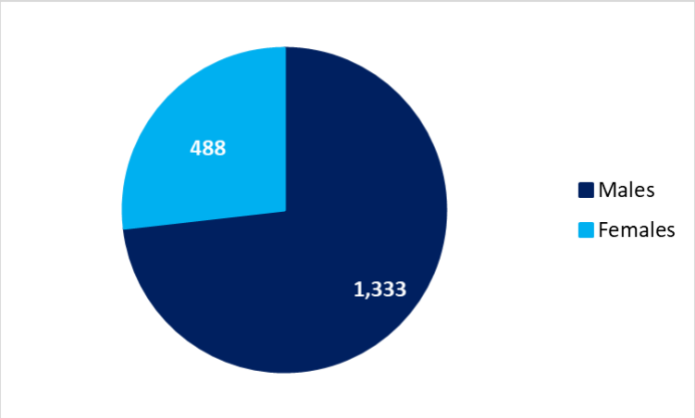
Figure 49. Number of unintentional drug-induced deaths involving alcohol by age group, 2017-2021



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 alcohol. There were 1,333 deaths among males during the five-year period from 2017 to 2021, accounting for 73.2% of all such deaths, compared with 488 deaths among females (Figure 50).

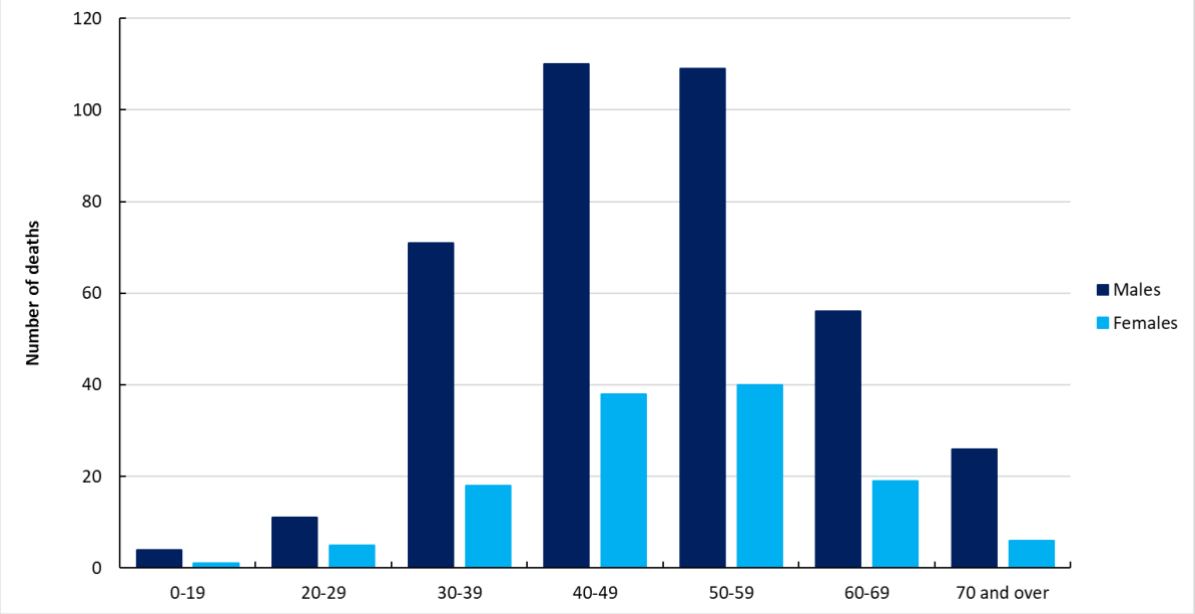
Figure 50. Number of unintentional drug-induced deaths involving alcohol by sex, 2017-2021



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

Alcohol has a substantially higher proportion of sole-drug deaths than all other drug types. In the five years to 2021, there were 515 unintentional drug-induced deaths involving alcohol as the sole drug type, accounting for more than one-quarter (28.3%) of all unintentional deaths involving alcohol. As shown in Figure 51, the age distribution of these deaths differs slightly between males and females. Among males, the number of unintentional drug-induced deaths involving alcohol alone was highest among the 40-49 (28.4% of such deaths or 110) and 50-59 (28.2% or 56 deaths) age groups. Among females, the number of unintentional drug-induced deaths involving alcohol alone was highest among those aged 50-59 (31.5% or 40 deaths), followed by those aged 40-49 (29.9% or 38 deaths).

Figure 51: Number of unintentional drug-induced deaths involving alcohol only, by age group and sex, 2017-2021



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

7.6. Anti-convulsants (and neuropathic pain modulators)

Key findings:

- Anti-convulsants and neuropathic pain modulators contributed to 12.3% of unintentional drug-induced deaths in 2021 (206 such deaths).
- The proportion of unintentional drug-induced deaths involving anti-convulsants has increased from 0.4% in 2001 to 12.3% in 2021.
- From 2017-2021, there were three unintentional drug-induced deaths involving anti-convulsants as the sole drug type, accounting for just 0.3% of all unintentional drug-induced deaths involving such drugs.
- From 2017-2021, 74.4% of unintentional poly-substance deaths involving anti-convulsants and neuropathic pain modulators also involved benzodiazepines and 60.2% also involved pharmaceutical opioids.
- People aged 50 and over accounted for 31.4% of the unintentional deaths involving anti-convulsants and neuropathic pain modulators during the five years to 2021, while people aged under 30 accounted for 10.8% of these deaths.
- Males accounted for 60.6% of the unintentional deaths involving anti-convulsants and neuropathic pain modulators during the five years to 2021.

This group of drugs includes pregabalin and gabapentin. Pregabalin is more commonly prescribed in Australia than gabapentin, and prescribing rates for pregabalin have increased considerably.[56] As some of these anti-convulsants (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. Although these drugs are classified in the raw data 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.

In 2020-21, approximately 4.3 million prescriptions for anti-convulsants were dispensed under the PBS to more than 630,000 patients; pregabalin accounted for 96.8% of these prescriptions. There were 14,402 prescriptions dispensed per 100,000 population for the year, compared with 1,887 prescriptions per 100,000 population in 2012-13. This increase is primarily due to pregabalin

[56] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Pharmaceuticals.*

prescribing.[57] Research suggests there has been an increase in non-prescribed use of pregabalin in Australia.[58] In these cases, pregabalin is typically consumed along with other depressants, increasing the risk of respiratory depression and overdose. It is estimated that one in seven Australians prescribed pregabalin have a high risk of misuse.[59]

While the overall number of unintentional drug-induced deaths involving anti-convulsants is low (206 deaths or 0.8 deaths per 100,000 in 2021, representing 12.3% of all unintentional drug-induced deaths), the number has increased markedly since 2015 (Figure 52). Indeed, between 2001 and 2014, there were no more than four unintentional deaths involving anti-convulsants each year. In 2015 this increased to 12 deaths, before rising to 112 deaths in 2017, 184 deaths in 2019 and reaching a high of 206 in 2021.

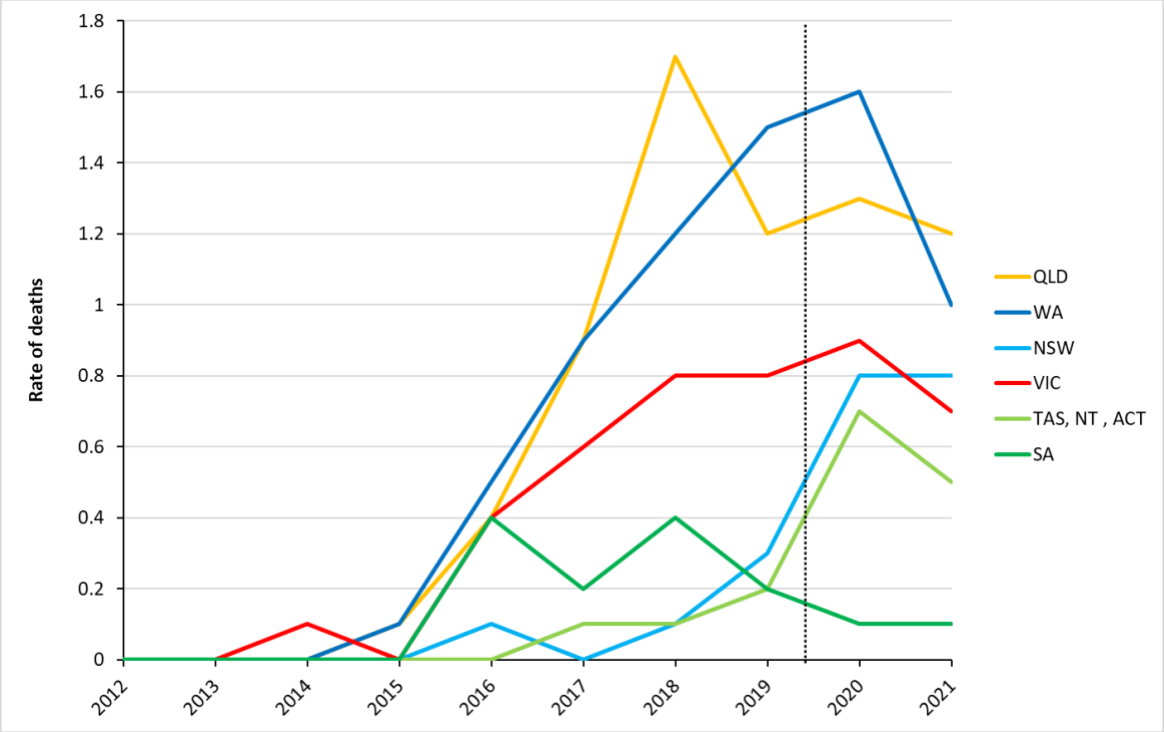
This change has been driven by rapid increases in Queensland (with 1.2 deaths per 100,000 population in 2021) and Western Australia (with 1 deaths per 100,000 population in 2021).[60] It is possible, however, that an increase has also been occurring in other jurisdictions, but that different practices regarding routine post-mortem toxicological testing mean that such a change has not been detected.

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.

Deaths involving anti-convulsants generally occur in the context of poly-drug use. In the five years to 2021, there were only three unintentional drug-induced deaths involving anti-convulsants as the sole drug type, accounting for just 0.3% of all unintentional drug-induced deaths involving such drugs.

[57] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Pharmaceuticals*.
[58] Isoardi, K. Z., Polkinghorne, G., Harris, K., & Isbister, G. K. (2020). Pregabalin poisoning and rising recreational use: a retrospective observational series. *British Journal of Clinical Pharmacology*, *86*(12), 2435-2440; Sutherland, R., Dietze, P. M., Gisev, N., Bruno, R., Campbell, G., Memedovic, S., & Peacock, A. (2020). Patterns and correlates of prescribed and non-prescribed pregabalin use among a sample of people who inject drugs in Australia. *Drug and Alcohol Review*, *39*(5), 568-574.
[59] Cairns, R., Schaffer, A. L., Ryan, N., Pearson, S.-A., & Buckley, N. A. (2018). Rising pregabalin use and misuse in Australia: trends in utilisation and intentional poisonings. *Addiction, 114* (6), 1026-1034.
[60] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.

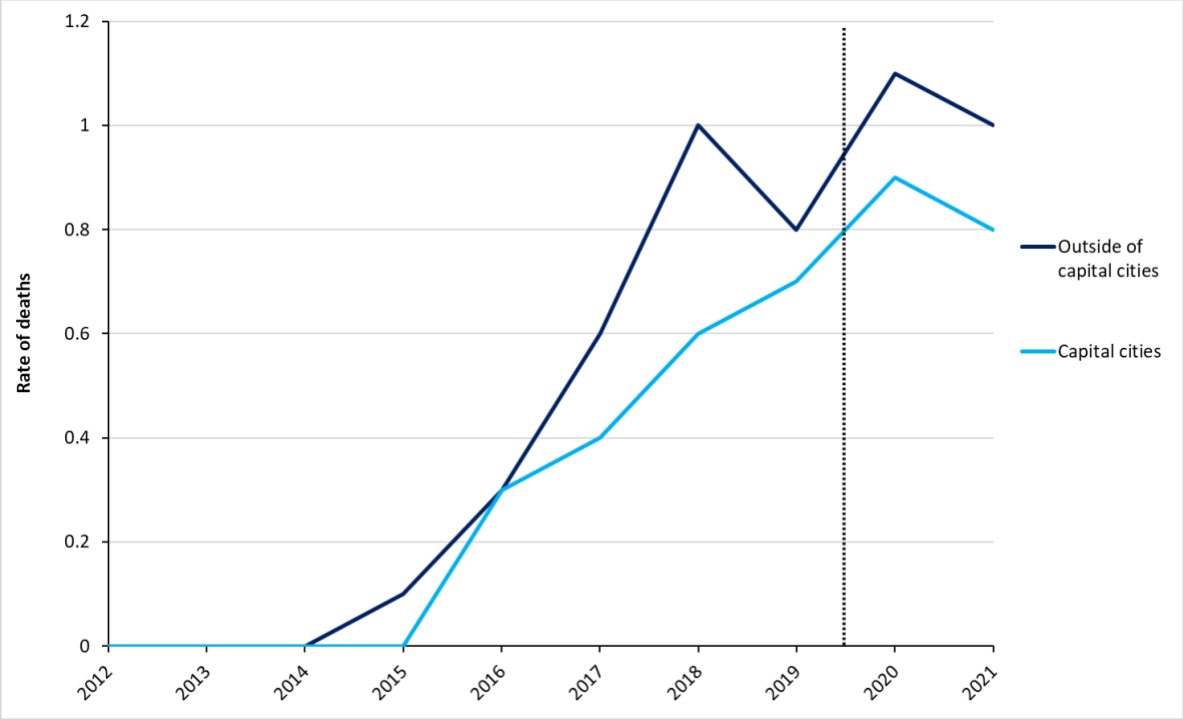
Figure 52. Unintentional drug-induced deaths involving anti-convulsants by state, 2012-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 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.

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 53). The rate of deaths prior to 2015 was zero in both metropolitan and regional / rural areas; in 2021 the rate of deaths was 0.8 per 100,000 population in capital cities and 1.0 outside of capital cities. While the rate itself is low, the increase is dramatic.

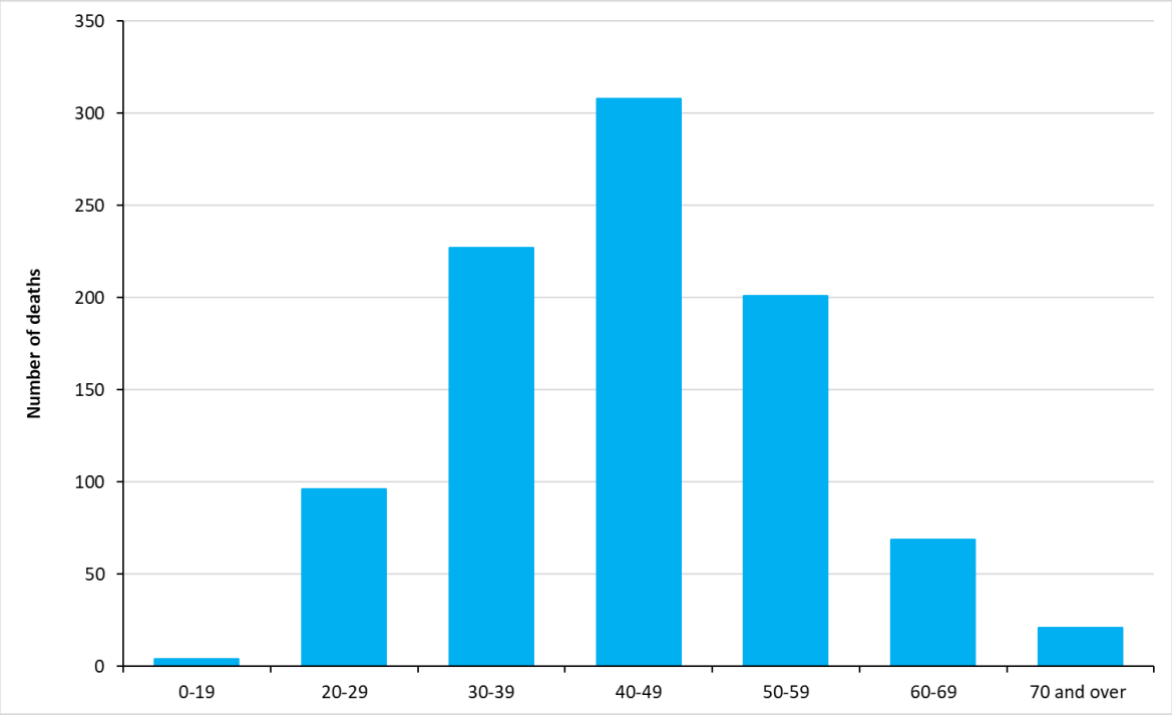
Figure 53. Unintentional drug-induced deaths involving anti-convulsants by regionality, 2012-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The number of unintentional drug-induced deaths involving anti-convulsants over the period 2017 to 2021 was highest among people aged 40-49, who accounted for more than one-third (33.3%) of these deaths. Almost one in four of all unintentional deaths involving anti-convulsants (24.5%) were seen among those aged 30-39, while three in ten (31.4%) deaths were recorded among people aged 50 and over. Deaths among people aged under 30 accounted for 10.8% of the unintentional drug-induced deaths involving anti-convulsants over the five-year period (Figure 54).

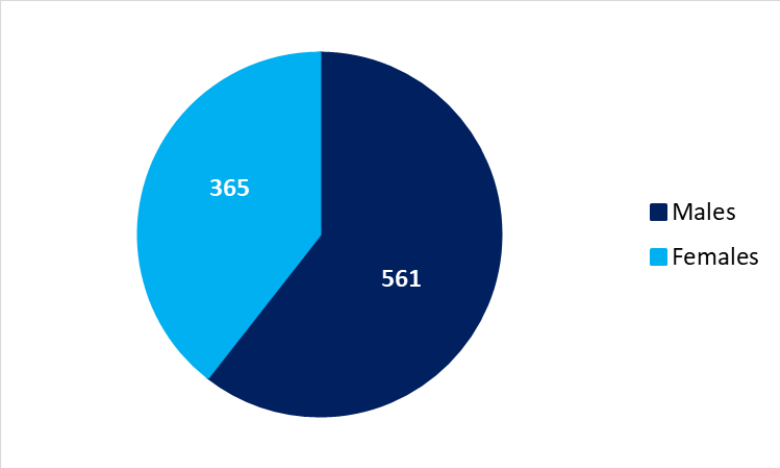
Figure 54. Number of unintentional drug-induced deaths involving anti-convulsants by age group, 2017-2021



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

There is a less uneven sex distribution for unintentional drug-induced deaths involving anti-convulsants than for those involving other drug types. There were 561 deaths among males during the five-year period from 2017 to 2021, accounting for two thirds (60.6%) of these deaths, compared with 365 deaths among females (Figure 55).

Figure 55. Number of unintentional drug-induced deaths involving anti-convulsants by sex, 2017-2021



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

7.7. Anti-psychotics

Key findings:

- Anti-psychotics contributed to 11.2% of unintentional drug-induced deaths in 2021 (187 such deaths).
- The proportion of unintentional drug-induced deaths involving anti-psychotics has increased from 0.5% in 2001 to 11.2% in 2021.
- From 2017-2021, there were 34 unintentional drug-induced deaths involving anti-psychotics as the sole drug type, accounting for 2.9% of all unintentional drug-induced deaths involving such drugs.
- From 2017-2021, 73.7% of unintentional poly-substance deaths involving anti-psychotics also involved benzodiazepines, 49.7% also involved anti-depressants, and 43.5% also involved pharmaceutical opioids.
- People aged 50 and above accounted for 27.4% of the unintentional deaths involving anti-psychotics during the five years to 2021, while people aged under 30 accounted for 9.8% of these deaths.
- Males accounted for 63.2% of the unintentional deaths involving anti-psychotics during the five years to 2021.

This group includes drugs such as quetiapine, olanzapine, risperidone, paliperidone, amisulpride, and lithium. Anti-psychotics account for approximately one in ten (10.1%) mental health-related prescriptions dispensed in Australia under the PBS. In 2020-21, approximately 4.32 million anti-psychotic prescriptions were dispensed to 493,000 patients nationwide.[61] Reports have emerged of increased extra-medical use of anti-psychotic drugs (particularly quetiapine) in Australia.[62]

There were 187 unintentional drug-induced deaths involving anti-psychotics in 2021, representing 11.2% of all unintentional drug-induced deaths, or 0.8 deaths per 100,000 population. Deaths involving anti-psychotics generally occur in the context of poly-drug use. In the five years to 2021,

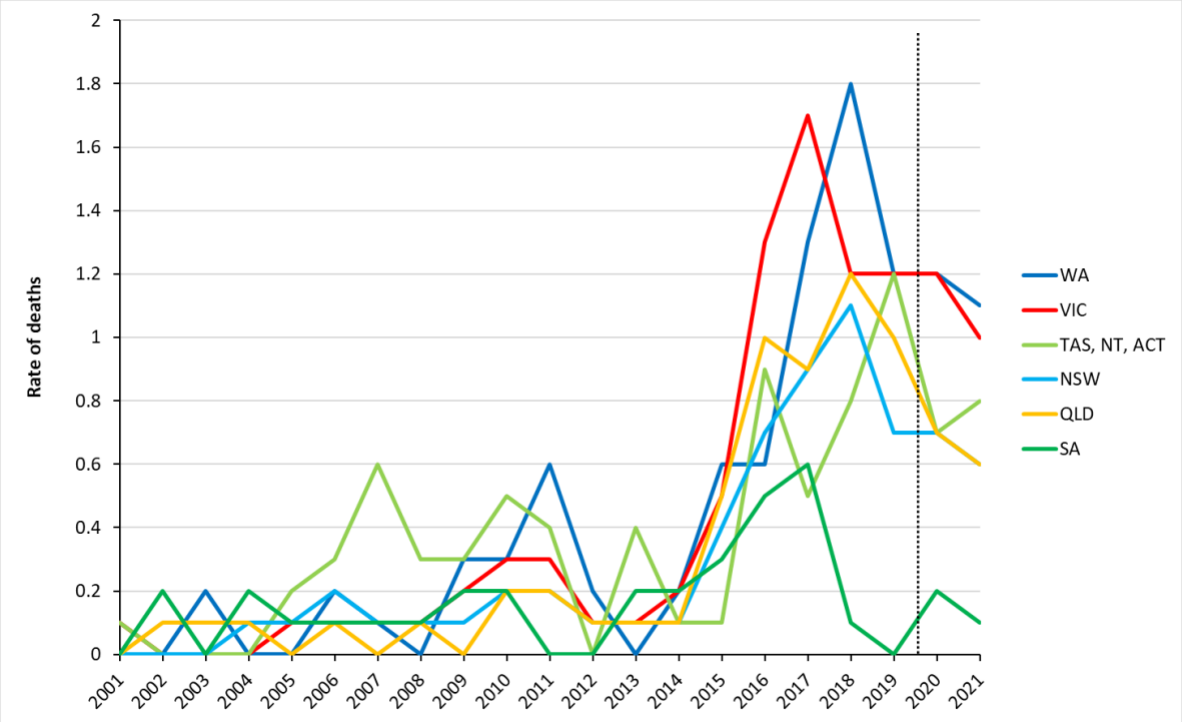
[61] Australian Institute of Health and Welfare (2022). *Mental health-related prescriptions.*
[62] Sutherland, R., Jayathilake, R., Peacock, A., Dietze, P., Bruno, R., Reddel, S., & Gisev, N. (2021). Trends and characteristics of extra-medical use of quetiapine among people who regularly inject drugs in Australia, 2011–2018. *Drug and Alcohol Dependence*, *221*, 108636; Lee, J., Pilgrim, J., Gerostamoulos, D., Robinson, J., & Wong, A. (2018). Increasing rates of quetiapine overdose, misuse, and mortality in Victoria, Australia. *Drug and Alcohol Dependence*, *187*, 95-99.

there were 34 unintentional drug-induced deaths involving anti-psychotics as the sole drug type, accounting for 2.9% of all unintentional drug-induced deaths involving such drugs.

Rates of unintentional drug-induced deaths involving anti-psychotics have increased markedly since 2013 (Figure 56),[63] particularly in Western Australia, which has increased from zero deaths in 2013 to 1.1 deaths per 100,000 population in 2021, and Victoria, which increased from 0.1 deaths per 100,000 in 2013 to 1.0 deaths per 100,000 in 2021. 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, prescription numbers for anti-psychotics increased considerably from 2011 to 2015.[64]

Figure 56. Unintentional drug-induced deaths involving anti-psychotics by state, 2001-2021, rate per 100,000 population



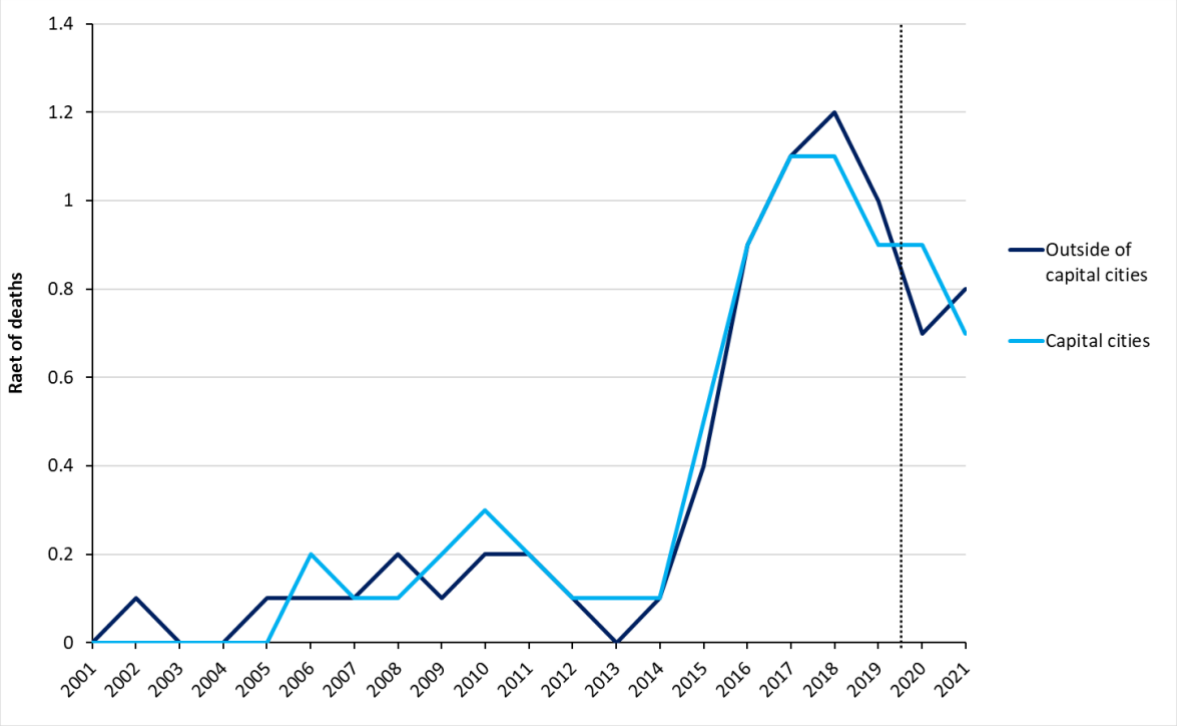
[63] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.
[64] Pharmaceutical Benefits Scheme (2016) *Anti-psychotic medicines: 24 month review of quetiapine 25 mg.*

Note: Data to the right of the dotted line (2020 and 2021 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.

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 57). During this period, the rate of deaths has increased from 0.1 to 0.8 deaths per 100,000 population outside of capital cities and to 0.7 deaths per 100,000 population in capital cities.

While the rate of unintentional drug-induced deaths involving anti-psychotics remains lower than it is for other classes of drugs, preliminary data from 2020 and 2021 suggest an increase in the rate of unintentional deaths involving anti-psychotics outside of capital cities.

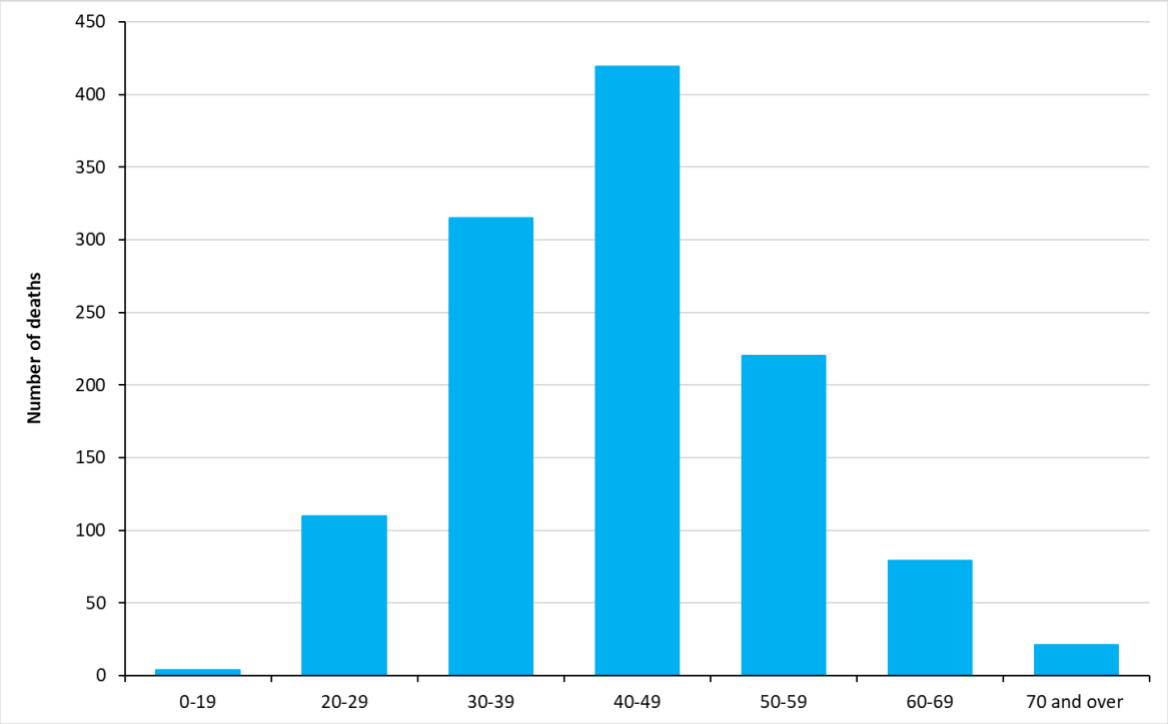
Figure 57. Unintentional drug-induced deaths involving anti-psychotics by regionality, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The number of unintentional drug-induced deaths involving anti-psychotics over the period 2017 to 2021 was highest among people aged 40-49, who accounted for more than one-third (35.9%) of these deaths. A similar proportion of deaths involving anti-psychotics was recorded among people aged 30-39 (27.0%) and people aged 50 and over (27.4%). Deaths among people aged under 30 accounted for 9.8% of all unintentional drug-induced deaths involving anti-psychotics over the five-year period (Figure 58).

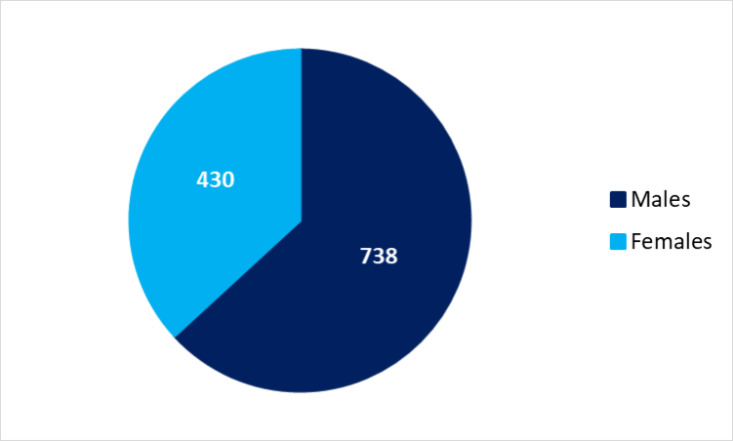
Figure 58. Number of unintentional drug-induced deaths involving anti-psychotics by age group, 2017-2021



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

As with anti-depressants and anti-convulsants, there is a less uneven sex distribution for unintentional drug-induced deaths involving anti-psychotics than for those involving other drug types. There were 738 deaths among males during the five-year period from 2017 to 2021, accounting for 63.2% of all such deaths, compared with 430 deaths among females (Figure 59).

Figure 59. Number of unintentional drug-induced deaths involving anti-psychotics by sex, 2017-2021



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

7.8. Cannabinoids

Key findings:

- Drug-induced deaths involving cannabinoids alone were all due to synthetic cannabinoids; no deaths were due to natural cannabinoids.
- Cannabinoids contributed to 9.9% of unintentional drug-induced deaths in 2021 (165 such deaths).
- The proportion of unintentional drug-induced deaths involving cannabinoids has increased from 2.8% in 2001 to 9.9% in 2021.
- From 2017-2021, there were 12 such deaths involving cannabinoids as the sole drug type (all of which were SCRAs), accounting for 1.3% of all unintentional drug-induced deaths involving cannabinoids.
- From 2017-2021, 65.6% of unintentional poly-substance deaths involving cannabinoids also involved benzodiazepines, 44.1% also involved stimulants and 40.2% involved pharmaceutical opioids.
- People aged 50 and above accounted for 22.5% of the unintentional deaths involving cannabinoids during the five years to 2021, while those aged under 30 accounted for 16.8% of these deaths.
- Males accounted for 75.4% of the unintentional drug-induced deaths involving cannabinoids during the five years to 2021.

This group includes phyto-cannabinoids (natural plants or drugs containing chemical compounds that act upon the brain's cannabinoid receptors), as well as synthetic cannabinoid receptor agonists (SCRAs). Cannabinoids are the most consumed illicit drug type in Australia.[65] In 2019, at least one in ten (11.6%) Australians reported using cannabinoids in the past 12 months for either medical or non-medical purposes.[66] Australia's National Wastewater Analysis Program estimates that Australians consumed more than 1,000 mg (or more than 100 doses) of THC per 1,000 people, per day, from August 2020 to December 2023.[67] It is important to note that wastewater analysis cannot distinguish

[65] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: Report 19.* Canberra: ACIC.
[66] Australian Institute of Health and Welfare (2020). *National Drug Strategy Household Survey 2019*.
[67] Australian Criminal Intelligence Commission (2023). *National Wastewater Drug Monitoring Program: Report 19.* Canberra: ACIC.

between cannabis medicines and illicit cannabinoids. The use of medicinal cannabis products has increased dramatically in Australia since 2018.[68]

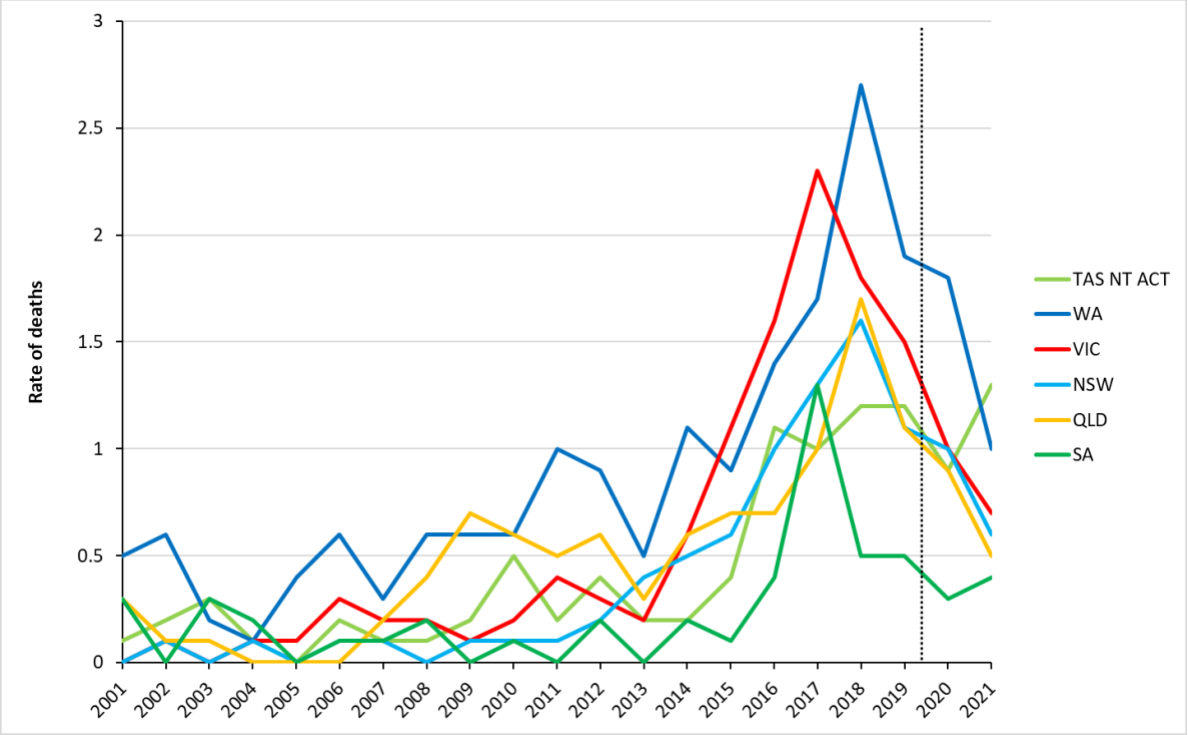
Natural phyto-cannabinoids such as THC likely contribute very little to the toxicity that causes death and are extremely unlikely to cause death by themselves. Synthetic cannabinoid receptor agonists, however, are far more toxic.[69] Indeed, for drug-induced deaths since 2014 in which cannabinoids were the only drug type detected, every death was due to these SCRAs – no deaths have involved natural phyto-cannabinoids on their own. In the five years to 2021, there were 12 such deaths involving SCRAs alone, accounting for 1.3% of all unintentional drug-induced deaths involving cannabinoids. All were among men, with a median age of 44 years. Deaths since 2017 involving cannabinoids plus alcohol also involved only the SCRAs, rather than natural phyto-cannabinoids.

There were 165 unintentional drug-induced deaths involving cannabinoids in 2021, accounting for 9.9% of all unintentional drug-induced deaths, or 0.7 deaths per 100,000 population. Cannabinoids were the eighth-most commonly detected drug in these deaths in 2021.

The rates of unintentional drug-induced deaths involving cannabinoids have increased in all states and territories since 2013, particularly in Tasmania/ Northern Territory/Australian Capital Territory, which increased from 0.2 deaths per 100,000 population to 1.3 in 2021, and Western Australia, which increased from 0.5 deaths per 100,000 population in 2013 to 1 in 2021 (Figure 60).[70]

[68] Therapeutic Goods Administration (2021). Medicinal cannabis Special Access Scheme Category B data. Accessed July 20, 2023.
[69] 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.
[70] Rates for these figures are calculated based on the Australian Bureau of Statistics' Estimated Resident Population data in each state or territory for the June quarter of each year.

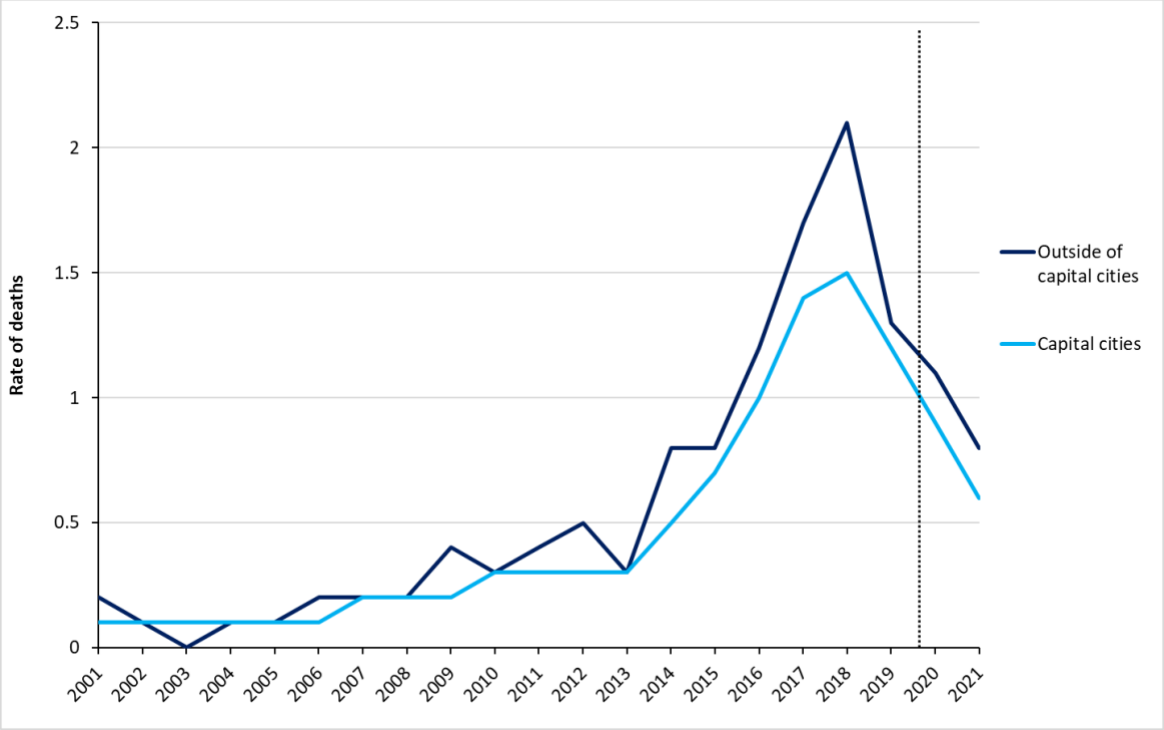
Figure 60. Unintentional drug-induced deaths involving cannabinoids by state and territory, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 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.

Rates of unintentional drug-induced deaths involving cannabinoids have increased both within and outside of capital cities, particularly in the years since 2013 (Figure 61). The rates in the two regions diverged in 2017 and 2018, before converging once again in 2019 and continuing to decrease from their earlier peak. In 2021, there were 0.8 deaths per 100,000 population in areas outside of capital cities and 0.6 deaths per 100,000 population in the capital cities.

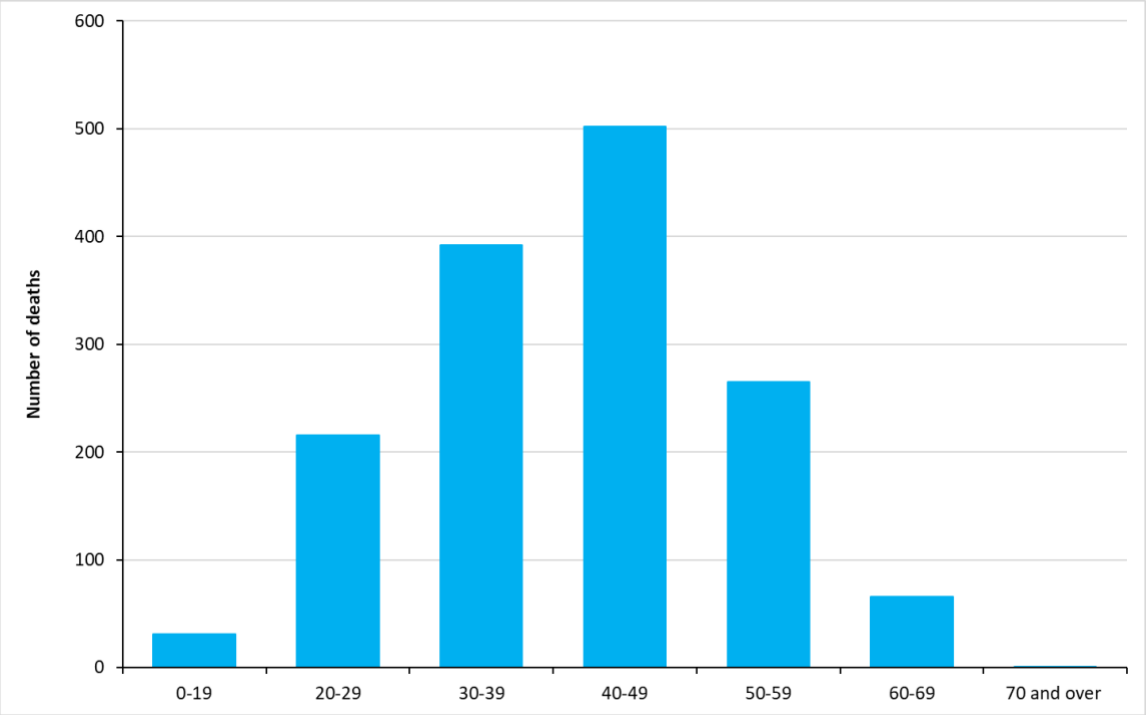
Figure 61. Unintentional drug-induced deaths involving cannabinoids by regionality, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

The number of unintentional drug-induced deaths involving cannabinoids over the period 2017 to 2021 was highest among people aged 40-49, who accounted for more than one-third (34.1%) of these deaths. Approximately one in four unintentional deaths involving cannabinoids (26.6%) were seen among those aged 30-39, while more than one in five (22.5%) deaths were recorded among people aged 50 and over. Deaths among people aged under 30 accounted for 16.8% of the unintentional drug-induced deaths involving cannabinoids over the five-year period (Figure 62).

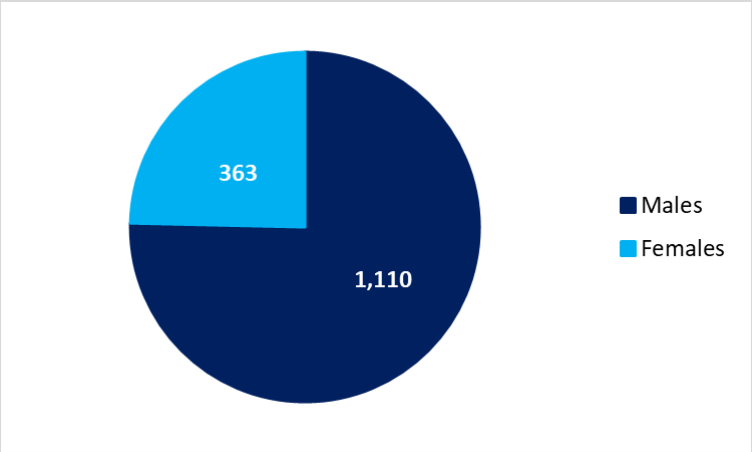
Figure 62. Number of unintentional drug-induced deaths involving cannabinoids by age group, 2017-2021



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 1,110 deaths among males during the five-year period from 2017 to 2021, accounting for 75.4% of all such deaths, compared with 363 deaths among females (Figure 63).

Figure 63. Number of unintentional drug-induced deaths involving cannabinoids by sex, 2017-2021



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

Unintentional drug-induced deaths involving cannabinoids vary according to whether the drug *contributed* towards drug toxicity or was simply *present* at the time of death. In the three years to 2021, the number of unintentional drug-induced deaths in which cannabinoids contributed to the death has more than halved, from 180 deaths in 2019 to 70 deaths in 2021 (Table 10). During the same period, the number of unintentional drug-induced deaths in which cannabinoids were present – but did not contribute to the overdose death – has increased from 52 deaths in 2019 to 115 in 2021.

Table 10. Drug-induced deaths: Cannabinoids contributing to toxicity versus cannabinoids present in a drug-induced death, 2019-2021

Underlying cause of death	2019	2020	2021
Unintentional drug-induced death with cannabinoids contributing to toxicity[71]	180	102	70
Unintentional drug-induced death with cannabinoids present[72]	52	196	115

[71] This includes unintentional drug-induced deaths classified under ICD-10-CM Code T40.7 (poisoning by, adverse effect of and underdosing of cannabis and its derivatives). Cannabinoids were a contributing factor to toxicity among these deaths.

[72] This includes unintentional drug-induced deaths classified under ICD-10-CM Code R.783 (finding of hallucinogen in blood). Whilst present, cannabinoids were not a contributing factor towards toxicity among these deaths.

8. *Geographical trends*

This chapter presents data on unintentional drug-induced deaths by geographical 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 do not allow for a more detailed analysis. Tasmania, South Australia, Australian Capital Territory and the Northern Territory were not able to be analysed due to small numbers. However, Table 19 provides data for all states and territories, with data aggregated into 5-year blocks, to provide sufficient numbers for reliable calculation of rates.

8.1. 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 7.4 deaths per 100,000 population in regional and rural NSW in 2021 compared with 6.2 in Sydney (Figure 64).

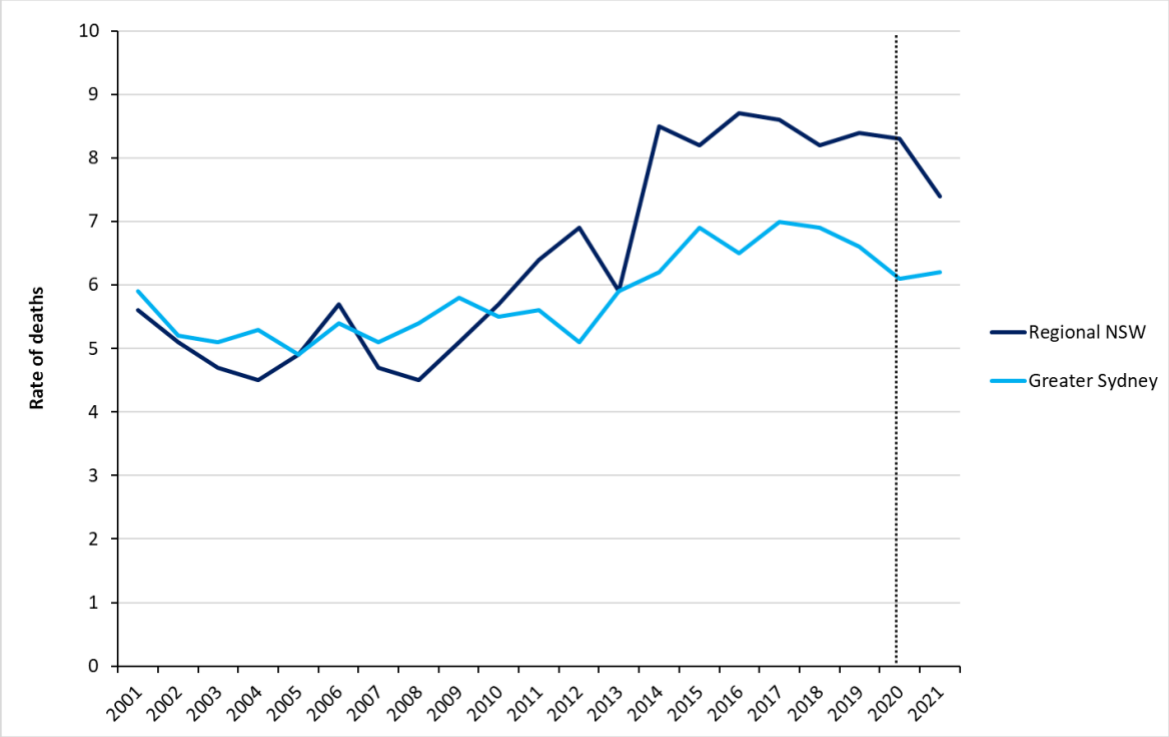
In Greater Sydney, the rate of unintentional drug-induced deaths is currently highest for stimulants (1.8 deaths per 100,000 population in 2021), followed closely by 'other pharmaceuticals' (1.7 deaths per 100,0000) and benzodiazepines (1.6 deaths per 100,000 population; Figure 65A).

In regional and rural New South Wales, 'other pharmaceuticals' have surpassed stimulants and benzodiazepines to have the highest rate of unintentional drug-induced deaths in 2021 (2.0 deaths per 100,000 population for other pharmaceuticals, compared with 1.9 deaths for stimulants and benzodiazepines) (Figure 65B).

Rates in regional and rural New South Wales are higher than those observed in Sydney for most of these drug types, with one exception: rates for unintentional drug-induced deaths involving heroin are identical in the two areas (0.9 deaths per 100,000 population).

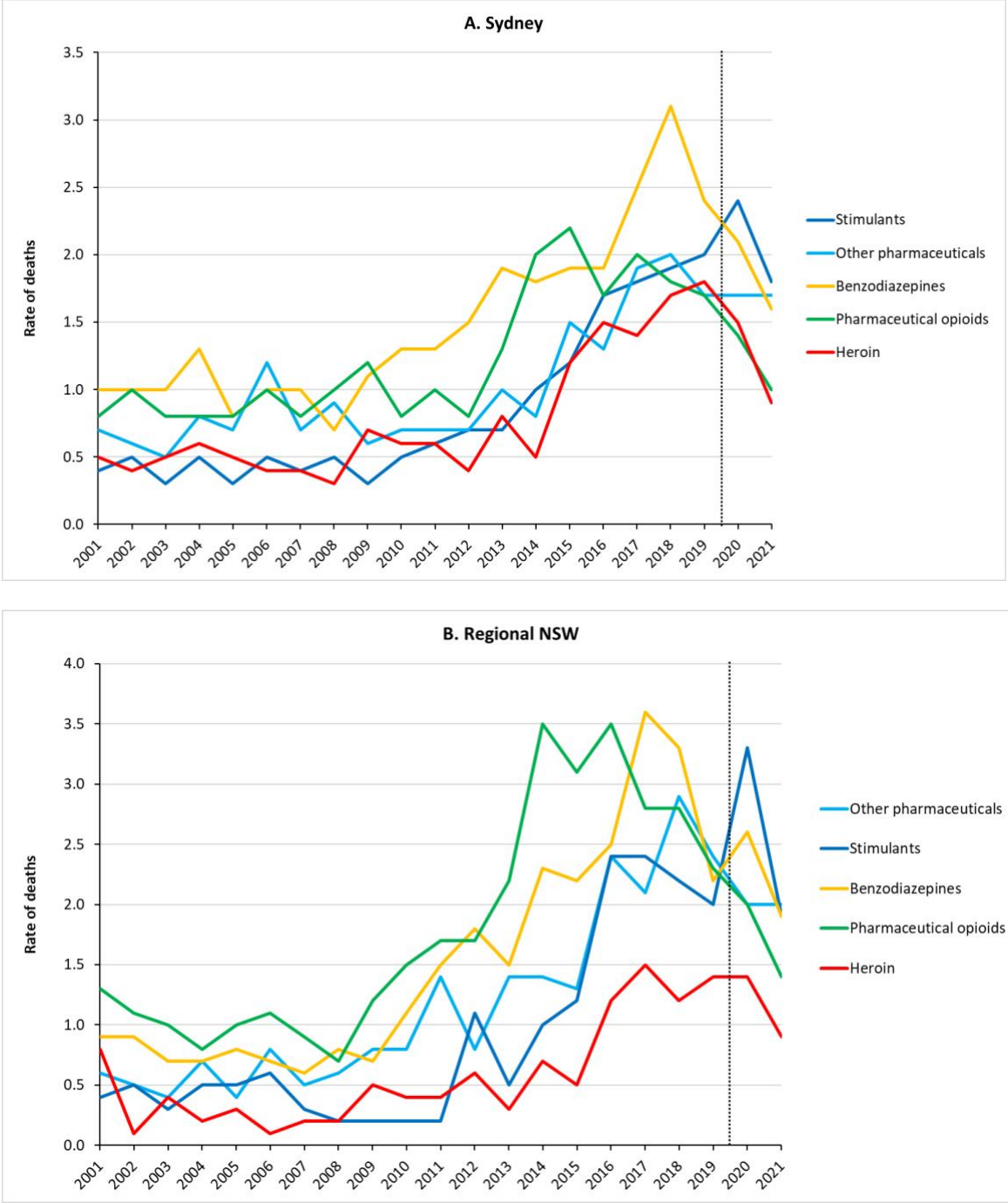
These data are shown as numbers, rather than rates per 100,000 population, in Table 11 and Table 12.

Figure 64. Unintentional drug-induced deaths by regionality in New South Wales, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Figure 65. Unintentional drug-induced deaths by drug type in greater Sydney and regional NSW, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Table 11. Number of unintentional drug-induced deaths by drug group, Sydney, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Stimulants	16	22	14	22	12	21	16	21	14	22	29	31	36	46	58	86	93	96	103	127	93
Other pharmaceuticals	28	25	23	35	31	53	31	41	28	31	30	34	46	37	75	66	94	101	90	90	88
Benzodiazepines	42	42	43	55	35	43	45	33	49	62	61	71	90	85	96	97	128	156	123	111	86
Pharmaceutical opioids	33	43	35	33	33	41	34	45	57	39	45	39	64	95	109	88	101	92	91	75	53
Heroin	23	17	23	25	23	18	20	14	34	28	28	21	37	25	59	77	72	86	96	81	48
Alcohol	50	46	38	45	34	28	43	51	44	57	61	51	55	56	60	48	71	80	68	54	37
Cannabinoids	1	1	4	3	3	2	3	4	1	6	2	7	15	22	26	37	56	67	52	43	31

Table 12. Number of unintentional drug-induced deaths by drug group, regional NSW, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Other pharmaceuticals	15	12	9	17	9	19	13	15	18	21	33	20	35	35	33	62	54	72	59	50	52
Benzodiazepines	21	20	14	16	18	15	13	17	16	27	35	41	37	58	54	60	86	80	54	65	49
Stimulants	3	7	5	5	10	12	7	5	4	5	6	24	10	23	27	53	55	51	47	79	45
Alcohol	17	21	10	7	13	21	14	17	34	26	36	32	19	46	50	45	38	47	43	35	40
Pharmaceutical opioids	29	24	21	18	24	25	23	17	28	36	40	39	53	86	76	83	68	71	58	49	38
Heroin	17	3	8	5	7	3	6	5	11	8	8	13	4	17	11	28	37	28	36	35	22
Cannabinoids	0	2	0	5	1	2	2	4	4	4	4	6	11	14	16	34	37	45	30	30	14

8.2. Victoria

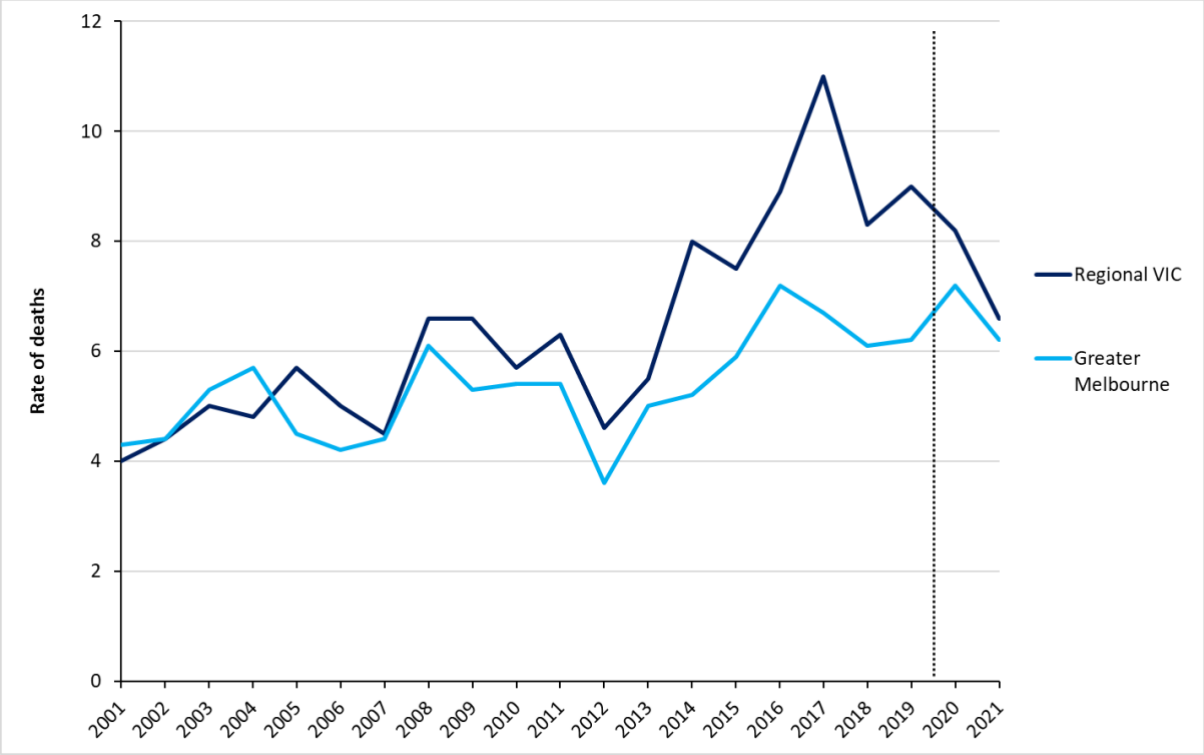
Since 2005, regional and rural Victoria has had a higher rate of unintentional drug-induced deaths than Melbourne (Figure 66).

This gap had widened, with a greater increase since 2011 observed in regional and rural Victoria; however, rates across the two regions have converged in recent years. In 2021, the rate of unintentional drug-induced deaths in regional and rural Victoria was 6.6 per 100,000 population, compared with 6.2 for Melbourne.

In Melbourne, the two drug types with the highest rates of involvement in unintentional drug-induced deaths in 2021 were benzodiazepines (with a rate of 2.9 deaths per 100,000 population), stimulants (with 2.1 deaths per 100,000 population) and other pharmaceuticals (2.1 deaths per 100,000 population) (Figure 67A). In regional and rural Victoria, benzodiazepines had the highest rate of unintentional death in 2021 (3 deaths per 100,000 population), followed by other pharmaceuticals (2.2 deaths per 100,000 population). All drug types have increased substantially since 2007 in regional Victoria (Figure 67B). 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.

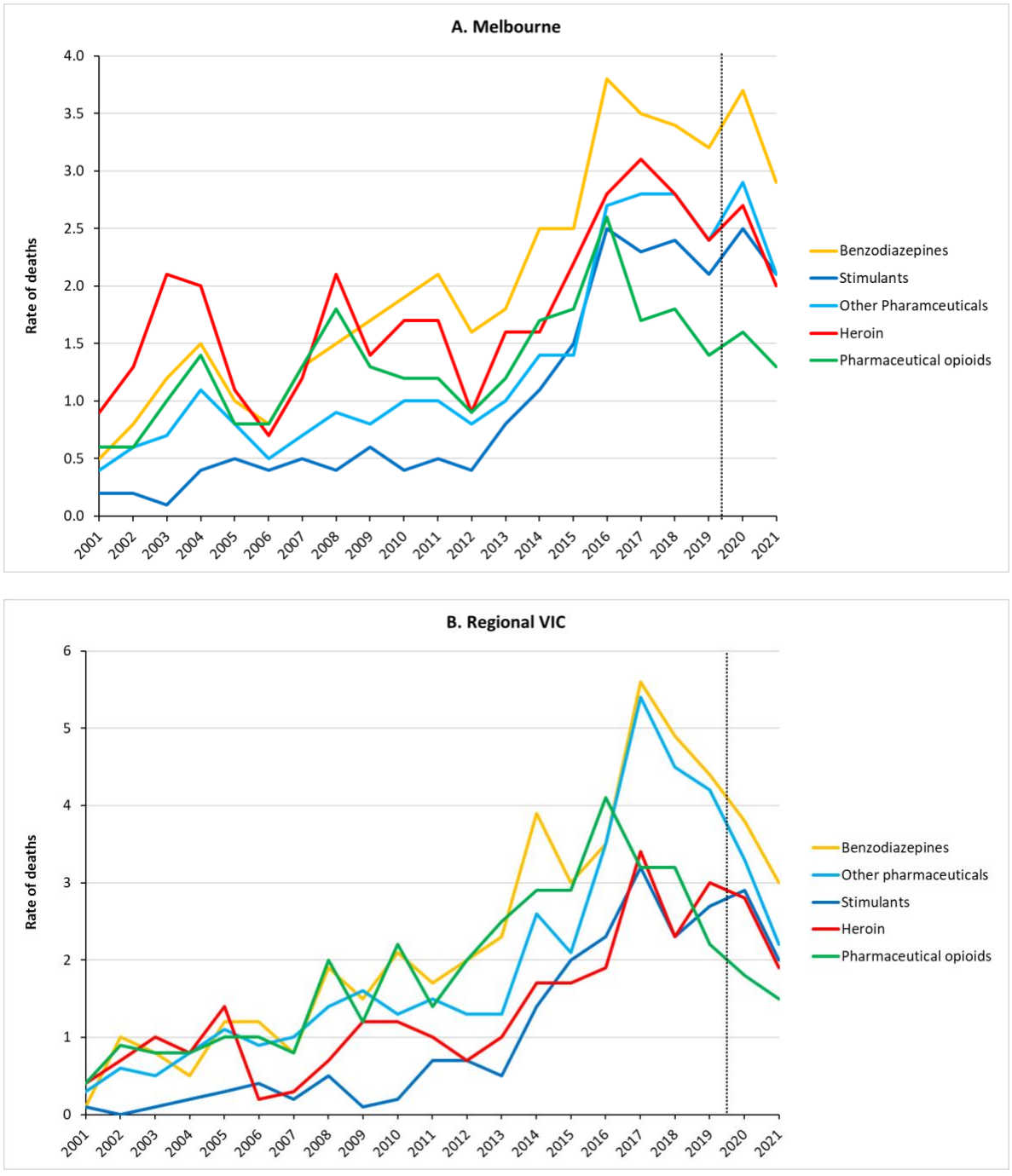
In 2021, rates of unintentional drug-induced deaths were higher in regional and rural Victoria than Melbourne for benzodiazepines, pharmaceutical opioids, and other pharmaceuticals, though the overall numbers (presented in Table 13 and Table 14) were higher in Melbourne.

Figure 66. Unintentional drug-induced deaths by regionality in Victoria, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Figure 67. Unintentional drug-induced deaths by drug type in greater Melbourne and regional Victoria, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Table 13. Number of unintentional drug-induced deaths by drug group, Melbourne, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Benzodiazepines	19	31	44	56	38	32	51	62	70	79	89	69	81	111	113	176	170	165	161	188	143
Stimulants	7	9	5	15	19	15	20	17	23	19	20	18	36	47	67	118	112	119	102	125	107
Other Pharmaceuticals	14	22	26	41	28	20	27	37	34	42	41	36	46	62	66	125	136	135	118	149	104
Heroin	35	50	78	74	42	27	46	86	59	70	70	40	70	69	101	128	146	137	121	135	98
Alcohol	19	30	32	45	33	27	40	47	47	52	55	28	31	53	43	76	72	69	75	81	73
Pharmaceutical opioids	21	22	36	51	31	32	51	74	55	51	51	39	51	78	83	124	80	87	71	80	63
Cannabinoids	4	1	0	2	1	5	5	7	4	7	15	8	10	18	50	67	90	75	59	41	27

Table 14. Number of unintentional drug-induced deaths by drug group, regional Victoria, 2001-2021

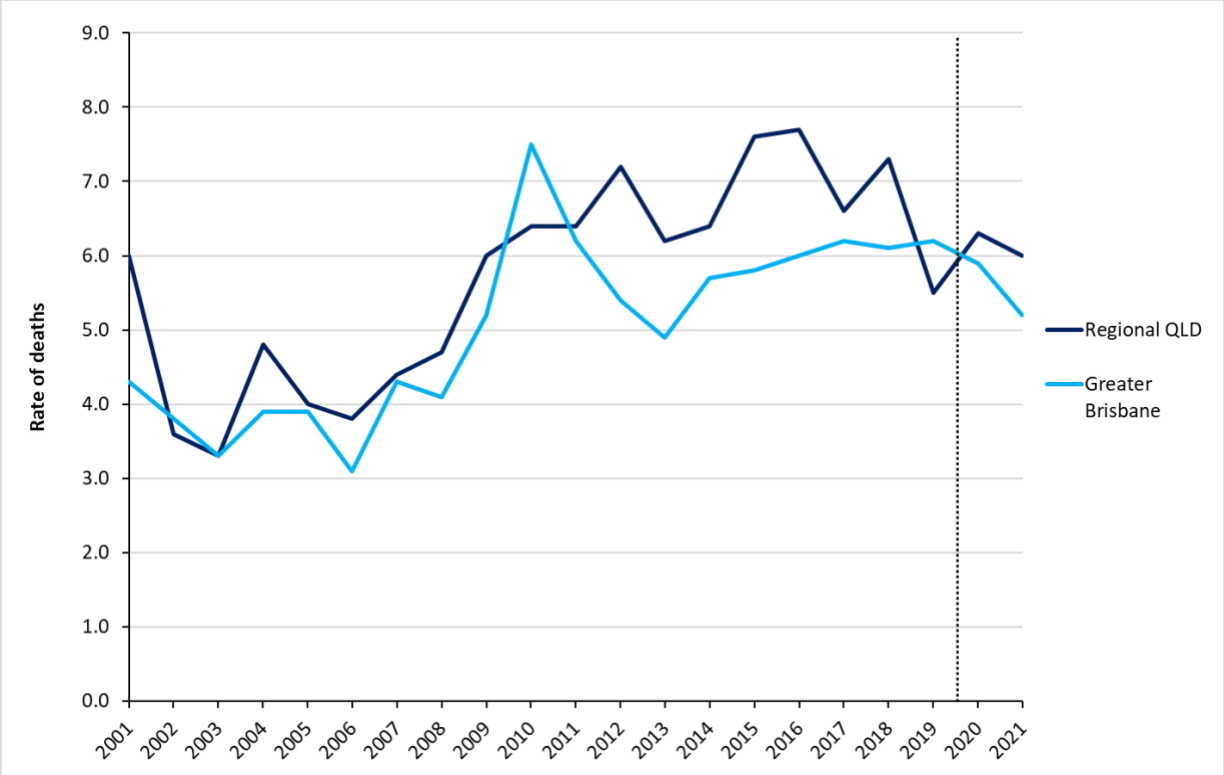
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Benzodiazepines	1	11	9	6	14	14	9	22	18	25	20	23	27	49	37	45	72	66	59	53	43
Other pharmaceuticals	4	7	6	9	13	12	11	18	19	15	19	16	16	33	26	46	72	61	55	46	34
Stimulants	1	0	1	2	4	5	2	7	1	3	8	2	7	16	24	28	40	29	35	37	27
Heroin	5	8	11	9	16	2	4	8	13	13	11	8	9	22	18	25	43	29	40	38	27
Pharmaceutical opioids	5	10	9	10	12	12	9	24	15	28	17	24	31	37	36	54	43	43	31	26	22
Alcohol	11	6	6	8	8	8	8	13	18	15	11	13	16	17	15	19	46	30	30	33	18
Cannabinoids	2	0	0	4	2	8	2	1	2	5	6	7	3	13	15	24	44	35	33	19	17

8.3. Queensland

Regional and rural Queensland had higher rates of unintentional drug-induced deaths than Brisbane from 2011 until a reversal in 2019, when regional Queensland had a rate of 5.5 deaths per 100,000 population, while Brisbane had a rate of 6.2 deaths per 100,000 population (Figure 68). Preliminary data from 2020 and 2021 suggest the rate of death in regional Queensland has surpassed that recorded in Brisbane once more. In 2021, the rate of deaths in regional Queensland was 6 deaths per 100,000 population, compared with 5.2 deaths per 100,000 population in Brisbane. 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. Numbers, however, are presented in Table 15 and Table 16.

Figure 68. Unintentional drug-induced deaths by regionality in Queensland, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Table 15. Number of unintentional drug-induced deaths by drug group, Brisbane, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Other pharmaceuticals	11	8	3	7	4	13	11	6	15	15	14	17	23	42	38	56	62	77	76	64	45
Benzodiazepines	16	8	6	4	3	7	16	28	48	52	43	40	35	37	41	50	71	70	70	68	39
Pharmaceutical opioids	24	14	9	8	7	8	11	7	18	37	35	39	39	52	51	48	63	61	52	44	37
Stimulants	5	2	2	3	3	4	9	1	10	11	7	18	10	22	31	35	39	47	59	51	36
Alcohol	14	8	5	3	8	8	10	7	14	30	23	25	16	19	20	17	23	25	25	28	20
Heroin	3	2	7	9	10	3	8	9	9	22	23	13	18	15	25	34	31	29	35	38	18
Cannabinoids	2	2	1	0	0	4	2	8	10	16	11	15	8	11	17	16	20	32	31	22	13

Table 16. Number of unintentional drug-induced deaths by drug group, regional Queensland, 2001-2021

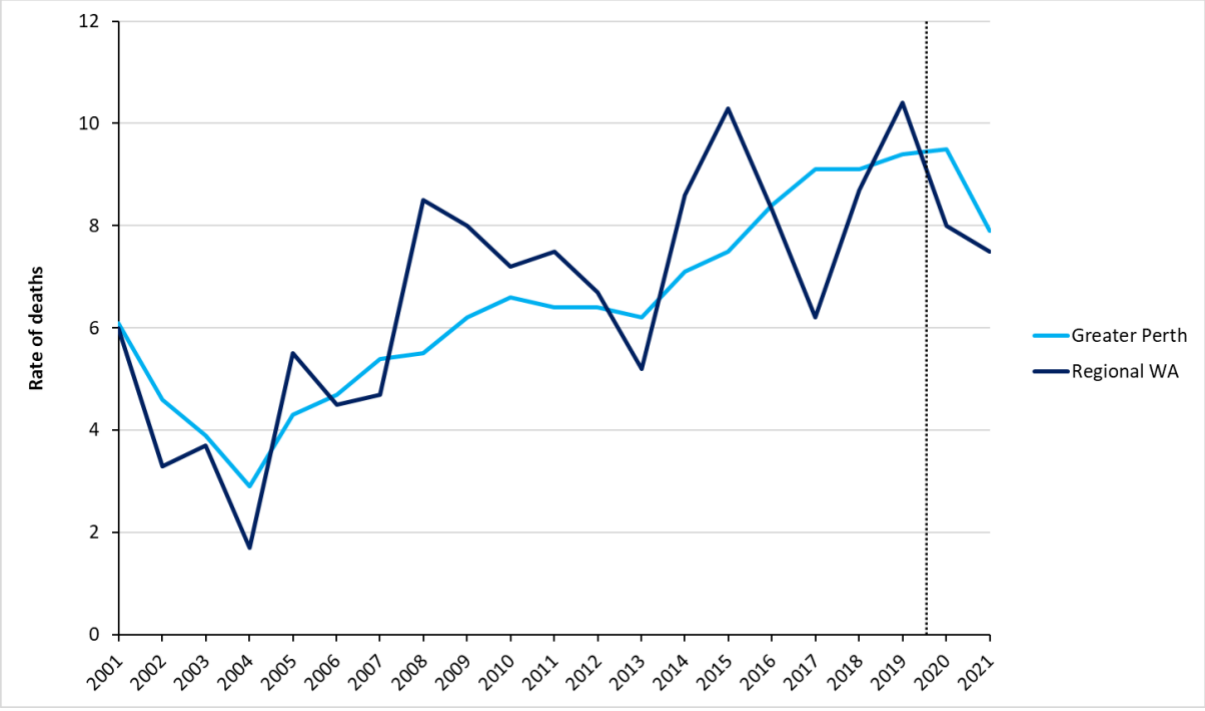
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Other pharmaceuticals	8	15	3	3	4	6	10	16	19	25	28	42	33	45	50	64	72	93	57	64	60
Pharmaceutical opioids	22	10	7	13	12	16	17	27	33	51	43	59	47	75	83	80	81	84	57	68	58
Benzodiazepines	24	15	8	7	10	7	18	17	36	43	44	54	40	53	48	47	63	86	59	58	53
Alcohol	15	10	7	8	2	9	16	21	39	26	26	36	29	31	29	26	28	40	22	31	28
Stimulants	1	1	0	0	1	6	3	7	13	9	11	17	14	30	36	41	43	43	41	45	30
Cannabinoids	10	0	1	0	3	2	6	7	18	8	12	11	7	18	16	13	26	45	23	19	12
Heroin	6	4	1	2	1	1	3	6	1	10	9	10	5	10	12	9	14	18	13	16	10

8.4. 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 69). In 2021, the rates of unintentional drug-induced death were 7.9 per 100,000 population in Perth and 7.5 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. Numbers, however, are presented in Table 17 and Table 18.

Figure 69. Unintentional drug-induced deaths by regionality in Western Australia, 2001-2021, rate per 100,000 population



Note: Data to the right of the dotted line (2020 and 2021 data) are preliminary, and likely to rise.

Table 17. Number of unintentional drug-induced deaths by drug group, Perth, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Other pharmaceuticals	21	19	4	5	7	18	15	24	24	29	29	27	15	31	46	40	84	92	93	104	72
Benzodiazepines	21	19	1	10	16	20	19	36	32	48	30	32	26	43	47	62	92	92	81	96	70
Pharmaceutical opioids	14	22	9	10	18	23	14	31	37	48	40	40	36	48	59	63	74	59	65	78	62
Stimulants	10	8	5	9	6	9	10	16	10	9	12	16	29	38	32	58	70	74	74	72	57
Alcohol	12	12	9	1	17	10	25	24	23	32	27	22	28	32	35	23	31	43	41	63	43
Heroin	1	3	4	4	8	4	7	10	24	22	25	29	32	28	29	52	51	62	64	58	32
Cannabinoids	7	10	2	3	7	11	6	10	11	11	17	14	11	21	14	26	39	52	41	38	19

Table 18. Number of unintentional drug-induced deaths by drug group, regional Western Australia, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Stimulants	2	1	0	0	2	0	1	4	1	1	4	0	2	9	13	14	1	20	19	10	18
Other pharmaceuticals	1	2	1	1	6	5	2	8	6	8	8	8	1	6	14	9	11	26	11	23	14
Alcohol	5	6	2	3	5	3	5	10	14	10	7	9	8	16	15	9	6	13	13	14	14
Benzodiazepines	3	1	0	0	7	3	2	10	8	8	7	14	2	9	13	7	10	19	12	13	9
Pharmaceutical opioids	2	2	1	1	8	4	1	19	12	13	15	10	7	21	17	17	12	20	21	21	8
Cannabinoids	2	1	0	0	1	4	1	4	3	3	6	8	1	7	9	9	3	14	8	9	7
Heroin	0	0	3	4	0	0	4	4	2	4	5	0	0	5	7	6	3	9	12	7	3

8.5. Unintentional drug-induced deaths by state and territory

As shown in Table 19, the rate of unintentional drug-induced death per 100,000 population has increased across Australia for all drug types, when comparing the period 2007-2011 with the years 2017-2021. The ratio between the 2017-2021 rate and the 2007-2011 rate highlights the magnitude of changes during this time.

Queensland consistently has some of the largest increases in the rates of unintentional drug-induced death for different drug types. The rate of deaths involving pharmaceutical opioids in Queensland has almost doubled between 2007-2011 and 2017-2021 (with a ratio of 1.9), while deaths involving other pharmaceuticals have more than tripled. Deaths involving stimulants in Queensland have increased five-fold, with a ratio of 5.1.

Several other states and territories have recorded a similar increase in the rate of unintentional deaths involving stimulants between 2007-2011 and 2017-2021. New South Wales has seen the largest increase in unintentional deaths involving stimulants, with a ratio for the change in rates of 5.6, followed by Western Australia (5.5) and Victoria (5.3). New South Wales recorded the largest increase in unintentional deaths involving heroin (with a ratio of 3.0) followed by Victoria (1.9) and Queensland (1.9).

Table 19. Number and rate per 100,000 population of unintentional drug-induced deaths, by drug type and state and territory, 2007-2011 and 2017-2021

	2007-2011	2017-2021	2007-2011	2017-2021	Ratio
	no.	no.	rate	rate	
Benzodiazepines					
NSW	358	953	1.0	2.5	2.4
VIC	445	1,160	1.7	3.6	2.2
QLD	345	643	1.6	2.6	1.6
SA	99	127	1.3	1.5	1.2
WA	200	503	1.8	3.8	2.1
TAS	61	61	2.6	2.3	0.9
NT	15	14	np	np	np
ACT	16	52	np	2.4	np
Australia	1,539	3,513	1.4	2.9	2.0
Pharmaceutical opioids					
NSW	364	706	1.0	1.8	1.7

VIC	375	560	1.4	1.8	1.2
QLD	279	611	1.3	2.5	1.9
SA	94	124	1.2	1.4	1.2
WA	232	429	2.1	3.2	1.6
TAS	45	47	1.9	1.8	0.9
NT	15	18	np	np	np
ACT	29	39	1.6	1.8	1.1
Australia	1,433	2,534	1.3	2.0	1.5
Other pharmaceuticals					
NSW	261	758	0.7	2.0	2.6
VIC	263	937	1.0	2.9	3.0
QLD	160	677	0.7	2.8	3.8
SA	111	97	1.4	1.1	0.8
WA	154	536	1.4	4.0	3.0
TAS	49	63	2.0	2.3	1.1
NT	8	15	np	np	np
ACT	17	49	np	2.3	np
Australia	1,023	3,132	0.9	2.5	2.7
Stimulants					
NSW	129	808	0.4	2.1	5.6
VIC	123	759	0.5	2.4	5.3
QLD	83	440	0.4	1.8	4.7
SA	35	121	0.5	1.5	3.2
WA	68	435	0.6	3.4	5.5
TAS	11	38	np	1.6	np
NT	3	18	np	np	np
ACT	6	51	np	2.3	np
Australia	459	2,670	0.4	2.2	5.1
Heroin					
NSW	162	555	0.5	1.4	3.0
VIC	380	841	1.4	2.7	1.9
QLD	103	226	0.5	0.9	1.9
SA	67	94	0.9	1.1	1.2
WA	99	309	0.9	2.4	2.7
TAS	2	13	np	np	np

NT	2	3	np	np	np
ACT	17	37	np	1.7	np
Australia	830	2,078	0.8	1.7	2.2
Cannabinoids					
NSW	34	413	0.1	1.1	11.0
VIC	58	456	0.2	1.4	6.6
QLD	99	245	0.5	1.0	2.2
SA	5	53	np	0.6	np
WA	69	236	0.6	1.8	3.0
TAS	11	25	np	1.0	np
NT	2	10	np	np	np
ACT	7	35	np	1.6	np
Australia	284	1,473	0.3	1.2	4.5
Alcohol					
NSW	388	525	1.1	1.4	1.2
VIC	310	539	1.2	1.7	1.4
QLD	214	273	1.0	1.1	1.1
SA	86	99	1.1	1.1	1.0
WA	180	287	1.6	2.1	1.3
TAS	26	35	1.0	1.2	1.2
NT	22	26	2.0	2.2	1.1
ACT	18	37	np	1.8	np
Australia	1,244	1,821	1.2	1.5	1.3

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.

8.6. 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 20 presents unintentional drug-induced deaths, drug-induced suicides and total drug-induced deaths for each PHN.

Table 20. Unintentional drug-induced deaths, drug-induced suicides and all drug-induced deaths, by PHN, numbers 2006-2021, and rates per 100,000 population for 2007-2011, 2012-2016 and 2017-2021

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2007-2011	2012-2016	2017-2021
Drug Type	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	rate	rate	rate
PHN101 Central and Eastern Sydney																		
Unintentional Drug-induced Deaths	96	95	107	99	86	82	117	115	129	136	134	133	131	116	129	6.6	7.4	7.8
Drug-induced Suicides	30	27	17	23	21	28	22	25	27	22	32	22	24	28	17	1.6	1.6	1.5
Total Drug-induced Deaths	133	143	137	133	114	114	140	141	160	159	168	155	157	146	147	9.0	9.2	9.4
PHN102 Northern Sydney																		
Unintentional Drug-induced Deaths	26	27	26	32	38	38	37	27	46	47	48	38	43	36	42	3.4	4.1	4.3
Drug-induced Suicides	13	15	12	11	13	16	15	7	13	10	9	11	7	17	8	1.5	1.3	1.0
Total Drug-induced Deaths	41	45	44	46	52	56	54	36	61	59	57	49	50	54	50	5.3	5.6	5.3
PHN103 Western Sydney																		
Unintentional Drug-induced Deaths	24	40	44	38	53	44	44	42	55	49	59	65	61	67	49	5.0	5.3	6.0
Drug-induced Suicides	2	13	1	5	8	13	13	8	12	9	9	9	6	5	9	0.9	1.2	0.7
Total Drug-induced Deaths	32	55	52	49	63	60	59	52	68	59	68	74	68	72	58	6.3	6.8	6.8
PHN104 Nepean Blue Mountains																		

Unintentional Drug-induced Deaths	18	23	16	21	29	23	22	21	23	39	31	32	34	28	31	6.6	7.3	8.5
Drug-induced Suicides	6	4	10	7	4	6	5	6	6	4	7	9	4	5	7	1.6	1.5	1.5
Total Drug-induced Deaths	27	25	27	30	32	30	29	29	30	43	41	41	37	33	38	8.6	9.2	10.1
PHN105 South Western Sydney																		
Unintentional Drug-induced Deaths	43	44	57	47	44	42	47	67	75	45	74	72	66	64	57	5.7	6.2	6.7
Drug-induced Suicides	6	2	10	7	15	13	4	20	7	7	9	11	12	8	11	1.0	1.2	1.0
Total Drug-induced Deaths	55	53	72	59	60	60	53	89	85	52	84	88	82	73	69	7.2	7.7	7.9
PHN106 South Eastern NSW																		
Unintentional Drug-induced Deaths	34	26	33	30	37	38	38	55	52	62	53	44	58	55	43	5.6	8.0	8.1
Drug-induced Suicides	3	6	6	13	15	17	12	11	12	15	12	10	19	8	14	1.4	2.2	1.9
Total Drug-induced Deaths	44	50	45	47	59	57	52	67	66	79	70	54	77	66	57	8.5	10.5	10.3
PHN107 Western NSW																		
Unintentional Drug-induced Deaths	9	16	15	18	27	12	22	33	28	35	33	29	29	23	27	5.7	8.8	9.1
Drug-induced Suicides	2	4	1	1	1	2	2	3	3	2	5	5	6	5	2	np	np	1.5
Total Drug-induced Deaths	14	20	17	21	28	15	27	40	31	40	39	34	36	30	30	6.7	10.3	11.0
PHN108 Hunter New England and Central Coast																		
Unintentional Drug-induced Deaths	53	45	51	70	68	70	62	94	97	84	102	101	93	94	94	4.8	6.7	7.7
Drug-induced Suicides	13	17	20	11	16	28	25	22	27	31	36	32	26	24	26	1.3	2.2	2.1
Total Drug-induced Deaths	80	75	81	86	89	107	93	126	128	115	142	135	130	123	123	7.0	9.4	10.2
PHN109 North Coast																		
Unintentional Drug-induced Deaths	25	22	26	33	28	39	36	54	40	45	48	51	39	51	53	5.4	8.6	9.3
Drug-induced Suicides	8	5	7	1	3	10	6	11	13	16	15	14	12	18	13	1.1	2.1	2.4
Total Drug-induced Deaths	54	38	47	49	32	50	45	72	55	62	65	67	52	70	66	9.0	11.2	11.9
PHN110 Murrumbidgee																		

Unintentional Drug-induced Deaths	9	10	11	8	8	16	11	16	16	19	13	14	24	14	19	3.9	6.9	6.9
Drug-induced Suicides	1	3	0	4	3	5	2	0	5	6	1	5	7	5	2	np	1.8	2.0
Total Drug-induced Deaths	13	13	11	14	14	22	15	17	24	25	16	20	33	20	23	5.6	9.1	9.2
PHN201 North Western Melbourne																		
Unintentional Drug-induced Deaths	61	105	71	82	97	67	84	91	109	129	127	117	124	142	133	5.9	6.0	6.9
Drug-induced Suicides	9	11	25	9	15	15	22	23	26	24	26	30	27	29	21	1.0	1.4	1.4
Total Drug-induced Deaths	81	125	118	107	126	99	107	119	139	158	163	151	161	172	158	7.9	7.8	8.7
PHN202 Eastern Melbourne																		
Unintentional Drug-induced Deaths	50	66	67	58	59	35	72	65	71	80	93	73	91	92	83	4.4	4.5	5.5
Drug-induced Suicides	15	13	17	19	20	18	17	26	28	29	20	22	27	21	28	1.2	1.5	1.4
Total Drug-induced Deaths	73	91	97	84	87	64	95	94	102	114	120	96	121	116	113	6.3	6.4	7.1
PHN203 South Eastern Melbourne																		
Unintentional Drug-induced Deaths	64	78	83	89	76	55	65	82	92	128	108	110	95	137	99	5.8	5.8	6.8
Drug-induced Suicides	17	15	31	25	24	14	18	27	28	29	40	23	26	20	30	1.6	1.6	1.6
Total Drug-induced Deaths	89	113	133	120	110	83	86	117	127	166	151	140	123	163	133	8.4	7.9	8.7
PHN204 Gippsland																		
Unintentional Drug-induced Deaths	12	14	23	17	14	9	17	27	19	33	25	28	20	22	28	6.9	8.6	9.2
Drug-induced Suicides	2	5	4	2	8	1	5	8	1	2	5	3	7	10	6	1.7	1.4	2.3
Total Drug-induced Deaths	15	19	29	22	25	14	23	37	26	38	30	33	27	34	34	9.3	10.7	11.8
PHN205 Murray																		
Unintentional Drug-induced Deaths	23	29	31	24	34	29	40	36	45	52	62	51	57	59	44	5.2	7.3	9.2
Drug-induced Suicides	10	6	7	2	8	9	13	12	13	10	11	14	12	14	8	1.1	1.8	1.7
Total Drug-induced Deaths	34	37	41	30	50	45	58	54	60	70	74	69	70	75	53	7.1	10.1	11.2
PHN206 Grampians and Barwon South West																		

Unintentional Drug-induced Deaths	26	42	35	35	35	25	21	47	42	46	69	46	62	44	34	6.1	6.0	8.2
Drug-induced Suicides	5	10	6	5	4	6	8	12	4	10	8	15	10	13	10	1.0	1.3	1.6
Total Drug-induced Deaths	35	57	48	47	55	42	30	62	48	56	78	63	73	57	46	8.6	7.9	9.9
PHN301 Brisbane North																		
Unintentional Drug-induced Deaths	43	36	43	65	55	56	45	53	62	64	54	60	63	66	56	5.7	5.9	5.7
Drug-induced Suicides	15	11	15	11	22	21	22	25	20	16	21	22	27	22	28	1.7	2.2	2.3
Total Drug-induced Deaths	59	50	61	78	77	77	69	81	86	80	75	84	94	99	89	7.6	8.3	8.4
PHN302 Brisbane South																		
Unintentional Drug-induced Deaths	36	38	49	76	64	55	49	69	52	59	84	73	75	69	60	5.3	5.3	6.2
Drug-induced Suicides	15	18	14	19	10	21	20	19	27	21	24	27	30	27	18	1.5	2.0	2.1
Total Drug-induced Deaths	55	62	64	96	76	78	71	90	81	80	109	104	110	101	81	7.1	7.4	8.6
PHN303 Gold Coast																		
Unintentional Drug-induced Deaths	19	19	26	24	36	39	31	40	48	42	54	45	34	40	52	4.8	7.0	7.2
Drug-induced Suicides	14	15	13	11	8	5	18	17	19	15	31	15	10	17	24	2.3	2.5	2.8
Total Drug-induced Deaths	34	38	40	35	44	45	49	59	68	59	89	60	45	58	79	7.3	9.7	10.2
PHN304 Darling Downs and West Moreton																		
Unintentional Drug-induced Deaths	14	19	37	27	28	25	28	23	41	34	25	32	28	28	32	5.3	5.8	5.3
Drug-induced Suicides	9	9	9	3	7	8	8	10	16	9	7	8	15	7	10	1.6	1.9	1.6
Total Drug-induced Deaths	24	30	47	31	35	35	40	34	57	43	32	42	43	35	44	7.1	8.0	7.0
PHN305 Western Queensland																		
Unintentional Drug-induced Deaths	3	5	2	6	5	2	6	2	1	1	2	2	2	6	3	np	np	np
Drug-induced Suicides	0	0	3	1	0	0	0	3	4	0	0	0	0	3	0	np	np	np
Total Drug-induced Deaths	2	5	3	7	5	5	6	3	6	3	4	1	2	7	1	6.3	6.8	np
PHN306 Central Queensland and Sunshine Coast																		

Unintentional Drug-induced Deaths	32	38	46	63	52	64	65	66	58	67	49	76	47	55	52	6.1	8.1	6.7
Drug-induced Suicides	12	10	13	9	11	20	25	24	31	23	24	32	21	15	23	1.3	2.7	2.3
Total Drug-induced Deaths	45	55	60	76	64	84	97	92	91	92	73	109	69	72	76	7.9	11.2	9.1
PHN307 Northern Queensland																		
Unintentional Drug-induced Deaths	31	28	37	39	43	36	33	30	53	58	34	41	46	51	37	5.6	6.2	5.9
Drug-induced Suicides	11	6	8	8	16	12	10	9	16	12	13	12	15	14	17	1.5	1.7	1.9
Total Drug-induced Deaths	42	35	46	47	62	50	44	42	69	70	48	54	63	65	57	7.3	8.1	8.0
PHN401 Adelaide																		
Unintentional Drug-induced Deaths	73	76	86	77	52	84	46	68	51	88	97	78	73	68	65	6.3	5.5	5.9
Drug-induced Suicides	18	22	21	18	16	18	24	31	31	30	30	24	32	25	25	1.6	2.1	2.0
Total Drug-induced Deaths	97	110	116	110	87	119	91	113	97	124	136	113	135	112	104	9.0	8.9	9.2
PHN402 Country SA																		
Unintentional Drug-induced Deaths	20	21	28	17	21	20	19	15	26	24	26	23	22	17	30	4.3	3.9	4.8
Drug-induced Suicides	7	10	3	6	11	7	10	8	11	7	14	8	10	12	11	1.6	1.6	2.0
Total Drug-induced Deaths	29	32	32	25	37	34	35	28	44	33	43	31	36	36	45	6.3	6.8	7.6
PHN501 Perth North																		
Unintentional Drug-induced Deaths	49	51	77	62	59	71	65	64	75	84	94	93	100	103	74	6.3	6.9	8.3
Drug-induced Suicides	18	16	23	24	16	23	21	24	20	22	28	18	25	22	29	2.1	2.1	2.1
Total Drug-induced Deaths	72	69	100	88	76	97	88	91	101	111	126	117	129	129	115	8.6	9.4	11.0
PHN502 Perth South																		
Unintentional Drug-induced Deaths	41	44	34	55	60	49	55	77	73	85	91	95	103	107	102	5.7	7.3	9.7
Drug-induced Suicides	14	9	16	22	15	23	14	19	20	21	20	22	20	18	22	1.8	2.1	1.9
Total Drug-induced Deaths	58	57	52	78	76	77	69	101	94	110	115	122	130	129	132	7.8	9.6	12.2
PHN503 Country WA																		

Unintentional Drug-induced Deaths	20	40	36	35	36	35	28	47	56	44	32	46	55	44	45	6.8	7.8	8.1
Drug-induced Suicides	5	2	7	5	7	9	3	11	10	12	11	12	8	8	7	1.1	1.6	1.5
Total Drug-induced Deaths	27	46	43	42	43	45	33	60	69	59	43	59	64	53	57	8.1	9.8	9.9
PHN601 Tasmania																		
Unintentional Drug-induced Deaths	32	27	40	28	36	28	27	37	31	47	36	33	34	30	24	6.3	6.4	5.6
Drug-induced Suicides	8	7	11	10	8	11	11	15	13	21	12	9	22	16	19	1.7	2.5	2.4
Total Drug-induced Deaths	49	40	60	41	47	42	45	54	49	70	54	44	56	47	48	9.3	9.6	8.5
PHN701 Northern Territory																		
Unintentional Drug-induced Deaths	20	12	12	16	9	17	11	10	15	9	15	18	17	15	18	7.6	6.3	7.1
Drug-induced Suicides	2	3	0	2	4	0	3	6	4	3	3	4	0	1	4	np	np	np
Total Drug-induced Deaths	22	15	12	19	11	19	13	16	20	12	21	19	19	18	22	8.8	8.0	8.5
PHN801 Australian Capital Territory																		
Unintentional Drug-induced Deaths	22	22	17	20	16	12	23	21	16	28	27	28	22	26	36	5.4	5.1	6.4
Drug-induced Suicides	1	3	7	1	5	5	3	9	7	2	15	9	17	22	18	1.4	1.4	3.6
Total Drug-induced Deaths	28	28	30	25	22	17	27	31	24	33	43	39	41	55	54	7.4	6.7	10.6
Australia																		
Unintentional Drug-induced Deaths	1,041	1,171	1,281	1,325	1,319	1,237	1,287	1,516	1,614	1,784	1,822	1,786	1,779	1,796	1,675	5.6	6.3	7.0
Drug-induced Suicides	298	295	342	304	333	386	383	453	475	446	502	463	486	463	469	1.4	1.8	1.8
Total Drug-induced Deaths	1,480	1,648	1,785	1,756	1,775	1,762	1,768	2,074	2,183	2,296	2,400	2,318	2,368	2,354	2,231	7.7	8.5	9.1

— nil or rounded to zero (including null cells).

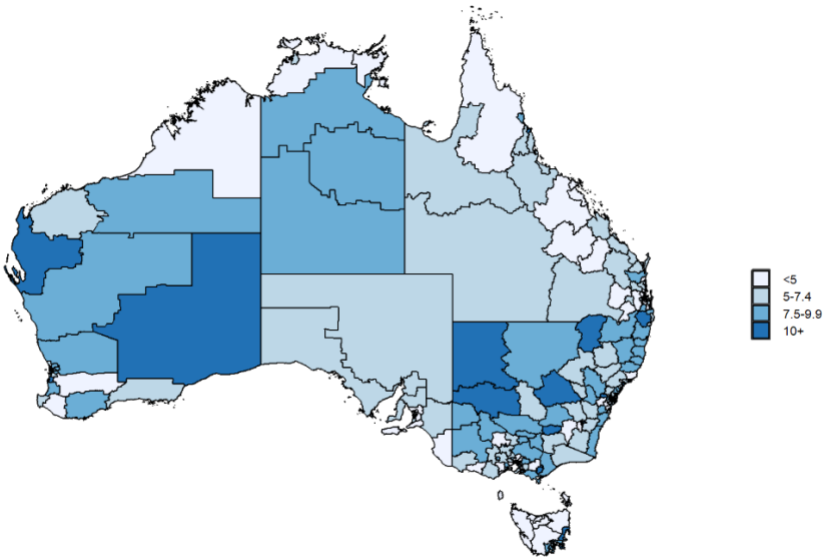
np not available for publication but included in totals where applicable, unless otherwise indicated.

8.7. Unintentional drug-induced deaths by local areas

The following figures represent the rate (per 100,000 population) of unintentional drug-induced deaths by Statistical Area 3 (SA3), aggregated over the 2017-2021 period.[73] 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 70. Australia: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population



[73] The maps were created in 'R Studio' (R Core Team, Vienna, Austria) using the 'ggplot2' package (Wickham, 2016).

Figure 71 and Figure 72. Sydney and NSW: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population

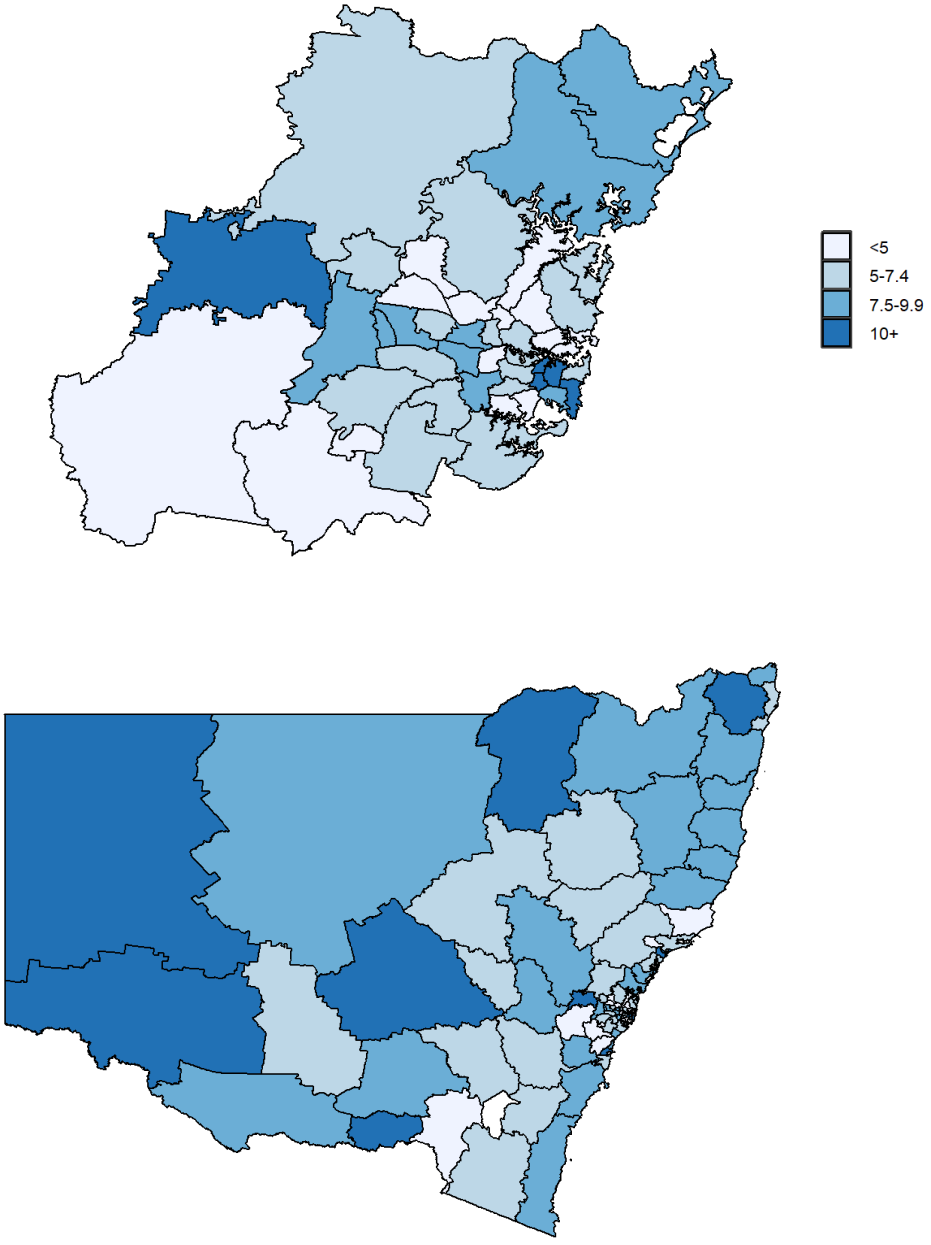
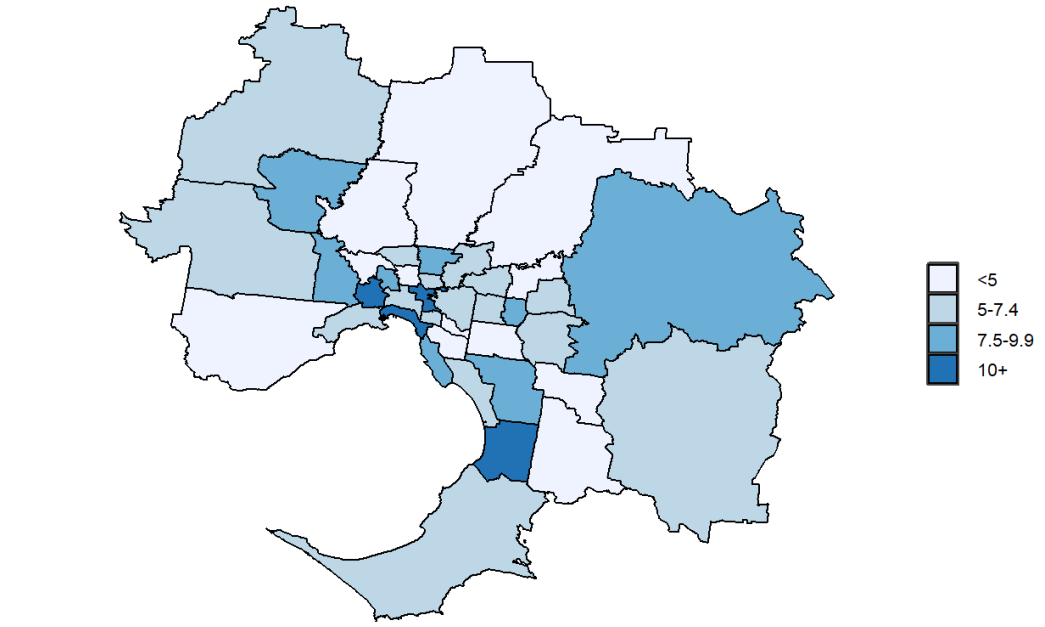


Figure 73 and Figure 74. Melbourne and Victoria: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population



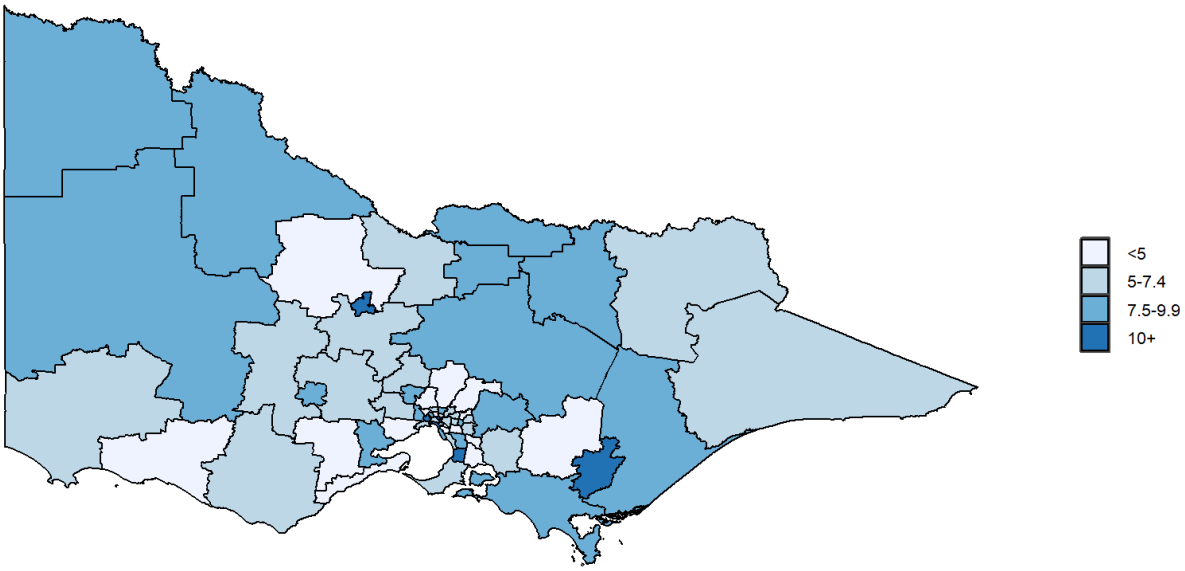
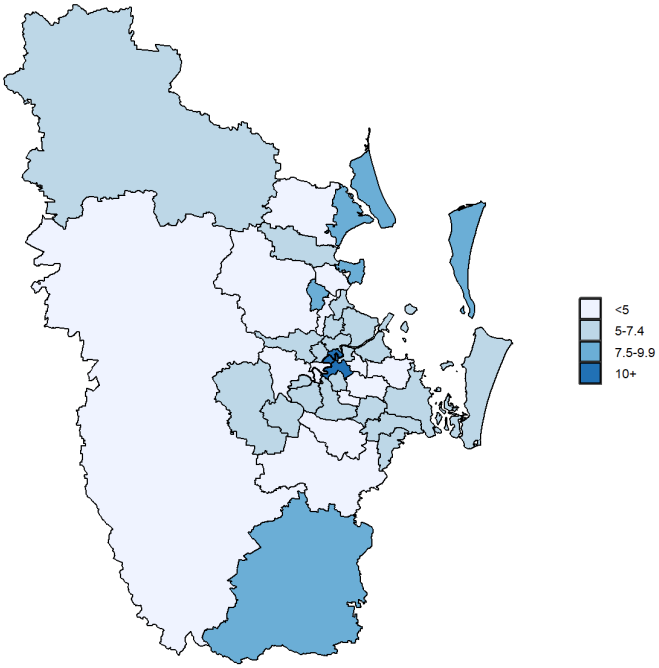


Figure 75 and Figure 76. Brisbane and Queensland: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population



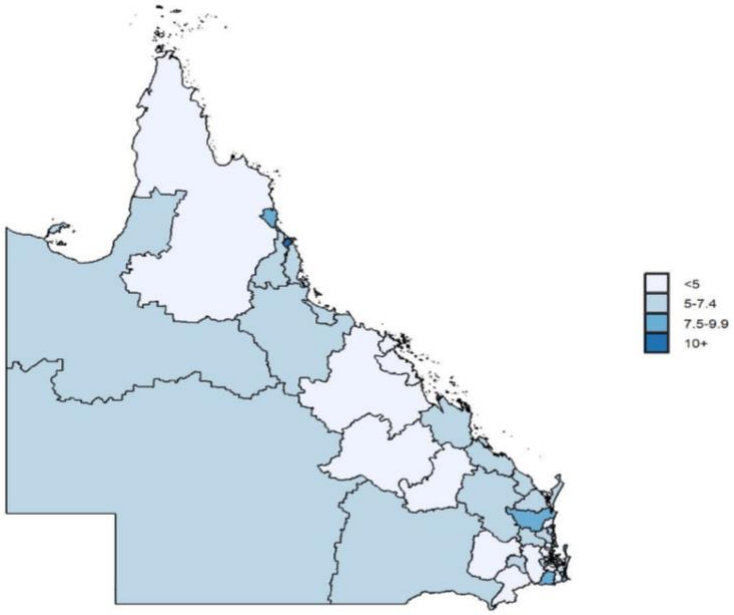
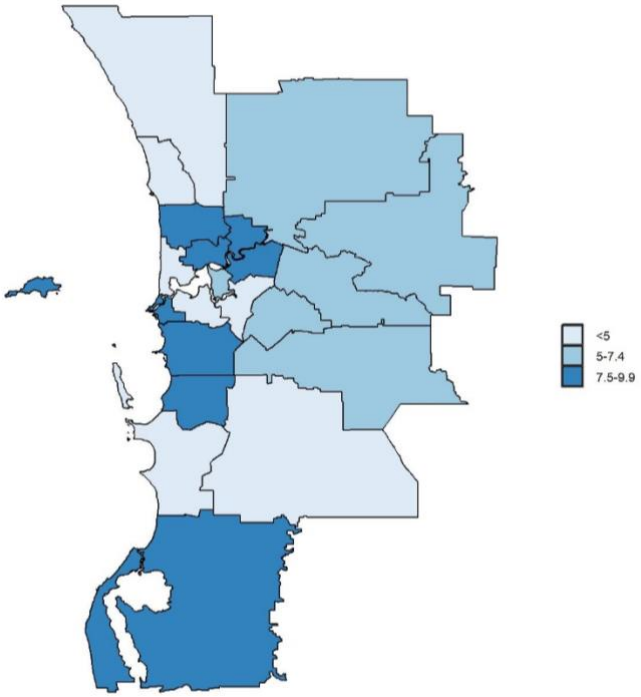


Figure 77 and Figure 78. Perth and WA: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population



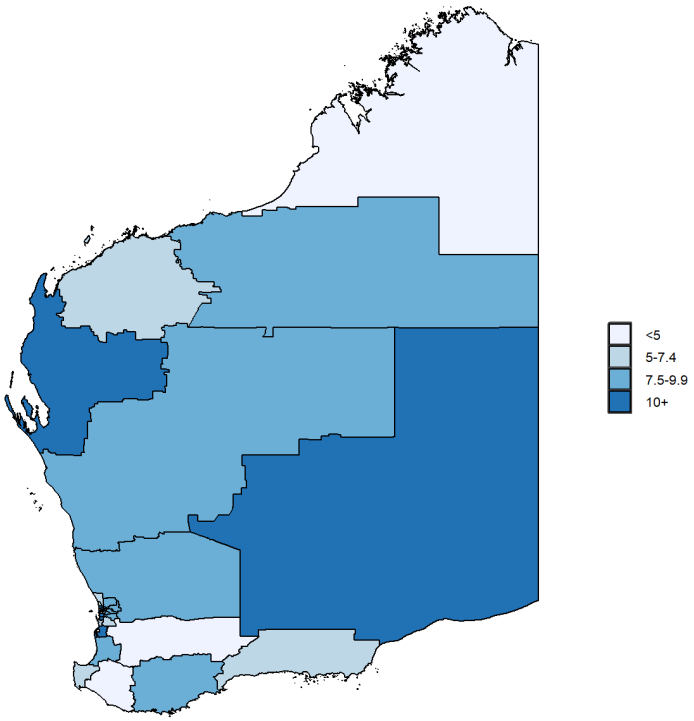


Figure 79 and Figure 80. Adelaide and SA: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population

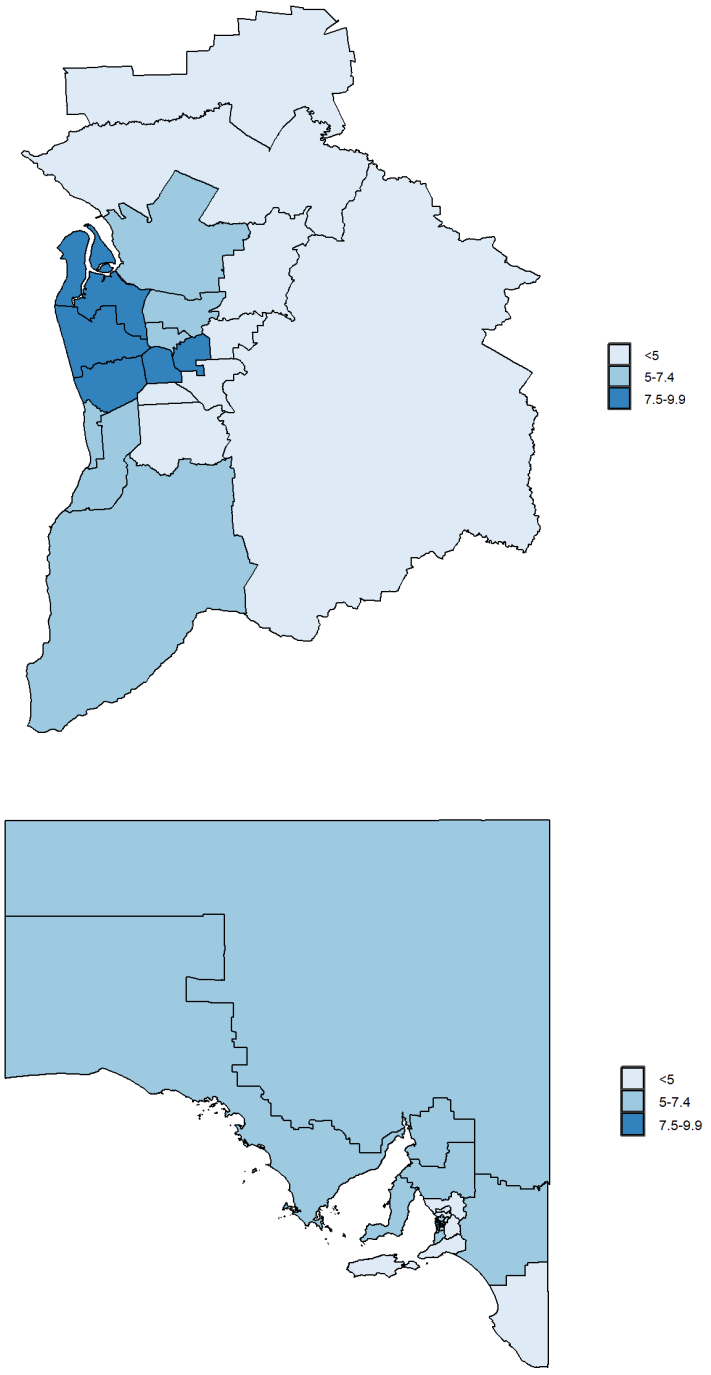


Figure 81 and Figure 82. Hobart and Tasmania: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population

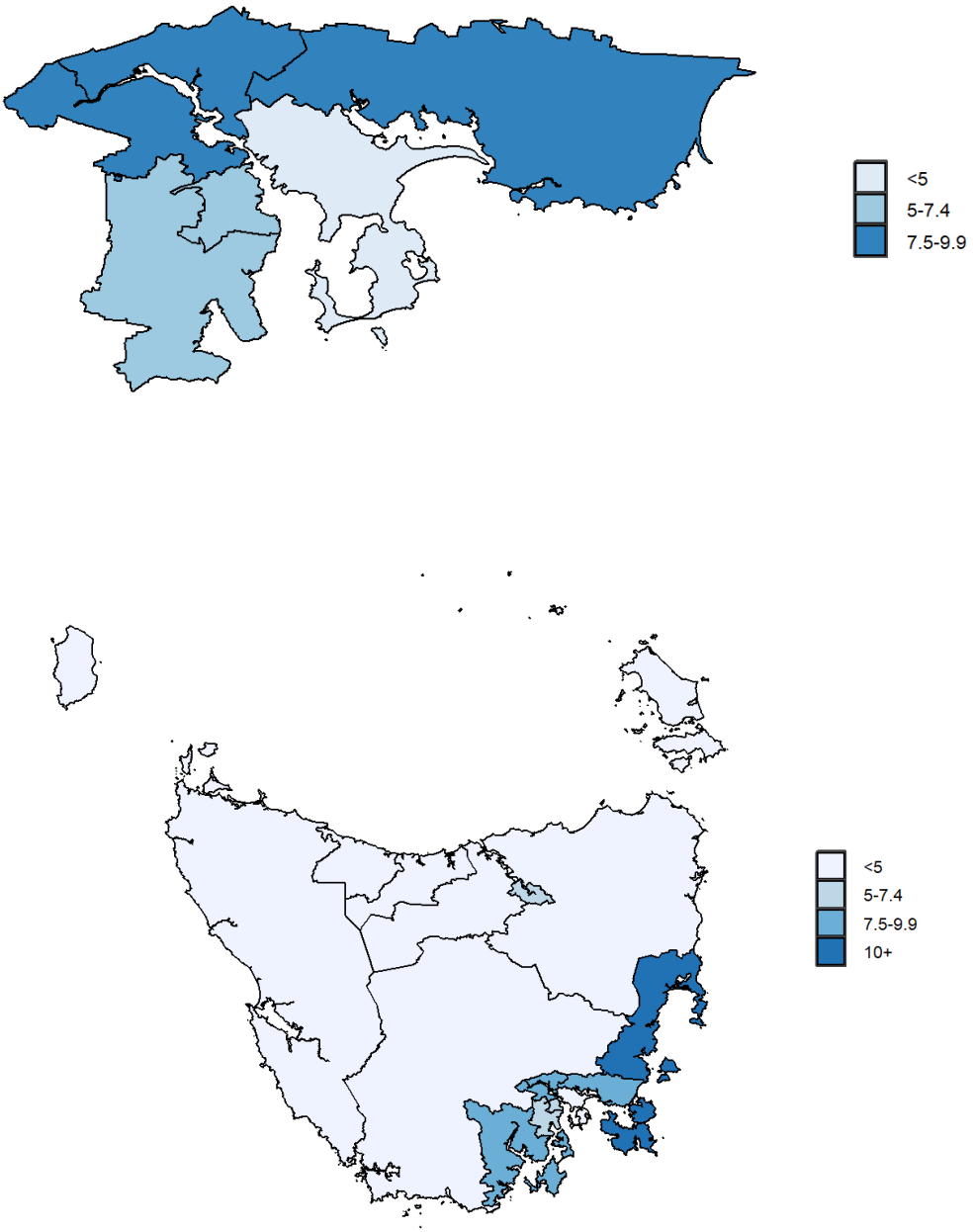
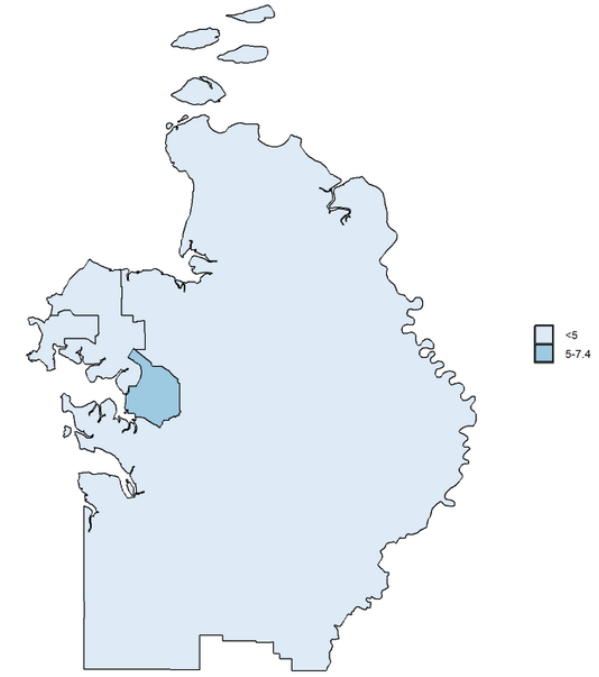


Figure 83 and Figure 84. Darwin and NT: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population



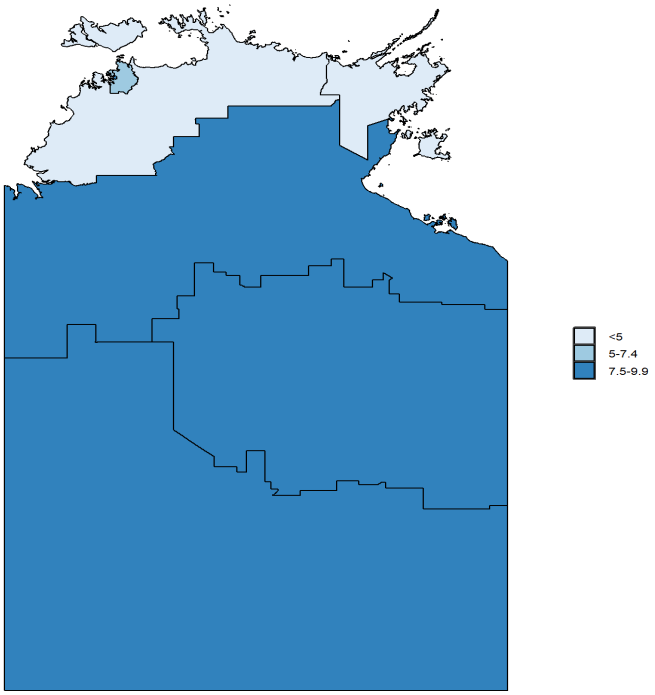
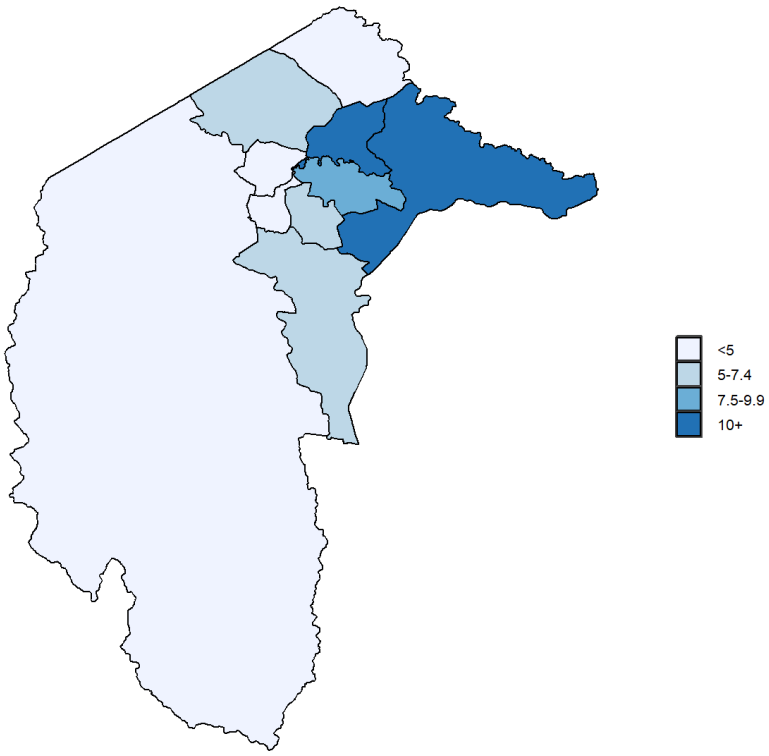


Figure 85. ACT: Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population



9. *Non-fatal acute drug- and alcohol-related harm*

There are far more non-fatal than fatal drug overdoses in Australia every year. Research has shown that the ratio of non-fatal to fatal heroin overdose, for example, is approximately 30:1, with between 3% and 4% of heroin overdose events resulting in death.[74] It has been estimated that about 45% of people who use opioids have experienced a non-fatal overdose during their lifetime.[75]

The health impacts of non-fatal overdoses may be both acute and chronic. Acute morbidity includes direct impacts of the overdose (such as low blood pressure, heart rhythm disturbances, abnormal body temperature, liver injury and reduced breathing) and the secondary impacts that can result from disturbances to normal body functioning (such as respiratory tract infection, muscle breakdown and kidney failure). Secondary harm may include injuries sustained because of a drug causing collapse, falls or dangerous behaviour (such as motor vehicle accidents, bone fractures and burns). Chronic morbidity may result from conditions that last a long time as the result of overdose and may lead to an individual being permanently disabled, unable to work, or even requiring full-time care. These conditions include brain injuries resulting from lack of oxygen during the overdose, kidney failure, strokes, and damage to other organs within the body. The more episodes of non-fatal overdose that an individual experiences, the greater the chance becomes that they will suffer a complication that leaves them with a chronic disability.[76]

People who have experienced a non-fatal overdose are at greater risk of harm from further overdose – both non-fatal and fatal. Australian research has found a direct association between non-fatal overdose and subsequent overdose mortality, with increased risk among men, those over age 35 and those who have previously been attended by an ambulance multiple times for non-fatal overdoses.[77]

Fatal overdose continues to take a significant toll on our communities; Chapter 4 of this report shows that there were 2,231 drug-induced deaths reported in Australia in 2021. The relationship between non-fatal and fatal overdose means that many of the victims of fatal overdose had likely experienced at least one previous overdose.

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[74] Darke, S., Mattick, R.P. and Degenhardt, L. (2003). The ratio of non-fatal to fatal heroin overdose. *Addiction*, 98: 1169-1172.
[75] See further: *UN Toolkit on synthetic drugs: Opioid overdose*.
[76] Geddes, L., Iversen, J., Darke, S., Dietze, P. and Maher, L. (2021). Prevalence and correlates of multiple non-fatal opioid overdoses among people who inject drugs who utilise needle syringe programs in Australia. *International Journal of Drug Policy*, 96: 103245.
[77] Stoové, M.A., Dietze, P.M. and Jolley D. (2009). Overdose deaths following previous non-fatal heroin overdose: Record linkage of ambulance attendance and death registry data. *Drug and Alcohol Review*, 28(4): 347-52.

In recognition of the role of opioids in overdose deaths, from 1 July 2022 the opioid overdose reversal drug naloxone became available nationally at no cost without a need for a prescription. A recent evaluation of the initial Take Home Naloxone pilot found that naloxone had saved up to an estimated three lives each day.[78] The impact of the national program on the number of overdose deaths and hospitalisations will likely be seen in future editions of Penington Institute's *Australia's Annual Overdose Report*.

Measuring the extent of non-fatal overdose is a significant public health challenge. Data are available for drug- and alcohol-related ambulance attendances and hospitalisations, but they are limited and likely represent an underestimate of the full extent of 'non-fatal overdose'. These limitations are described in Table 21. Nonetheless, these data do provide an indication of some of the burden of non-fatal acute drug- and alcohol-related harm in our community.

Table 21: Limitations relating to drug- and alcohol-related ambulance attendance and hospitalisation data

Data limitations
• The identity of the drugs involved in non-fatal overdoses is rarely confirmed using blood or urine tests. Drug identity is most often recorded in health records based on reports by an individual, family member, friend, bystander, or health care provider. These reports may be inaccurate. In the case of illicit drugs, the unregulated nature of the market means that an individual may not know exactly what is contained within a drug they are using. In these cases, the actual drug associated with the overdose will not be recorded or will be mis-identified. For these reasons, this report uses the term 'suspected' use of drug X.
• An ambulance attendance or hospital presentation may be coded as drug-related harm, but that may include harm that is not directly related to overdose, such as severe skin infections or heart problems due to long-term drug use.
• Ambulance attendances and hospitalisations may involve exposure to more than one drug (including alcohol), which means that data reported by "drug" will not necessarily indicate that the drug is exclusively responsible for the episode (for example attendances counted under "cannabinoids" may also involve exposure to another drug or alcohol).

[78] University of Queensland Institute for Social Science Research (2022). *Evaluation of the Pharmaceutical Benefits Scheme subsidised take home naloxone pilot: Final report*.

- A large proportion of overdose hospital presentations are managed exclusively in the emergency department setting, and do not require hospital admission. These episodes would not be captured in hospitalisation data.
- Drug- and alcohol-related ambulance attendance and hospitalisation data do not include episodes for which the individual sought help from sources outside of ambulance or hospitals, such as a local community health centre. As such, the data presented here underestimate the true extent of non-fatal drug- and alcohol-related harm in Australia and should be considered a 'snapshot' of acute harm.

This chapter provides an overview of trends in non-fatal acute drug- and alcohol-related harm (including overdose) relating to the use of illicit substances (e.g. methamphetamine), pharmaceutical medications (e.g. anti-depressants or paracetamol), and alcohol, as indicated by available ambulance attendance, hospitalisation and poisons centre data. Access to timely and accurate data regarding the trends and emerging patterns in overdose is essential to help first responders, service providers and policymakers to save lives.

9.1. Drug- and alcohol-related ambulance attendances

This section presents data on drug- and alcohol-related ambulance attendances in select states and territories in Australia. It includes drug- and alcohol-related events (including overdose) that may not be counted in hospital data, thus revealing a broader picture of the extent of drug- and alcohol-related harm in our communities.

As shown in Table 22, there were 162,874 drug- and alcohol-related ambulance attendances recorded in 2021 across the five jurisdictions for which data are available. The highest rates of all drug- and alcohol-related attendances were seen in the Australian Capital Territory (with 985.5 attendances per 100,000 population), Queensland (943.8 per 100,000 population), and Tasmania (814.4 per 100,000 population).

In 2021, more than half (56% or 92,144) of all drug- and alcohol-related ambulance attendances reportedly involved alcohol. The highest rate of alcohol-related attendances was again in the Australian Capital Territory (681.0 per 100,000 population). Almost one in four attendances (23.3% or 37,943) were suspected to involve illicit drugs. Pharmaceutical drugs – including anti-convulsants, anti-depressants, anti-psychotics, benzodiazepines, prescription opioids, and pharmaceutical stimulants – accounted for a similar proportion of attendances (23.1% or 37,643).

Table 22: Number and rate (per 100,000 population) of drug- and alcohol-related ambulance attendances, by suspected drug type and jurisdiction, 2021

	NSW	VIC	QLD	TAS	ACT	TOTAL
All AOD attendances[79]						
Number	53,513	51,414	49,277	4,410	4,260	162,874
Rate	653.5	773.2	943.8	814.4	985.5	
Any illicit[80]						
Number	13,120	13593	9319	926	985	37,943
Rate	196.5	249.5	220.8	206.7	281.8	
Any pharmaceuticals[81]						
Number	11,243	11,813	12,458	1,104	1,025	37,643
Rate	168.4	216.8	295.1	246.4	293.3	
Alcohol						
Number	30,501	28,073	28,541	2,649	2,380	92,144
Rate	456.8	515.3	676.1	591.2	681.0	
Cannabinoids						
Number	5,694	4,822	4,305	601	459	15,881
Rate	85.3	88.5	102.0	134.1	131.3	
Benzodiazepines						
Number	3,345	4,520	4,239	265	304	12,673
Rate	50.1	83.0	100.4	59.1	87.0	
Amphetamines						
Number	4,473	4,644	3,105	221	204	12,647
Rate	67.0	85.2	73.6	49.3	58.4	
Anti-depressants						
Number	1,902	1,952	2,528	273	191	6,846
Rate	28.5	35.8	59.9	60.9	54.7	
Opioid analgesics[82]						

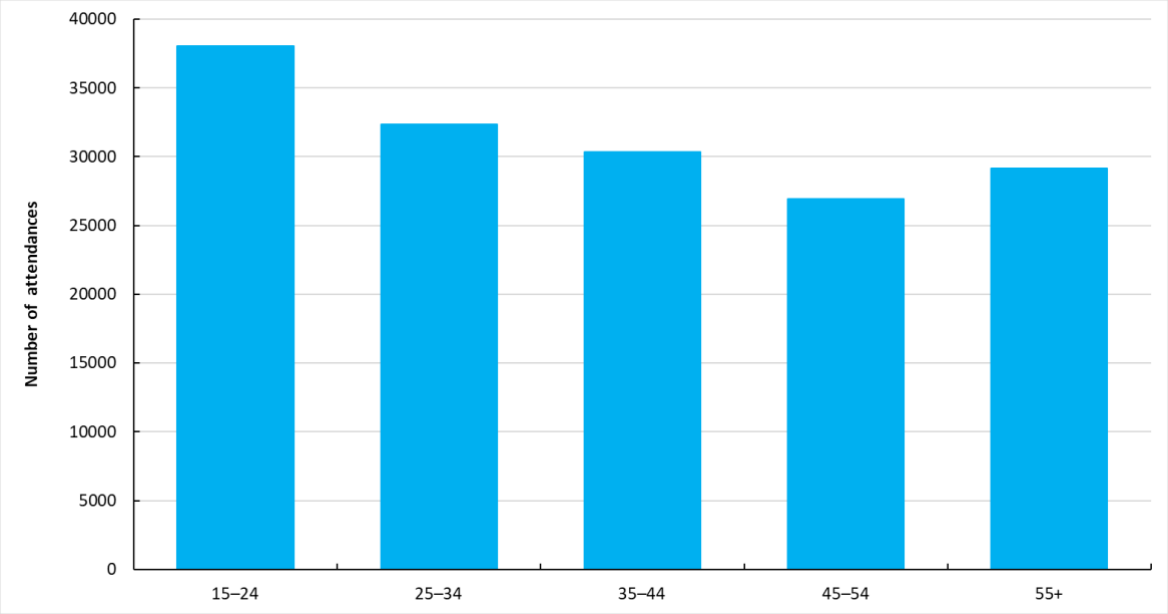
[79] This includes attendances for alcohol intoxication, illicit drugs, and pharmaceutical drugs. An attendance may involve more than one drug.
[80] 'Any illicit' include amphetamines, cannabinoids, cocaine, ecstasy, GHB, heroin, ketamine, synthetic cannabinoids, emerging psychoactive substances, LSD, mushrooms, tryptamine/DMT, inhalants (chroming, paint, petrol, and other inhalants) and other illicit drugs.
[81] 'Any pharmaceuticals' include anti-convulsants, anti-depressants, anti-psychotics, benzodiazepines, opioid analgesics, methadone, buprenorphine, pharmaceutical stimulants and other unknown/unspecified medications.
[82] 'Opioid analgesics' include oxycodone, codeine, dextropropoxyphene, fentanyl, hydromorphone, morphine, pethidine, tramadol, and others.

Number	1,563	1,532	1,939	161	149	5,344
Rate	23.4	28.1	45.9	35.9	42.6	
Heroin						
Number	1,225	2,166	374	11	160	3,936
Rate	18.3	39.8	8.9	2.5	45.8	
Cocaine						
Number	1,356	974	637	61	94	3,122
Rate	20.3	17.9	15.1	13.6	26.9	
Ecstasy						
Number	583	449	649	66	48	1,795
Rate	8.7	8.2	15.4	14.7	13.7	

9.1.1. All drug- and alcohol-related ambulance attendances

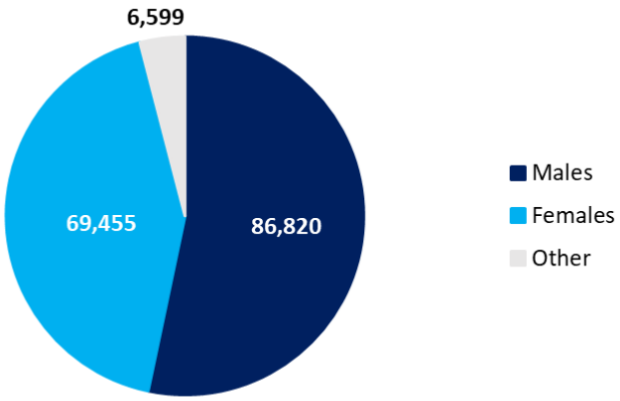
While people of all ages are affected by non-fatal overdose, young people account for the greatest proportion of drug- and alcohol-related ambulance attendances. As shown in Figure 86, people aged 15 to 24 accounted for the highest proportion of drug- and alcohol-related ambulance attendances in 2021 (23.4% or 38,034 attendances), followed by those aged 25-34 (19.9% or 32,347). Approximately one-third of attendances involved a person aged 45 or older: those aged 45 to 54 accounted for 16.5% (or 26,951) while those aged 55 and above accounted for 17.9% (or 29,153).

Figure 86: Number of drug- and alcohol-related ambulance attendances, by age group, 2021



Drug- and alcohol-related ambulance attendance data suggest that sex differences are less pronounced for this cohort of individuals compared to individuals suffering fatal overdose. As discussed in Chapter 6, unintentional drug-induced deaths are generally more common among males than females, with males accounting for 70.5% of all drug-induced deaths in Australia in 2021. In comparison, males accounted for 53.3% (or 86,820) of all drug- and alcohol-related ambulance attendances in 2020-21, while females accounted for 42.6% (or 69,455) (Figure 87).[83]

Figure 87: Number of drug- and alcohol-related ambulance attendances, by sex, 2021

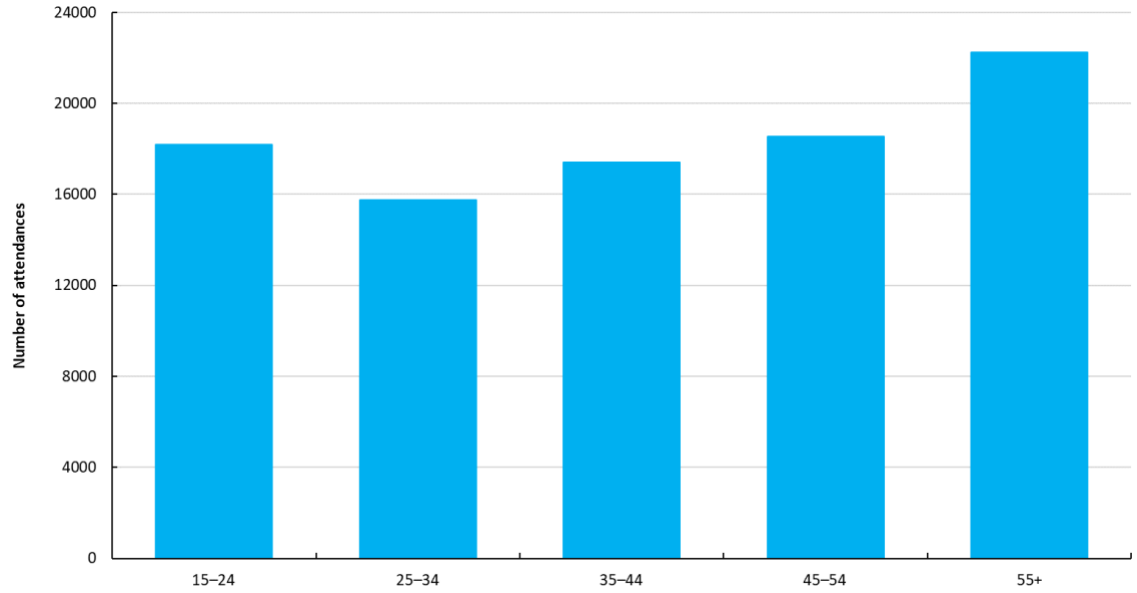


[83] The remaining 4.1% include attendances for people identified as intersex, non-binary, or for whom sex information was not stated.

9.1.1. Alcohol

Unlike trends observed for other drug types, older age groups account for the highest proportion of ambulance attendances due to alcohol. As shown in Figure 88, patients aged 55 and over accounted for the highest proportion of alcohol-related attendances (24.1% or 22,231 attendances), followed by those aged 45-54 (20.1% or 18,539). Despite this, the prevalence of alcohol-related harm among young people also remains high, with 15- to 24-year-olds accounting for almost one fifth of alcohol-related ambulance attendances for the year (19.7% or 18,201).

Figure 88: Number of drug- and alcohol-related ambulance attendances involving alcohol by age group, 2021

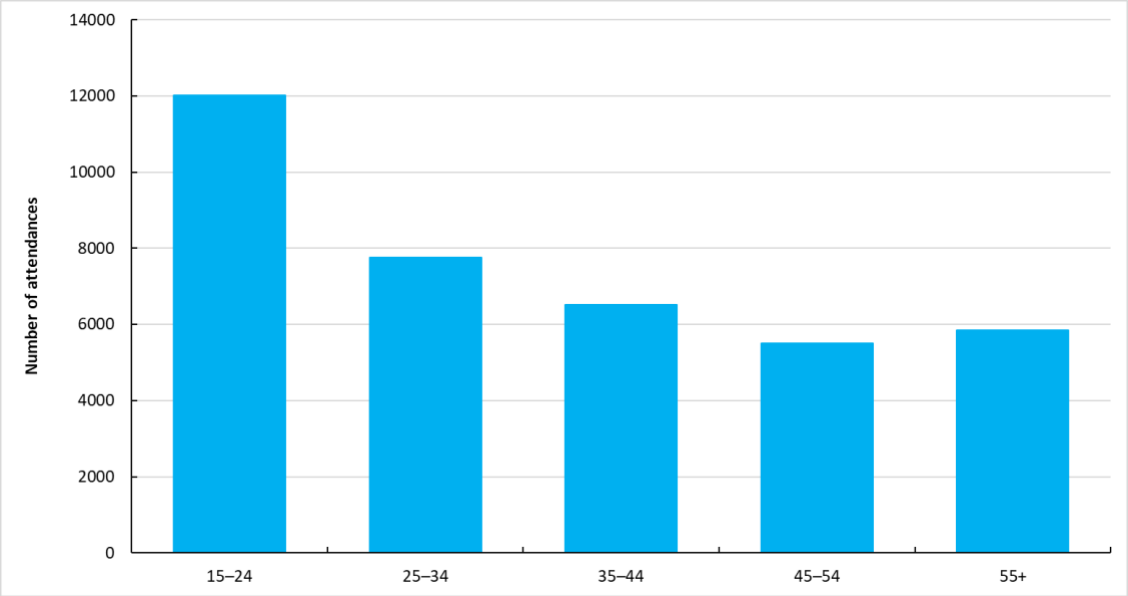


Ambulance attendances due to alcohol are more likely to involve males than females: males accounted for almost three in five (59.2% or 54,565) of such attendances in 2021. More than one in four (27.9%) alcohol-related ambulance attendances involved a male aged 45 and older, with those aged 44 to 54 accounting for 12.1% (or 11,148) and those aged 55 and over accounting for 15.8% (or 14,597).

9.1.2. Pharmaceutical drugs

Young people accounted for the majority of ambulance attendances due to suspected pharmaceutical drug use in 2021. As shown in Figure 89, people aged 15 to 24 accounted for the greatest proportion of attendances involving 'any pharmaceutical' (31.9% or 12,018 attendances), followed by 25–34-year-olds (20.6% or 7,750) and 35–44-year-olds (17.3% or 6,513).

Figure 89: Number of drug- and alcohol-related ambulance attendances involving any pharmaceutical by age group, 2021



Unlike ambulance attendances due to the suspected use of illicit drugs, which are far more common among males than females, females account for the majority (59.9% or 22,535) of ambulance attendances involving pharmaceutical drugs. In 2021, females accounted for more than half of attendances involving the suspected use of benzodiazepines (54.8% or 6,942), opioid analgesics (56.3% or 3,007), and anti-depressants (67.5% or 4,623). Females aged 15 to 24 accounted for one-fifth (21.4% or 8,053) of all ambulance attendances involving pharmaceutical drugs in 2021.

Age and sex-related patterns in ambulance attendance data vary according to the type of pharmaceutical drug suspected to have been involved. Key trends include:

- People aged 15 to 34 accounted for more than one third (38.4%) of attendances involving opioid analgesics, while people aged 55 and above accounted for 23.9%.
- Females aged 15 to 24 accounted for 12.4% of ambulance attendances involving opioid analgesics, while males of the same age group accounted for 6.9%.

- Females aged 45 and above account for almost one in four (23.7% or 1,270) ambulance attendances involving opioid analgesics.
- Almost half (48% or 6,087) of benzodiazepine-related ambulance attendances involved someone aged 34 and below: 25.2% (or 3,199) among the 15-24 age group and 22.8% (or 2,888) among people 25 to 34.
- Females aged 15 to 24 accounted for at least one in ten (13.2% or 1,677) ambulance attendances involving benzodiazepines.
- Females aged 15 to 24 accounted for 29.0% (or 1,967) of all anti-depressant-related attendances, while males of the same age cohort accounted for 9.1%.

9.1.3. Illicit drugs

There are clear age and sex-related patterns in ambulance attendance data involving suspected illicit drug use. Across the five jurisdictions, people aged 15 to 24 accounted for the highest proportion of attendances due to the suspected use of ecstasy (59.6% of such attendances or 1,075), cocaine (41.0% or 1,279) and cannabinoids (38.4% 6,095).[84] People aged 25 to 34 accounted for the highest proportion of amphetamine-related ambulance attendances (34.9% of such attendances or 4,269), followed by those aged 35 to 44 (28.6% or 3,492). People aged 35 to 44 accounted for the greatest proportion of ambulance attendances involving heroin (35.4% of such attendances or 1,334), followed by people aged 45 to 55 (24.6% or 926). Less than 5% of suspected heroin-related ambulance attendances involved someone aged 15 to 24.

Unlike trends observed with pharmaceutical drugs, ambulance attendances involving illicit drugs are more likely to involve males than females, regardless of drug type. Males accounted for the majority of attendances involving the suspected use of amphetamines (63.1% of such attendances or 7,715), cannabinoids (60.2% or 9,563), heroin (68.9% or 2,593), cocaine (60.9% or 1,901), and ecstasy (53.9% or 968).

Additional age and sex related trends in ambulance attendances involving illicit drugs include:

- Males aged 25 to 34 accounted for at least one in five (22.1% or 2,701) amphetamine-related ambulance attendances – the highest proportion of any single group.
- Males aged 15 to 34 accounted for more than one third of all ambulance attendances involving cannabinoids: males aged 15 to 24 accounted for 20.8% or 3,300 attendances, while males aged 25 to 34 accounted for 16.2% or 2,570 attendances.

[84] As synthetic cannabinoid receptor agonists (SCRAs) are far more toxic than naturally occurring phyto-cannabinoids such as THC, it is likely that many of these attendances were due to a synthetic product; the data, however, do not differentiate between the two.

- Males aged 35 to 44 accounted for one in every four (25.1% or 946) ambulance attendances involving heroin.
- Males aged 25 to 34 accounted for approximately one in four (24.7 or 772) ambulance attendances involving cocaine.

9.1.4. Proportion of ambulance attendances with suspected poly-drug use

Across the five jurisdictions, the total proportion of drug- and alcohol-related ambulance attendances with suspected poly-drug use ranged from 18.9% in New South Wales to 22.6% in Victoria; however, this varied considerably according to the primary drug type involved.

As outlined in Table 23, the drug types for which the greatest proportion of ambulance attendances were suspected to have involved additional drug types include opioid analgesics (78.1% of attendances involved other drugs), cocaine (75.2%), ecstasy (74.8%), benzodiazepines (72.2%) and anti-depressants (70.8%). More than half (55.4%) of all ambulance attendances due to pharmaceutical drugs likely involved other drug types, while less than one in five (18.8%) alcohol-related ambulance attendances were reported as involving other drugs.

These data also reveal that ambulance attendances related to a single drug type were most common for alcohol, with 81.2% reportedly involving alcohol and no other substance.

Table 23: Drug- and alcohol-related ambulance attendances for selected drugs, proportion (%) with multiple drugs present, 2021[85]

Drug type	% of attendances that involved other drug types
Opioid analgesics	78.1
Cocaine	75.2
Ecstasy	74.8
Benzodiazepines	72.2
Anti-depressants	70.8
Any pharmaceuticals	55.4
Cannabis	45.5
Amphetamines	41.0
Heroin	37.1
Alcohol	18.8

[85] Data presented in this table are the combined average of New South Wales, Victoria, Queensland, the Australian Capital Territory and Tasmania.

9.2. Drug- and alcohol-related hospitalisations

In the 2020-21 financial year, there were 151,797 drug- and alcohol-related hospitalisations in Australia (or 415 hospitalisations per day), accounting for 1.3% of the total number of hospitalisations for the year.[86] Table 24 shows that alcohol accounted for more than half (56.9% or 86,408) of these hospitalisations. All remaining drug types – including illicit drugs and pharmaceuticals – were reportedly involved in significantly fewer hospital episodes than alcohol. Suspected use of amphetamines and other stimulants accounted for 10% of drug- and alcohol-related hospitalisations (15,148); over four in five of these were related to methamphetamine (82% or 12,400). Pharmaceutical central nervous system depressant drugs (including benzodiazepines, anti-epileptic, sedative-hypnotic and anti-parkinsonism drugs) accounted for 6.9% of hospitalisations; almost half of these (45%, or 4,687) were related to benzodiazepines. Opioids – the most common drug type recorded in drug-induced deaths (see Chapter 4) – were suspected to have contributed to 4.4% of drug- and alcohol-related hospitalisations for the year (6,690).[87]

[86] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco and other drug use in Australia: Health impacts.*
[87] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco and other drug use in Australia*.

Table 24. Number of drug- and alcohol-related hospitalisations by drug type, 2020-21

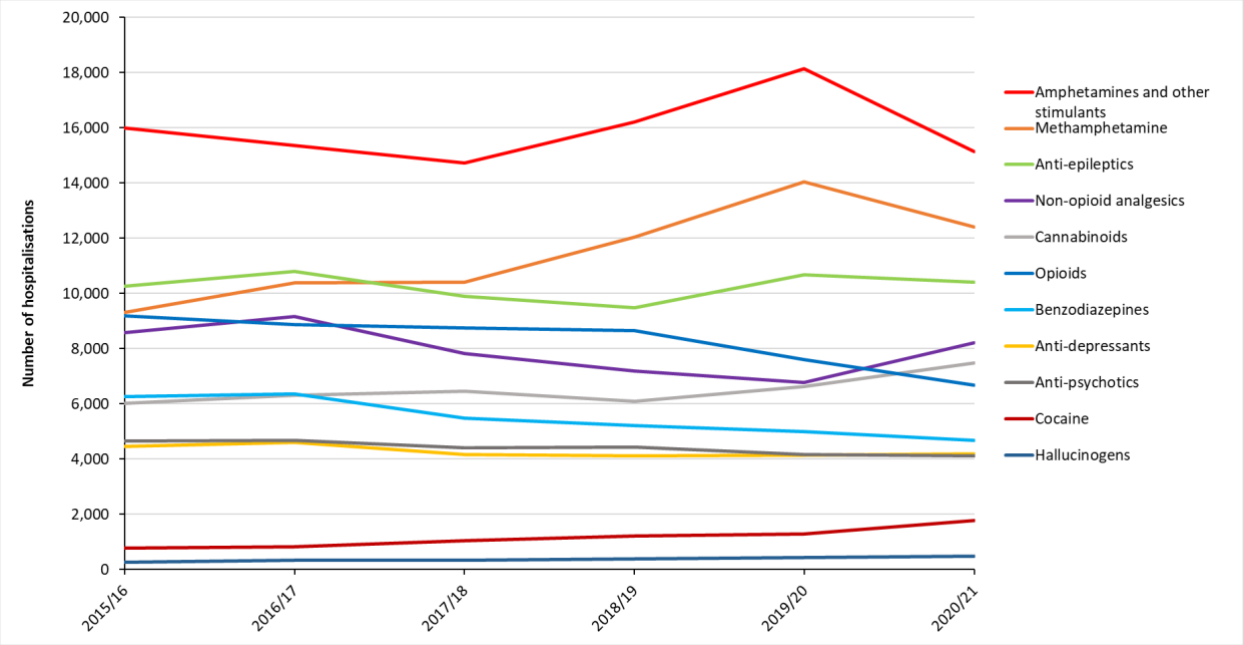
Drug identified in principal diagnosis	Total	%
Alcohol	86,408	56.9
Methamphetamine	12,422	8.2
Pharmaceutical central nervous system depressants[88]	10,422	6.9
Non-opioid analgesics[89]	8,213	5.4
Cannabinoids	7,488	4.9
Opioids	6,690	4.4
Other sedatives and hypnotics[90]	5,735	3.8
Benzodiazepines	4,687	3.1
Anti-depressants	4,187	2.8
Anti-psychotics and neuroleptics	4,110	2.7
Other amphetamines and stimulants[91]	2,726	1.8
Cocaine	1,786	1.2
Unspecified drug use and other drugs not elsewhere classified	931	0.6
Volatile solvents	775	0.5
Hallucinogens	471	0.3
Nicotine	151	0.1
Total	**151,797**	**100**

Since 2015-16, the number of drug- and alcohol-related hospitalisations has increased by 12% nationally (from 135,547 to 151,797 in 2020-21). The most significant increase occurred between 2019-20 and 2020-21 when hospitalisations rose by 7.9%, primarily due to a rapid increase in the number of hospitalisations involving alcohol (from 74,511 to 86,408 in 2020-21). The reported increase in alcohol-related hospitalisations is in line with an increase in national alcohol consumption: approximately one in five Australians reported increased alcohol consumption since the start of the pandemic in May 2020.[92] Furthermore, alcohol retail sales increased by 29% (or $3.6 billion) from 2019 to 2021, reaching an all-time high of $15.9 million.[93]

[88] Includes anti-epileptics, anti-parkinsonism drugs, benzodiazepines and 'other sedatives and hypnotics'. Excludes alcohol.
[89] Includes paracetamol.
[90] Excludes alcohol and benzodiazepines.
[91] Excludes methamphetamine.
[92] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Impacts of COVID-19 on alcohol and other drug use.*
[93] Foundation for Alcohol Research and Education (2022). *Alcohol retail during COVID-19 (2020-2021).*

As shown in Figure 90, there have been increases since 2015-16 in the number of hospitalisations with a principal diagnosis related to the suspected use of cocaine (130.2% increase), hallucinogens (79.1% increase) and cannabinoids (24.4% increase).[94] In contrast, hospitalisations related to the suspected use of opioids (27.2% decrease), benzodiazepines (25% decrease), anti-psychotics (11.8% decrease), and amphetamines (5.3% decrease) have all decreased since 2015-16. Despite a drop in overall amphetamine-related hospitalisations in 2020-21, the number of hospitalisations due to methamphetamine has increased by 33.3% over time, from 9,317 in 2015-16 to 12,422 in 2020-21. Methamphetamine-related hospitalisations reached a peak of 14,053 in 2019-20.

Figure 90. Number of drug- and alcohol-related hospitalisations in Australia, by suspected drug type (excluding alcohol) 2015-16 to 2020-21

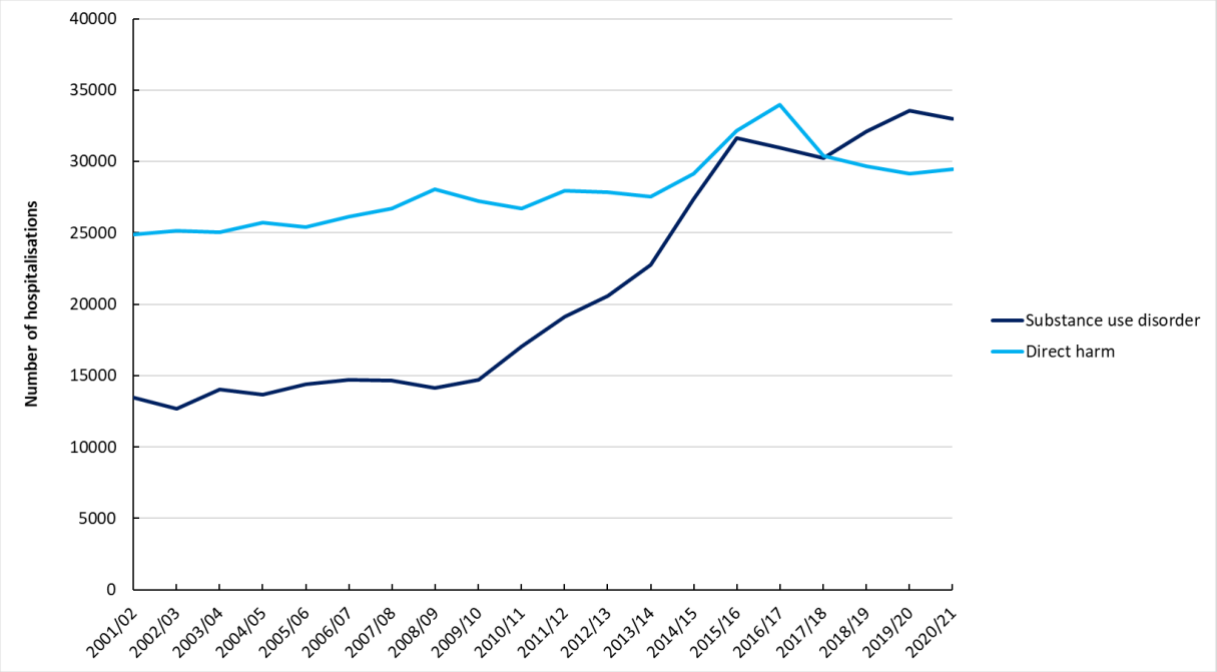


[94] For cannabinoid-related hospitalisations, the data do not differentiate between synthetic cannabinoid receptor agonists (or SCRAs) and naturally occurring cannabinoids. As SCRAs are far more toxic than natural phyto-cannabinoids such as THC, it is likely that many of these attendances were due to a synthetic cannabinoid.

Hospitalisations may be further disaggregated according to the two types of principal diagnosis: those relating to a substance use disorder and those relating to direct harm due to selected substances.[95] Direct harm may refer to accidental or intentional drug poisoning (or overdose), or it may refer to other types of harm such as inadvertent toxicity due to drug interactions.

In 2020-21, approximately 53% (or 32,966) of all drug-related hospitalisations (excluding alcohol and nicotine) received a primary diagnosis relating to a mental or behavioural disorder due to substance use, while the remaining 47% (or 29,453) were due to direct harm (e.g. poisoning). Figure 91 shows that the number of hospitalisations due to substance use disorder has more than doubled since 2001-02, from 13,441 to 32,966 in 2020-21 (an increase of 145.3%). This has been driven primarily by a rapid increase in the number of drug-related hospitalisations due to psychosis, from 2,610 in 2009-10 to 11,182 in 2020-21. The number of hospitalisations due to direct drug-related harm has remained steadier, rising from 24,885 to 29,453 during this period.

Figure 91. Number of drug- and alcohol-related hospitalisations by principal diagnosis, 2001-02 – 2020-21



[95] See further: AIHW (2022). *Alcohol, tobacco & other drugs in Australia: Glossary*.

While the number of hospitalisations for substance use disorders was higher among males (20,651) than females (12,306) in 2020-21, the number of hospitalisations for direct drug-related harm was higher among females (18,902 compared with 10,503).

Hospitalisation for substance use disorders was most common among those aged 20-29 (10,452) and 30-39 (10,323) in 2020-21, while hospitalisation for direct drug-related harm was most common among those aged 10-19 (7,064) and 20-29 (6,865). Hospitalisations for drug poisoning among 10- to 19-year-olds increased by 29.5% since the previous reporting period, primarily due to increases in the suspected use of non-opioid analgesics such as paracetamol (3,658 hospitalisations in 2020-21).

The number of suspected paracetamol poisonings has increased in Australia over the past decade, prompting the February 2023 interim decision to reduce the maximum size of packs and reschedule larger pack sizes to 'Pharmacist Only' in an attempt to minimise the incidence and harm from intentional self-poisoning.[96] Paracetamol poisoning is associated with acute liver toxicity and can result in death in a minority of cases (0.2-0.5%).[97]

The number of hospital admissions due to suspected paracetamol poisoning steadily increased from 8,617 in 2009-10 to 11,697 in 2016-17 before decreasing to 8,723 in 2019-20. Most of these involved deliberate self-poisoning. The greatest increases in paracetamol poisoning admissions from 2009-10 to 2019-20 involved young people aged 10 to 24 and females, who accounted for two thirds of admissions. Paracetamol accounted for a significant proportion of poisoning hospitalisations among all age groups; however, this was most pronounced for adolescents, for whom paracetamol accounted for around 50% of all poisonings from 2009-10 to 2019-20. Other types of non-steroidal anti-inflammatory drugs such as ibuprofen and aspirin were less prevalent among poisoning data. [98]

9.3. Poisons information centres

Additional data on drug-related harm are available from Australia's four Poisons Information Centres, located in Western Australia, Victoria, New South Wales and Queensland. Paracetamol is

[96] Therapeutic Goods Administration (2023). *Interim decisions on paracetamol access controls in the Poisons Standard – Questions and answers*.
[97] Buckley, N., Calear, A., & Christensen, H. (2022). *Independent expert report on the risks of intentional self-poisoning with paracetamol*.
[98] Buckley, N., Calear, A., & Christensen, H. (2022). *Independent expert report on the risks of intentional self-poisoning with paracetamol*.

the most common pharmaceutical for which advice is sought from these centres in Australia.[99] From 2017 to 2021, the number of suspected paracetamol-related poisoning calls increased by 10.4% from 16,573 to 18,296.[100]

Research suggests that a large proportion of intentional paracetamol poisonings occur in the context of poly-drug use. Findings of a 2022 literature review suggest between 25% and 68% of intentional paracetamol poisonings involve co-ingestion of other drugs (usually other analgesics) or alcohol. Co-ingestion of these drugs is generally more common among older cohorts and males. [101]

[99] Austin Health (2018). *Victorian Poisons Information Centre: Annual Report 2018*; Children's Health Queensland Hospital and Health Services (2019). *Queensland Poisons Information Centre: Annual Report 2019*; Western Australian Poisons Information Centre (2022). Western Australian Poisons Information Centre: *Annual Report 2022*.

[100] Buckley, N., Calear, A., & Christensen, H. (2022). *Independent expert report on the risks of intentional self-poisoning with paracetamol*.

[101] Buckley, N., Calear, A., & Christensen, H. (2022). *Independent expert report on the risks of intentional self-poisoning with paracetamol*.

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11. *Appendix 1 – technical specifications*

11.1. Source of fatal overdose data

The fatal overdose data in this report are 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 ABS.

11.2. Preliminary and revised 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 *Australia's Annual Overdose Report 2022*, the data for 2019 were revised, the data for 2020 data were preliminary, and the data for 2021 were not yet available. In the current 2023 report, data for 2019 are finalised, data for 2020 are revised, and data for 2021 are preliminary. This means that 2020 and 2021 data are likely to increase in subsequent reports, as cases progress and deaths are classified by coroners. This also means that, in this report, the data for 2019 and 2020 will appear different from last year's Penington Institute report.

Table A1 illustrates the status of the data in this year's report and in reports from the previous two years.

Table A1. Status of data, 2018-2021

2021 report		2018 – revised	2019 – preliminary		
	All drug-induced deaths	2,282	2,227		
	Unintentional drug-induced deaths	1,720	1,644		
2022 report		2018 – finalised	2019 – revised	2020 – preliminary	
	All drug-induced deaths	2,314	2,354	2,220	
	Unintentional drug-induced deaths	1,783	1,757	1,654	
2023 report			2019 – finalised	2020 – revised	2021 – preliminary
	All drug-induced deaths		2,368	2,368	2,358
	Unintentional drug-induced deaths		1,779	1,819	1,791

11.3. Definitions

These definitions are based on the data provided by the ABS, summarised as per ICD-10 coding.[102]

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

[102] World Health Organisation (2016). *International statistical classification of diseases and related health problems 10th Revision*.

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.[103] This includes deaths resulting from exposures to drugs or pharmaceuticals where harm or death was not the primary intent, accidental overdose of a drug, wrong drug given or taken in error, drug taken inadvertently, misadventures in the use of drugs, medicaments and biological substances in medical and surgical procedures, or where a harmful amount of drug is taken in error with therapeutic intent resulting 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).

Drug-related hospitalisation means episodes of hospital care that have a principal diagnosis of substance misuse disorder or harm (including accidental, intended or self-inflicted) due to drug use.[104]

Principal diagnosis is the diagnosis established to be chiefly responsible for the hospitalisation episode.

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.

11.3.1. 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

[103] 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.
[104] As defined by the Australian Institute of Health and Welfare, see: Glossary - Australian Institute of Health and Welfare (aihw.gov.au).

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).[105]

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.[106]

Anti-depressants are medicines that are prescribed for the treatment of mental health disorders such as major depressive disorder and obsessive compulsive disorder.[107] 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.[108] 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.[109] Long-term use of benzodiazepines can lead to the development of tolerance and physical and psychological dependence. Like opioids, benzodiazepines slow down the central nervous system and consistently rate as one of the most common drug groups detected in drug-induced deaths.[110] 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

[105] ABS (2018). *Drug induced deaths in Australia: A changing story.* Australian Bureau of Statistics.
[106] NPS Medicine Wise (2021). *Gabapentinoid misuse: a growing problem*.
[107] ABS (2018). *Drug induced deaths in Australia: A changing story.* Australian Bureau of Statistics.
[108] Sutherland, R., Jayathilake, R., Peacock, A., Dietze, P., Bruno, R., Reddel, S., & Gisev, N. (2021). Trends and characteristics of extra-medical use of quetiapine among people who regularly inject drugs in Australia, 2011–2018. *Drug and Alcohol Dependence*, *221*, 108636; Lee, J., Pilgrim, J., Gerostamoulos, D., Robinson, J., & Wong, A. (2018). Increasing rates of quetiapine overdose, misuse, and mortality in Victoria, Australia. *Drug and Alcohol Dependence*, *187*, 95-99.
[109] Australian Institute of Health and Welfare (2023). *Alcohol, tobacco & other drugs in Australia: Pharmaceuticals.*
[110] ABS (2018). *Drug induced deaths in Australia: A changing story.* Australian Bureau of Statistics.

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 phyto-cannabinoids (naturally occurring cannabinoids) such as THC and SCRAs. 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,[111] 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.

[111] Sutherland, R., Karlsson, A., King, C., Jones, F., Uporova, J., Price, O., et al (2022). *Australian drug trends 2022: key findings from the National Ecstasy and Related Drugs Reporting System (EDRS) interviews*. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney.

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 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[112] ('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.

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

11.3.2. 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.[113]

For example, 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 fatal overdose 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. 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.

11.4. Factors of interest

Factors of interest for this report were:

- **Drug type:** definitions as previously described.
- **Sex:** refers to biological characteristics, as distinct from gender.
- **Age:** this refers to age at death; 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-Indigenous 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 Indigenous in this report. Additionally, data on Indigenous status are only based on New South Wales, Queensland,

[113] ABS (2018). *Drug induced deaths in Australia: A changing story.* Australian Bureau of Statistics.

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),[114] 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 'social class' of 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 strong localised drug market.

Further, data are described spatially on the basis of:

- **State or territory:** causes of death statistics for states and territories have been compiled based on the 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, 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;[115] the Australian Capital Territory cannot be differentiated in this way.
- **Region of birth:** the world region in which the person was born.[116]
- **Remoteness area:** a geographical classification that defines locations in terms of their physical distance by road from the nearest urban centre. This classification is designed to be a measure of a location's relative access to services.[117]

[114] 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
[115] ABS definitions and boundaries of greater capital city statistical areas (GCCSAs) can be found at: https://www.abs.gov.au/geography.
[116] Region of birth is based on the ABS (2016) *Standard Australian Classification of Countries.*
[117] Remoteness areas are based on the ABS (2018) *Australian Statistical Geography Standard (ASGS): Volume 5 – Remoteness structure, July 2016.*

- **Primary Health Network:** Primary Health Networks (PHNs) are healthcare bodies coordinating primary health and other services for geographic catchment areas in Australia. There are 31 PHNs in Australia.
- **Local areas:** Statistical Area 3 (SA3)[118] 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.

11.5. Data presentation

When data are presented as a rate per 100,000 population, this is an age-standardised death rate,[119] 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.[120] 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.[121]

To minimise the effects of localised 'spikes' or outliers, in some instances this report uses comparison periods. These five-year periods are 2007-2011 (the reference period) and 2017-2021 (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. A ratio of 2.0 means there were twice as many deaths during 2017-2021 as there were during 2007-2011; 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.

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[118] 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.*

[119] 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 Indigenous populations due to their younger age profile than the general Australian population.

[120] National Australian estimated resident population data for each year are available from ABS (2022) *National, state and territory population*. Data on estimated resident population by regionality are available from ABS (2022) *Regional population*.

[121] When the number of deaths is small, the ABS randomly assigns a value to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Data below the national level (such as state and territory data) are subject to this confidentialisation.

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 2017-2021. Otherwise, numbers may be too small for meaningful analysis.

Data cubes for all figures are provided at the end of the document in Appendix 2. 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.

11.6. Data 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.[122]

[122] 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.

12. *Appendix 2 – data cubes for figures*

12.1. Data cubes for Chapter 4

Data for Figure 1. Number of drug-induced deaths in Australia, compared with road-related deaths, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	1,768	2,074	2,183	2,296	2,400	2,318	2,368	2,354	2,231
Unintentional drug-induced deaths	981	903	901	968	983	952	1,041	1,171	1,281	1,325	1,319	1,237	1,287	1,516	1,614	1,784	1,822	1,786	1,779	1,796	1,675
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	1,292	1,287	1,290	1,358	1,294	1,278	1,298	1,174	1,230
Car crashes	1,047	1,032	997	835	881	894	858	829	853	840	793	788	733	723	763	780	756	717	732	699	697

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 2. Number of drug-induced deaths in Australia, by drug type, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Opioids	506	483	456	461	498	442	610	745	856	871	888	886	896	1,104	1,170	1,302	1,389	1,362	1,259	1,224	1,010
Benzodiazepines	252	264	225	209	249	249	371	406	519	557	540	618	594	712	707	839	1,052	1,105	945	950	789
Antidepressants	194	249	154	190	200	270	282	314	374	336	333	386	382	475	506	546	706	730	650	658	551
Stimulants	60	63	36	61	79	90	99	112	103	110	115	174	182	285	352	518	580	610	620	704	514
Alcohol	206	215	164	175	178	182	265	307	368	346	352	345	325	398	402	381	467	530	481	471	404
Antipsychotics	9	11	5	12	20	52	53	71	71	106	90	41	35	53	191	317	387	396	343	322	289
Anti-convulsants	2	4	2	2	2	4	6	1	3	1	0	1	2	4	26	86	152	242	245	314	286
Cannabinoids	32	29	12	16	24	38	46	58	68	74	92	93	81	153	212	280	405	447	363	268	186
Cocaine	30	15	10	15	17	16	19	24	30	17	16	26	22	17	48	39	59	83	105	110	94

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 3. Number of drug-induced deaths in 2021 by drug type: all deaths and unintentional deaths

	Unintentional drug-induced deaths	All drug-induced deaths
Pharmaceutical opioids	381	584
Oxycodone, morphine, codeine	287	462
Fentanyl, pethidine, tramadol	134	185
Methadone	186	206
Heroin	297	326
Benzodiazepines	544	789
Anti-depressants	324	551
Anti-psychotics	187	289
Anti-convulsants	206	286
Specified anti-convulsants and sedatives	39	73
Other sedatives	17	21
Alcohol	313	404
Cannabinoids	165	186
Stimulants	461	514
Cocaine	87	94
Succinimides and oxazolidinediones	27	35

Note: Pharmaceutical opioids includes the groups oxycodone / morphine / codeine and fentanyl / pethidine / tramadol.

Data for Figure 4. Number of unintentional drug-induced deaths and drug-induced suicides compared with all (total) drug-induced deaths, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	1,768	2,074	2,183	2,296	2,400	2318	2368	2354	2231
All drug-induced deaths (projected)	1313	1231	1211	1231	1278	1262	1480	1648	1785	1756	1775	1762	1768	2074	2183	2296	2400	2318	2368	2368	2358
Unintentional drug-induced deaths	981	903	901	968	983	952	1,041	1,171	1,281	1,325	1,319	1,237	1,287	1,516	1,614	1,784	1,822	1786	1779	1796	1675
Unintentional drug-induced deaths (projected)	981	903	901	968	983	952	1041	1171	1281	1325	1319	1237	1287	1516	1614	1784	1822	1786	1779	1819	1791
Drug-induced suicides	289	287	281	235	248	230	298	295	342	304	333	386	383	453	475	446	502	463	486	463	469

Note: Data for 2020 and 2021 are preliminary, and likely to rise. Data for projecting drug-induced suicides were not available.

12.2. Data cubes for Chapter 5

Data for Figure 5. Drug-induced suicides by regionality, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Outside of capital cities	1.5	1.5	1.4	1.4	1.4	1	1.3	1.3	1.3	1.1	1.3	1.7	1.7	1.9	2.1	2	2.2	2	1.9	1.7	1.9
Greater capital cities	1.5	1.5	1.5	1.1	1.1	1.2	1.4	1.5	1.6	1.5	1.5	1.6	1.6	1.8	1.8	1.7	1.8	1.6	1.7	1.6	1.6

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 6. Number of drug-induced suicides by drug type, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Benzodiazepines	80	88	66	43	67	62	112	105	133	130	133	173	168	175	185	199	252	249	220	197	205
Opioids	74	98	72	54	68	58	124	105	125	118	126	152	150	183	200	202	247	225	208	173	196
Antidepressants	80	107	74	60	71	97	102	100	137	118	101	139	140	153	179	176	230	221	222	206	187
Antipsychotics	3	3	0	6	9	14	15	30	22	43	28	14	12	21	65	89	111	101	96	96	92
Alcohol	40	48	35	24	34	33	45	59	68	39	51	70	69	66	85	70	90	119	98	70	79
Anti-convulsants	0	1	0	1	2	1	2	0	0	1	0	1	2	0	8	15	35	52	46	57	66
Stimulants	5	5	1	0	6	7	3	9	5	8	5	17	15	25	28	35	39	45	56	60	48
Cannabinoids	5	2	2	1	2	1	6	5	7	5	5	5	7	12	27	20	37	29	37	15	14
Cocaine	2	0	0	0	2	2	0	3	1	1	1	5	0	1	7	1	2	1	9	10	7

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 7. Number of drug-induced suicides by age group, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0-19	4	2	7	3	5	3	3	0	5	3	4	6	5	6	8	7	8	8	3	11	10
20-29	43	34	33	31	22	20	23	22	34	31	28	33	35	38	44	32	37	34	50	48	48
30-39	73	72	66	51	48	35	55	72	53	56	50	60	57	75	69	60	71	60	78	64	63
40-49	62	76	83	66	69	58	65	79	71	63	87	89	94	98	112	86	102	94	88	84	77
50-59	54	48	39	41	37	56	76	61	89	72	78	87	68	100	104	118	108	101	104	78	86
60-69	24	26	24	15	29	26	43	29	55	39	42	55	59	70	69	49	86	84	67	78	83
70 years and above	29	29	29	28	38	32	33	32	35	40	44	56	65	66	69	94	90	82	96	100	102

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 8. Number of drug-induced suicides by sex, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Males	155	156	148	132	129	101	129	162	174	146	169	207	174	235	256	226	245	228	238	237	245
Females	134	131	133	103	119	129	169	133	168	158	164	179	209	218	219	220	257	235	248	226	224

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

12.3. Data cubes for Chapter 6

Data for Figure 9. Unintentional drug-induced deaths by state, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	8.4	8.6	9.2	9.7	9.4	8
NSW	5.8	5.2	4.9	5	4.9	5.4	5	5.1	5.5	5.6	5.8	5.6	5.9	7	7.4	7.3	7.7	7.5	7.4	6.9	6.7
TAS, NT, ACT	5.2	7.3	5.3	4.7	7.4	5.6	7.3	5.8	6.5	6.3	5.6	5.4	5.5	5.9	5.6	7.3	6.6	6.7	6	5.9	6.5
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	5.1	5.9	6.4	7.6	7.8	6.8	7	7.6	6.4
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	6.4	6.8	5.9	6.1	5.7
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	7.1	5.9	5.4	4.6	5.3

Note: Data for 2020 and 2021 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.

Data for Figure 10. Unintentional drug-induced deaths by regionality 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Outside of capital cities	5.2	4.6	4.3	4.5	4.9	4.8	4.7	5.3	5.9	5.9	6.3	6.4	5.6	7.3	7.8	8.2	7.9	7.8	7.4	7.2	6.6
Greater capital cities	5	4.6	4.7	5	4.8	4.5	5.1	5.6	5.8	6	5.6	5	5.4	5.9	6.2	6.9	7.1	6.7	6.6	6.7	6.2

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 11. Number of unintentional drug-induced deaths by drug type, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Opioids	413	375	370	387	407	338	424	552	643	684	684	644	677	856	906	1,057	1,090	1,101	989	985	765
Benzodiazepines	165	171	148	161	170	162	217	256	324	383	359	382	378	487	474	595	759	824	680	706	544
Stimulants	53	57	34	60	69	78	84	87	90	93	105	139	161	250	313	472	519	544	537	609	461
Anti-depressants	103	128	73	124	117	143	141	165	191	186	187	196	216	290	289	342	443	485	390	405	324
Alcohol	162	162	123	145	136	134	192	216	273	285	278	252	234	309	296	297	364	397	363	384	313
Anti-convulsants	4	0	1	0	2	4	2	2	2	0	0	0	0	4	12	65	112	183	184	241	206
Anti-psychotics	5	5	1	6	11	31	26	30	36	50	52	21	17	28	110	209	261	279	231	210	187
Cannabinoids	27	26	10	15	21	34	34	48	57	66	79	79	69	132	170	249	353	403	310	242	165
Cocaine	28	15	10	15	15	13	16	16	24	16	13	19	22	15	41	38	55	77	95	95	87

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 12. Unintentional drug-induced deaths by drug type, 2001-2021, proportion of unintentional deaths (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Opioids	42.1	41.5	41.1	40.0	41.4	35.5	40.7	47.1	50.2	51.6	51.9	52.1	52.6	56.5	56.1	59.2	59.8	61.6	55.6	54.8	45.7
Benzodiazepines	16.8	18.9	16.4	16.6	17.3	17.0	20.8	21.9	25.3	28.9	27.2	30.9	29.4	32.1	29.4	33.4	41.7	46.1	38.2	39.3	32.5
Stimulants	5.4	6.3	3.8	6.2	7.0	8.2	8.1	7.4	7.0	7.0	8.0	11.2	12.5	16.5	19.4	26.5	28.5	30.5	30.2	33.9	27.5
Anti-depressants	10.5	14.2	8.1	12.8	11.9	15.0	13.5	14.1	14.9	14.0	14.2	15.8	16.8	19.1	17.9	19.2	24.3	27.2	21.9	22.6	19.3
Alcohol	16.5	17.9	13.7	15.0	13.8	14.1	18.4	18.4	21.3	21.5	21.1	20.4	18.2	20.4	18.3	16.6	20.0	22.2	20.4	21.4	18.7
Anti-convulsants	0.4	0.0	0.1	0.0	0.2	0.4	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.3	0.7	3.6	6.1	10.2	10.3	13.4	12.3
Anti-psychotics	0.5	0.6	0.1	0.6	1.1	3.3	2.5	2.6	2.8	3.8	3.9	1.7	1.3	1.8	6.8	11.7	14.3	15.6	13.0	11.7	11.2
Cannabinoids	2.8	2.9	1.1	1.5	2.1	3.6	3.3	4.1	4.4	5.0	6.0	6.4	5.4	8.7	10.5	14.0	19.4	22.6	17.4	13.5	9.9
Cocaine	2.9	1.7	1.1	1.5	1.5	1.4	1.5	1.4	1.9	1.2	1.0	1.5	1.7	1.0	2.5	2.1	3.0	4.3	5.3	5.3	5.2

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 13. Number of unintentional drug-induced deaths by age group, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0-19	36	16	18	20	15	15	11	16	14	21	14	16	11	13	12	14	16	15	24	15	12
20-29	212	172	174	160	160	132	146	172	159	155	166	128	140	131	129	162	160	168	169	201	154
30-39	242	217	219	227	213	191	240	279	308	318	335	306	307	344	393	407	413	406	384	351	289
40-49	192	188	182	221	239	212	213	238	287	313	304	316	334	405	453	489	519	491	464	492	455
50-59	106	131	120	126	158	155	176	197	246	255	236	229	243	320	320	359	384	387	374	384	422
60-69	91	86	78	86	96	93	111	111	136	116	135	122	112	165	144	209	175	182	207	223	186
70 and above	102	93	110	128	102	154	144	157	131	147	129	120	140	137	163	144	155	137	157	130	156

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 14. Unintentional drug-induced deaths, by drug type and median age, 2002-2021

	2002-2006	2007-2011	2012-2016	2017-2021
Opioids	35.6	38.2	41.9	43.8
Pharmaceutical opioids	38.6	39.8	42.9	44.6
Heroin	32.0	34.9	39.7	42.5
Benzodiazepines	37.3	39.1	42.4	43.2
Stimulants	31.5	34.8	38.5	40.9
Anti-depressants	43.0	45.3	44.5	45.6
Alcohol	41.1	42.1	45.5	45.8
Cannabinoids	31.1	37.8	40.0	42.2
Cocaine	32.7	35.8	35.4	32.9

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

Data for Figure 15. Number of unintentional drug-induced deaths by sex, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Males	701	635	640	685	683	676	707	834	910	927	937	813	886	1,042	1,140	1,260	1,290	1,256	1,253	1,277	1,181
Females	280	268	261	283	300	276	334	337	371	398	382	424	401	474	474	524	532	530	526	519	494

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 16. Unintentional drug-induced deaths by Indigenous status, 2001-2021, rate per 100,000 population (NSW, Qld, SA, WA, NT)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	19.8	20.2	19.3	22.5	19.8	20
Non-Indigenous	4.9	4.1	4	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	6.8	6.8	6.5	6.3	5.9

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 17. Unintentional drug-induced deaths by drug type and Indigenous status, 2017-2021, rate per 100,000 population (NSW, Qld, SA, WA, NT)

	Indigenous	Non-Indigenous
All opioids	9.5	3.6
Stimulants	8.5	1.9
Pharmaceutical opioids	5.2	2.5
Benzodiazepines	5	2
Cannabinoids	4	1
Heroin	3.3	1.3
Alcohol	3.2	1.3
Anti-depressants	2.9	1.5
Anti-psychotics	1.9	0.8
Anti-convulsants	1.7	0.7

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

Data for Figure 18. Number of unintentional drug-induced deaths by drug type and Indigenous status, 2017-2021 (NSW, Qld, SA, WA, NT)

	Indigenous	Non-Indigenous
Opioids	273	2,996
Stimulants	248	1,543
Benzodiazepines	150	2,031
Cannabinoids	116	816
Alcohol	94	1,094
Anti-depressants	80	1,247
Anti-psychotics	54	660
Anti-convulsants	48	593
Cocaine	15	280

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

Data for Figure 19. Age distribution (%) of unintentional drug-induced deaths by Indigenous status, 2017-2021 (NSW, Qld, SA, WA, NT)

	Indigenous	Non-Indigenous
0-19	1.6	0.9
20-29	11.0	9.3
30-39	25.4	20.1
40-49	27.5	26.6
50-59	23.8	22.1
60-69	7.6	11.8
70 years and above	3.0	9.1

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

Data for Figure 20. Number of unintentional drug-induced deaths by socio-economic status of area of usual residence, 2017-2021

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
Number of deaths	1,774	1,212	1,010	825	779	709	700	628	599	474

Note: Decile 1 is the most disadvantaged area 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). Data are aggregated over the five-year period.

Data for Figure 21. Unintentional drug-induced deaths by drug type and socio-economic status of area, percentage distribution across quintiles, 2017-2021

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Alcohol	29.4	20.2	17.6	16.8	14.1
Anti-convulsants	34.6	22.5	17.2	14.4	10.2
Anti-depressants	32.3	22.1	17.9	15.1	11.5
Anti-psychotics	35.6	22.3	16.4	14.3	9.6
Benzodiazepines	31.8	20.6	17.4	15.9	12.4
Fentanyl, pethidine, tramadol	34.9	21.9	17.9	14.1	9.6
Methadone	39.1	22.6	16.4	11.4	8.8
Oxycodone, morphine, codeine	32.6	20.8	17.1	16.5	11.7
Heroin	29.7	20.2	17.5	16.8	13.1
Cannabinoids	37.2	20.3	15.6	14.5	10.4
Stimulants	33.6	20.8	16.4	15.1	11.6
Cocaine	19.8	15.4	20.0	16.1	28.1

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). Data are aggregated over the five-year period.

Data for Figure 22. Number of unintentional drug-induced deaths, single drug type and multiple drug types detected, 2017-2021

	Single drug type	Two drug types	Three or more drug types
Unintentional drug-induced deaths involving multiple drug types	2,005	1,146	4,133

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

Data for Figure 23. Number of unintentional drug-induced deaths, by specific number of drug types detected, 2017-2021

	Single drug type	Two drug types	Three drug types	Four drug types	Five drug types	Six drug types	7 or more drug types
Unintentional drug-induced deaths involving multiple drug types	2,005	1,146	1,283	1,240	819	513	278

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

Data for Figure 24. Number of unintentional drug-induced deaths, by number of drug types detected, 2007-2021

Year	Single drug type	Two drug types	Three drug types	Four or more drug types	Alcohol only
2007	362	196	95	86	60
2008	404	233	125	99	64
2009	465	215	164	158	81
2010	436	267	170	147	77
2011	447	271	142	154	68
2012	399	277	152	149	66
2013	485	229	157	168	67
2014	532	249	203	263	93
2015	501	251	223	304	83
2016	519	248	257	438	95
2017	371	222	278	618	86
2018	310	223	261	728	79
2019	434	206	266	559	110
2020	411	290	277	518	123
2021	479	205	201	427	117

Note: Data for 2020 and 2021 are preliminary, and likely to rise. Data are only available from 2007.

Data for Figure 25. Number of unintentional drug-induced deaths with multiple drug types detected, by age and sex, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Males	46	515	996	1,133	675	205	47
Females	7	147	351	524	408	173	52

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

Data for Figure 26. Unintentional drug-induced deaths that involve multiple drug types, as a proportion of all unintentional drug-induced deaths, by age and sex, 2017-2021 (%)

	Males	Females
0-19	70.8	41.2
20-29	79.8	71.0
30-39	72.8	74.1
40-49	66.3	73.6
50-59	50.6	66.0
60-69	32.1	51.8
70 and over	9.5	21.8

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

Data for Figure 27. Unintentional drug-induced deaths by indigenous status, number of drugs present, poly-drug use, 2017-2021, rate per 100,000 population (NSW, Qld, SA, WA, NT)

	Single drug type	Two drug types	Three drug types	Four drug types	Five drug types	Six drug types
Indigenous	5.5	3.0	2.4	2.4	1.2	0.8
Non-Indigenous	1.5	0.9	0.9	0.9	0.6	0.4

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

Data for Figure 28. Proportion of unintentional drug-induced deaths with multiple drug types detected, by drug type involved, 2017-2021

	Poly-drug use deaths for specified drug type, as a proportion of all poly-drug use deaths (%)
All opioids	81
Pharmaceutical opioids	44.3
Heroin	32.2
Methadone	18.9
Benzodiazepines	66
Anti-depressants	37.9
Stimulants	34.4
Alcohol	24.7
Anti-psychotics	21.5
Anti-convulsants	17.5
Cannabinoids	16.7
Cocaine	6.1

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

12.4. Data cubes for Chapter 7

Data for Figure 29. Number of unintentional drug-induced deaths by opioid type, 2001-2021

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Heroin	101	90	142	133	122	67	109	157	176	198	190	149	195	218	280	391	422	457	457	445	297
Oxycodone, morphine, codeine	168	169	135	158	169	170	191	267	295	309	272	283	275	422	416	463	434	419	362	351	287
Methadone	95	90	61	77	95	85	99	117	126	140	155	156	155	166	190	232	232	250	196	206	186
Fentanyl, pethidine, tramadol	14	7	14	6	16	12	9	16	18	38	57	84	128	158	194	212	236	240	185	186	134

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 30. Unintentional drug-induced deaths by state for each opioid type, 2001-2021, rate per 100,000 population

Heroin																				
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
VIC	0.8	1.2	1.8	1.7	1.2	0.6	1	1.8	1.4	1.6	1.5	0.9	1.4	1.6	2.1	2.5	3.1	2.8	2.7	2.8	2.1
WA	0.1	0.1	0.2	0.3	0.4	0.2	0.4	0.5	1.2	1	1.3	1.2	1.4	1.4	1.5	2.4	2.1	2.9	2.9	2.5	1.5
NSW	0.6	0.3	0.5	0.5	0.5	0.3	0.4	0.3	0.7	0.5	0.5	0.5	0.6	0.6	1	1.4	1.5	1.6	1.8	1.5	0.9
TAS, ACT, NT	0.5	0.3	0.7	0	0.1	0.2	0.1	0.1	0.6	0.3	0.1	0.1	0.7	0.9	0.7	0.1	0.1	1.5	0.7	0.9	0.9
SA	0.3	0.1	0.2	0.1	0.5	0.1	0.7	0.9	0.8	1.3	0.5	0.8	0.4	0.7	0.4	1.5	1	1.4	0.6	0.1	0.9
QLD	0.2	0.1	0.2	0.3	0.4	0.1	0.3	0.4	0.3	0.8	0.8	0.5	0.5	0.6	0.8	0.9	1	1	1	1.1	0.6
Oxycodone, morphine, codeine																					
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
WA	0.6	1.2	0.5	0.5	1.1	1.3	0.8	2.1	2.1	2.5	2.1	1.6	1.1	2.1	2.4	2.4	3	1.8	2.2	2.3	1.9
TAS, ACT, NT	1.9	1.3	0.8	0.5	1.3	0.6	1.5	1.3	2.1	1.4	1.4	1.5	1	0.9	0.8	2.1	1.1	1.3	1.2	1.4	1.6
QLD	1.3	0.6	0.4	0.5	0.5	0.6	0.7	0.8	1.1	1.7	1.5	1.9	1.5	2	1.9	1.9	2	2.2	1.6	1.8	1.4
VIC	0.5	0.7	0.8	1.2	0.8	0.8	1.1	1.8	1.3	1.4	1.1	1	1	1.7	1.7	2.3	1.7	1.5	1.3	1.3	1
NSW	0.9	1	0.8	0.8	0.8	0.9	0.8	0.9	1.2	1	1	0.9	1.2	1.9	1.9	1.6	1.6	1.7	1.5	1.1	0.9
SA	0.4	0.9	0.5	0.8	1.3	0.7	1.2	1.1	1.7	1	0.5	1.4	0.8	1.1	0.8	1.1	1.4	1.5	0.1	0.4	0.6
Methadone																					
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**

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	0.8	1.1	1.2	0.9	1	0.9	0.9
WA	0.4	0.3	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	0.5	0.8	0.9
NSW	0.8	0.7	0.4	0.5	0.6	0.6	0.5	0.6	0.7	0.6	0.7	0.7	0.8	0.8	1.1	1.1	1.1	1.4	1	1.1	0.8
QLD	0.2	0.3	0.2	0.2	0.3	0	0.2	0.3	0.3	0.5	0.5	0.4	0.4	0.5	0.6	0.9	0.6	0.8	0.5	0.5	0.6
TAS, ACT, NT	0.2	0.8	0.6	0.6	1.2	0.9	1.1	0.7	0.6	0.8	0.5	0.6	0.4	0.4	0.5	0.7	0.8	0.8	0.2	0.8	0.5
SA	0.6	0.5	0.3	0.1	0.6	0.4	0.6	1	1.1	0.7	0.7	0.7	0.7	0.5	0.4	0.8	1	0.7	0.1	0.1	0.4
Fentanyl, pethidine, tramadol																					
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
WA	0.1	0.2	0.1	0.1	0.3	0	0	0.1	0	0.3	0.3	0.6	0.9	0.8	0.9	1.1	1.1	2	1.5	1.7	0.8
QLD	0	0.1	0	0.1	0	0	0	0	0.2	0.3	0.4	0.5	0.7	1.1	1.4	1.2	1.6	1.2	0.9	0.7	0.8
TAS, ACT, NT	0.4	0	0.3	0.4	0	0.3	0	0.4	0.3	0.1	0.1	0.1	0.3	0.3	0.5	0.5	0.7	0.8	0.4	0.7	0.5
VIC	0	0	0.1	0	0.1	0	0.1	0	0.1	0.1	0.2	0.3	0.4	0.3	0.6	0.6	0.7	0.9	0.7	0.6	0.5
NSW	0.1	0	0	0	0	0	0.1	0	0	0	0.2	0.2	0.5	0.8	0.8	0.9	0.9	0.7	0.6	0.6	0.4
SA	0.1	0.1	0.2	0.2	0.1	0.2	0	0.3	0.2	0.2	0.2	0.6	0.7	0.4	0.5	1	1.1	0.5	0.2	0.2	0.3

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 31. Number of unintentional drug-induced deaths by opioid type, 2001-2021, within (A) and outside of (B) capital cities

Capital cities total																					
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Heroin	73	76	119	116	94	58	93	132	143	165	156	116	171	156	228	317	320	346	340	337	221
Oxycodone, morphine, codeine	111	117	95	113	101	110	133	180	203	187	170	164	167	260	262	290	283	246	228	232	185
Methadone	68	62	50	53	65	61	76	81	89	107	104	110	120	115	122	146	150	158	131	145	121
Fentanyl, pethidine, tramadol	9	5	10	5	13	10	8	8	9	21	23	38	68	59	89	118	125	135	109	107	83
Remainders total																					
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**221**	**2021**
Oxycodone, morphine, codeine	57	52	40	45	68	60	58	87	92	122	102	119	103	154	152	172	144	163	128	115	100
Heroin	28	14	23	17	28	9	16	25	33	33	34	33	18	56	48	70	98	90	102	99	65
Methadone	27	28	11	24	30	24	23	36	37	33	51	46	32	49	66	82	77	83	61	58	62
Fentanyl, pethidine, tramadol	5	2	4	4	4	4	1	8	9	17	34	46	59	96	101	93	105	98	74	77	50

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 32. Number of unintentional drug-induced deaths, by opioid type and age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Pharmaceutical opioids	36	313	576	749	554	223	83
Heroin	8	244	593	688	424	109	12

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

Data for Figure 33. Number of unintentional drug-induced deaths by opioid type and sex, 2017-2021

	Pharmaceutical opioids	Heroin	Methadone
Females	913	425	374
Males	1,621	1,653	696

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

Data for Figure 34. Number of unintentional drug-induced deaths involving opioids by sole-drug and poly-drug use categories, 2007-2021

	Opioids + benzodiazepines	Opioids + other pharmaceuticals	Opioids + anti-depressants	Opioids + stimulants	Opioids + anti-psychotics	Opioids + alcohol	Heroin only	Pharmaceutical opioids only
2007	160	94	82	41	17	75	56	51
2008	185	117	100	54	16	117	80	54
2009	242	118	106	52	22	140	88	73
2010	306	123	109	55	24	144	102	68
2011	261	145	125	66	31	142	100	69
2012	296	145	132	78	13	120	69	59
2013	301	169	160	86	7	115	96	84
2014	403	237	213	156	20	151	88	116
2015	405	257	205	155	71	148	104	103
2016	515	387	262	273	154	141	119	88
2017	648	520	354	278	200	198	75	50
2018	710	590	393	298	218	219	61	37
2019	564	484	297	287	175	162	95	42
2020	587	501	320	315	153	158	80	26
2021	438	392	241	226	144	107	66	40

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 35. Number of unintentional drug-induced deaths involving benzodiazepines by state and territory, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
VIC	0.5	0.9	1.1	1.3	1	0.9	1.2	1.6	1.6	1.9	2	1.7	1.9	2.8	2.6	3.7	4	3.9	3.6	3.8	3
WA	1.2	1.1	0.1	0.5	1.2	1.1	1	2.1	1.8	2.4	1.6	1.9	1.1	2.1	2.5	2.7	4.1	4.4	3.6	4	3
TAS, NT, ACT	1.1	1.6	1.1	0.8	1.5	1	1.8	1.2	2	2.1	0.9	1.4	1	1.4	0.5	1.9	1.7	2.8	1.7	2.2	2.1
NSW	1	0.9	0.9	1.1	0.8	0.9	0.9	0.7	0.9	1.3	1.4	1.6	1.8	2	2.1	2.1	2.9	3.2	2.3	2.3	1.7
QLD	1.1	0.6	0.4	0.2	0.3	0.3	0.8	1.1	1.9	2.2	2	2.1	1.7	1.9	2	2.1	2.9	3.3	2.6	2.5	1.9
SA	0.3	0.4	0.7	0.1	1	0.6	1.6	1.1	1.6	1	0.9	1.4	1	1.4	0.5	1.6	1.9	2.2	1.6	0.9	0.9

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 36. Unintentional drug-induced deaths involving benzodiazepines by regionality, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital cities	0.9	0.9	0.8	1	0.8	0.9	1.2	1.3	1.6	1.9	1.6	1.6	1.7	2	2	2.7	3.1	3.2	2.8	2.9	2.1
Outside of capital cities	0.9	0.9	0.6	0.5	0.9	0.7	0.7	1.1	1.2	1.6	1.6	2.1	1.5	2.4	2.2	2.3	3.3	3.6	2.6	2.5	2.1

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 37. Number of unintentional drug-induced deaths involving benzodiazepines by age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Benzodiazepines	34	451	912	1,103	710	236	67

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

Data for Figure 38. Number of unintentional drug-induced deaths involving benzodiazepines by sex, 2017-2021

	Males	Females
Benzodiazepines	2,346	1,167

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

Data for Figure 39. Unintentional drug-induced deaths involving stimulants by state and territory, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	3	3.1	3.8	3.7	3.3	3
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	0.8	1.1	1.6	2.5	2.6	2.5	2.3	2.7	2.2
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	0.7	1	1.2	2	2	2	2.1	2.7	1.8
QLD	0.3	0.1	0	0.1	0.1	0.2	0.3	0.2	0.5	0.5	0.4	0.8	0.6	1.2	1.5	1.7	1.8	2	2.1	2	1.4
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	1.9	1.6	1.4	1.3	1.3
TAS, NT, ACT	0.4	0.1	0.1	0.1	0.5	0.1	0.7	0.2	0.6	0.1	0.1	0.4	0.4	0.7	0.9	1.3	1.9	2.1	1.8	2.1	1.0

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 40. Unintentional drug-induced deaths involving stimulants by regionality, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital cities	0.3	0.4	0.2	0.4	0.3	0.4	0.5	0.5	0.4	0.5	0.5	0.6	0.8	1.1	1.3	2	2.2	2.3	2.2	2.4	1.9
Outside of capital cities	0.1	0.1	0.1	0.1	0.4	0.4	0.2	0.3	0.4	0.3	0.5	0.7	0.6	1.1	1.6	2.1	2.2	2.1	2.1	2.5	1.7

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 41. Number of unintentional drug-induced deaths involving stimulants by age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Stimulants	31	417	801	861	469	85	6

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

Data for Figure 42. Number of unintentional drug-induced deaths involving stimulants by sex, 2017-2021

	Males	Females
Stimulants	1,985	685

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

Data for Figure 43. Unintentional drug-induced deaths involving anti-depressants by state and territory, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WA	1.1	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	2.2	1.2	2.9	2.9	2.6	3	2.2
TAS, NT, ACT	0.6	1.7	0.4	0.3	1.2	1	1.5	0.7	1.5	1	1	0.5	0.9	0.9	0.7	1.3	1.1	2.1	1.5	1	1.8
VIC	0.3	0.6	0.6	1	0.7	0.5	0.6	0.9	0.9	0.9	0.9	0.8	1	1.5	1.1	1.7	2.3	2.2	1.6	2	1.3
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	1.9	2.1	1.6	1.7	1.3
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	0.8	1	1.2	1.3	1.7	1.3	1.1	1.1
SA	0.2	0.5	0.1	0.6	0.8	0.6	1.6	1.2	1.9	1.3	0.2	0.9	0.4	0.9	0.4	0.8	1.2	0.6	0.3	0.2	0.2

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 44. Unintentional drug-induced deaths involving anti-depressants by regionality, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Outside of capital cities	0.4	0.6	0.3	0.5	0.5	0.6	0.5	0.7	0.9	0.9	1.2	1.1	1.1	1.5	1.4	1.9	1.9	2.3	1.7	1.6	1.4
Capital cities	0.6	0.7	0.4	0.7	0.6	0.7	0.7	0.8	0.9	0.8	0.7	0.8	0.9	1.1	1.2	1.2	1.8	1.8	1.5	1.6	1.2

Note: Data for 2019 and 2020 are preliminary, and likely to rise.

Data for Figure 45. Number of unintentional drug-induced deaths involving anti-depressants by age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Anti-depressants	13	191	461	672	467	186	57

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

Data for Figure 46. Number of unintentional drug-induced deaths involving anti-depressants by sex, 2017-2021

	Males	Females
Anti-depressants	1,174	873

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

Data for Figure 47. Unintentional drug-induced deaths involving alcohol by state and territory, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WA	0.9	0.9	0.5	0.3	1.1	0.8	1.4	1.5	1.7	1.8	1.5	1.3	1.5	1.9	2.0	1.3	1.4	2.2	2.1	2.9	2.1
TAS, ACT, NT	0.8	1.3	0.2	1.0	0.3	0.5	1.4	0.7	1.1	1.5	1.4	0.8	1.4	1.5	1.2	1.4	1.8	1.7	1.4	1.6	1.5
VIC	0.6	0.8	0.8	1.1	0.8	0.7	0.9	1.2	1.2	1.2	1.2	0.7	0.8	1.2	1.0	1.6	1.9	1.6	1.6	1.7	1.4
NSW	1.1	1.0	0.8	0.8	0.7	0.7	0.8	1.0	1.2	1.2	1.4	1.2	1.0	1.4	1.5	1.2	1.5	1.7	1.5	1.1	1.0
QLD	0.8	0.5	0.3	0.3	0.3	0.4	0.6	0.7	1.3	1.3	1.1	1.4	1.0	1.1	1.0	0.9	1.1	1.3	0.9	1.2	1.0
SA	0.5	0.3	0.6	0.5	0.6	0.6	1.0	0.9	1.4	1.3	0.8	1.3	0.8	1.0	0.6	0.8	1.4	1.1	1.1	1.1	0.9

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 48. Unintentional drug-induced deaths involving alcohol by regionality, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Outside of capital cities	0.9	0.8	0.5	0.5	0.5	0.7	0.8	1	1.7	1.3	1.3	1.4	1.1	1.6	1.5	1.4	1.7	1.9	1.5	1.6	1.3
Capital cities	0.8	0.9	0.7	0.8	0.8	0.6	1	1	1.1	1.3	1.2	1	1	1.2	1.1	1.2	1.4	1.5	1.4	1.5	1.2

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 49. Number of unintentional drug-induced deaths involving alcohol by age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Anti-depressants	16	157	431	542	442	172	60

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

Data for Figure 50. Number of unintentional drug-induced deaths involving alcohol by sex, 2017-2021

	Males	Females
Anti-depressants	1,333	488

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

Data for Figure 51. Number of unintentional drug-induced deaths involving alcohol as a sole drug type, by age group and sex, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Males	4	11	71	110	109	56	26
Females	1	5	18	38	40	19	6

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

Data for Figure 52. Unintentional drug-induced deaths involving anti-convulsants by state, 2012-2021, rate per 100,000 population

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
QLD	0	0	0	0.1	0.4	0.9	1.7	1.2	1.3	1.2
WA	0	0	0	0.1	0.5	0.9	1.2	1.5	1.6	1
NSW	0	0	0	0	0.1	0	0.1	0.3	0.8	0.8
VIC	0	0	0.1	0	0.4	0.6	0.8	0.8	0.9	0.7
TAS, NT, ACT	0	0	0	0	0	0.1	0.1	0.2	0.7	0.5
SA	0	0	0	0	0.4	0.2	0.4	0.2	0.1	0.1

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 53. Unintentional drug-induced deaths involving anti-convulsants by regionality, 2012-2021, rate per 100,000 population

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Outside of capital cities	0	0	0	0.1	0.3	0.6	1	0.8	1.1	1
Capital cities	0	0	0	0	0.3	0.4	0.6	0.7	0.9	0.8

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 54. Number of unintentional drug-induced deaths involving anti-convulsants by age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Anti-convulsants	4	96	227	308	201	69	21

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

Data for Figure 55. Number of unintentional drug-induced deaths involving anti-convulsants by sex, 2017-2021

	Males	Females
Anti-convulsants	561	365

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

Data for Figure 56. Unintentional drug-induced deaths involving anti-psychotics by state, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WA	0	0	0.2	0	0	0.2	0.1	0	0.3	0.3	0.6	0.2	0	0.2	0.6	0.6	1.3	1.8	1.2	1.2	1.1
VIC	0.1	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	1.3	1.7	1.2	1.2	1.2	1.0
TAS, NT, ACT	0.1	0	0	0	0.2	0.3	0.6	0.3	0.3	0.5	0.4	0	0.4	0.1	0.1	0.9	0.5	0.8	1.2	0.7	0.8
NSW	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	1.1	0.7	0.7	0.6
QLD	0	0.1	0.1	0.1	0	0.1	0	0.1	0	0.2	0.2	0.1	0.1	0.1	0.5	1.0	0.9	1.2	1.0	0.7	0.6
SA	0	0.2	0	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0	0	0.2	0.2	0.3	0.5	0.6	0.1	0	0.2	0.1

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 57. Unintentional drug-induced deaths involving anti-psychotics by regionality, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Outside of capital cities	0	0.1	0	0	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0	0.1	0.4	0.9	1.1	1.2	1	0.7	0.8
Capital cities	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	0.9	1.1	1.1	0.9	0.9	0.7

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 58. Number of unintentional drug-induced deaths involving anti-psychotics by age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Anti-psychotics	4	110	315	419	220	79	21

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

Data for Figure 59. Number of unintentional drug-induced deaths involving anti-psychotics by sex, 2017-2021

	Males	Females
Anti-psychotics	738	430

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

Data for Figure 60. Unintentional drug-induced deaths involving cannabinoids by state and territory, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
TAS, NT, ACT	0.1	0.2	0.3	0.1	0	0.2	0.1	0.1	0.2	0.5	0.2	0.4	0.2	0.2	0.4	1.1	1	1.2	1.2	0.9	1.3
WA	0.5	0.6	0.2	0.1	0.4	0.6	0.3	0.6	0.6	0.6	1	0.9	0.5	1.1	0.9	1.4	1.7	2.7	1.9	1.8	1
VIC	0	0.1	0	0.1	0.1	0.3	0.2	0.2	0.1	0.2	0.4	0.3	0.2	0.6	1.1	1.6	2.3	1.8	1.5	1	0.7
NSW	0	0.1	0	0.1	0	0.1	0.1	0	0.1	0.1	0.1	0.2	0.4	0.5	0.6	1	1.3	1.6	1.1	1	0.6
QLD	0.3	0.1	0.1	0	0	0	0.2	0.4	0.7	0.6	0.5	0.6	0.3	0.6	0.7	0.7	1	1.7	1.1	0.9	0.5
SA	0.3	0	0.3	0.2	0	0.1	0.1	0.2	0	0.1	0	0.2	0	0.2	0.1	0.4	1.3	0.5	0.5	0.3	0.4

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 61. Unintentional drug-induced deaths involving cannabinoids by regionality, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Outside of capital cities	0.2	0.1	0	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.4	0.5	0.3	0.8	0.8	1.2	1.7	2.1	1.3	1.1	0.8
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	1.4	1.5	1.2	0.9	0.6

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 62. Number of unintentional drug-induced deaths involving cannabinoids by age group, 2017-2021

	0-19	20-29	30-39	40-49	50-59	60-69	70 and over
Cannabinoids	31	216	392	502	265	66	1

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

Data for Figure 63. Number of unintentional drug-induced deaths involving cannabinoids by sex, 2017-2021

	Males	Females
Cannabinoids	1,110	363

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

12.5. Data cubes for Chapter 8

Data for Figure 64. Unintentional drug-induced deaths by regionality in New South Wales, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	5.9	8.5	8.2	8.7	8.6	8.2	8.4	8.3	7.4
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	6.9	6.6	6.1	6.2

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 65. Unintentional drug-induced deaths by drug type in greater Sydney and regional NSW, 2001-2021, 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**	**2019**	**2020**	**2021**
Stimulants	0.4	0.5	0.3	0.5	0.3	0.5	0.4	0.5	0.3	0.5	0.6	0.7	0.7	1.0	1.2	1.7	1.8	1.9	2.0	2.4	1.8
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	1.9	2.0	1.7	1.7	1.7
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	2.5	3.1	2.4	2.1	1.6
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	1.8	1.7	1.4	1.0
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	1.7	1.8	1.5	0.9
Regional NSW																					
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
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	1.4	1.4	1.3	2.4	2.1	2.9	2.4	2.0	2.0
Stimulants	0.4	0.5	0.3	0.5	0.5	0.6	0.3	0.2	0.2	0.2	0.2	1.1	0.5	1.0	1.2	2.4	2.4	2.2	2.0	3.3	1.9
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	1.5	2.3	2.2	2.5	3.6	3.3	2.2	2.6	1.9
Pharmaceutical opioids	1.3	1.1	1	0.8	1	1.1	0.9	0.7	1.2	1.5	1.7	1.7	2.2	3.5	3.1	3.5	2.8	2.8	2.3	2.0	1.4
Heroin	0.8	0.1	0.4	0.2	0.3	0.1	0.2	0.2	0.5	0.4	0.4	0.6	0.3	0.7	0.5	1.2	1.5	1.2	1.4	1.4	0.9

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 66. Unintentional drug-induced deaths by regionality in Victoria, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Regional VIC	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	8.0	7.5	8.9	11.0	8.3	9.0	8.2	6.6
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	5.0	5.2	5.9	7.2	6.7	6.1	6.2	7.2	6.2

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 67. Unintentional drug-induced deaths by drug type in greater Melbourne and regional Victoria, 2001-2021, rate per 100,000 population

Greater Melbourne																					
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Benzodiazepines	0.5	0.8	1.2	1.5	1	0.8	1.3	1.5	1.7	1.9	2.1	1.6	1.8	2.5	2.5	3.8	3.5	3.4	3.2	3.7	2.9
Stimulants	0.2	0.2	0.1	0.4	0.5	0.4	0.5	0.4	0.6	0.4	0.5	0.4	0.8	1.1	1.5	2.5	2.3	2.4	2.1	2.5	2.1
Other pharmaceuticals	0.4	0.6	0.7	1.1	0.8	0.5	0.7	0.9	0.8	1	1	0.8	1.0	1.4	1.4	2.7	2.8	2.8	2.4	2.9	2.1
Heroin	0.9	1.3	2.1	2	1.1	0.7	1.2	2.1	1.4	1.7	1.7	0.9	1.6	1.6	2.2	2.8	3.1	2.8	2.4	2.7	2.0
Pharmaceutical opioids	0.6	0.6	1	1.4	0.8	0.8	1.3	1.8	1.3	1.2	1.2	0.9	1.2	1.7	1.8	2.6	1.7	1.8	1.4	1.6	1.3
Regional VIC																					
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Benzodiazepines	0.1	1	0.8	0.5	1.2	1.2	0.8	1.9	1.5	2.1	1.7	2.0	2.3	3.9	3.0	3.5	5.6	4.9	4.4	3.8	3.0
Other pharmaceuticals	0.3	0.6	0.5	0.8	1.1	0.9	1.0	1.4	1.6	1.3	1.5	1.3	1.3	2.6	2.1	3.5	5.4	4.5	4.2	3.3	2.2

Stimulants	0.1	0	0.1	0.2	0.3	0.4	0.2	0.5	0.1	0.2	0.7	0.7	0.5	1.4	2.0	2.3	3.2	2.3	2.7	2.9	2.0
Heroin	0.4	0.7	1.0	0.8	1.4	0.2	0.3	0.7	1.2	1.2	1.0	0.7	1.0	1.7	1.7	1.9	3.4	2.3	3.0	2.8	1.9
Pharmaceutical opioids	0.4	0.9	0.8	0.8	1.0	1.0	0.8	2	1.2	2.2	1.4	2	2.5	2.9	2.9	4.1	3.2	3.2	2.2	1.8	1.5

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 68. Unintentional drug-induced deaths by regionality in Queensland, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	6.2	6.4	7.6	7.7	6.6	7.3	5.5	6.3	6
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	6.1	6.2	5.9	5.2

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Figure 69. Unintentional drug-induced deaths by regionality in Western Australia, 2001-2021, rate per 100,000 population

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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	7.1	7.5	8.4	9.1	9.1	9.4	9.5	7.9
Regional WA	6.0	3.3	3.7	1.7	5.5	4.5	4.7	8.5	8.0	7.2	7.5	6.7	5.2	8.6	10.3	8.3	6.2	8.7	10.4	8.0	7.5

Note: Data for 2020 and 2021 are preliminary, and likely to rise.

Data for Section 8.7 – Unintentional drug-induced deaths 2017-2021 (Statistical Area 3), rate per 100,000 population

SA3	Number of deaths	Population	Rate per 100,000 population
New South Wales			
Queanbeyan	19	62663	6.1
Snowy Mountains	6	20263	5.9
South Coast	36	74518	9.7
Goulburn - Mulwaree	13	37648	6.9
Young - Yass	10	37506	5.3
Gosford	68	177515	7.7
Wyong	67	167141	8
Bathurst	22	48593	9.1
Lachlan Valley	28	55574	10.1
Lithgow - Mudgee	22	47878	9.2
Orange	20	60547	6.6
Clarence Valley	23	52293	8.8
Coffs Harbour	44	90930	9.7
Bourke - Cobar - Coonamble	11	23394	9.4
Broken Hill and Far West	19	20241	18.8
Dubbo	23	73641	6.2
Lower Hunter	31	94651	6.6
Maitland	20	82316	4.9
Port Stephens	25	74888	6.7
Upper Hunter	11	30777	7.1
Dapto - Port Kembla	41	78972	10.4
Illawarra Catchment Reserve	0	5	0
Kiama - Shellharbour	35	96147	7.3
Wollongong	57	134826	8.5
Great Lakes	7	32729	4.3
Kempsey - Nambucca	21	50443	8.3
Lord Howe Island	0	431	0
Port Macquarie	38	84006	9
Taree - Gloucester	28	56327	9.9
Albury	36	65196	11
Lower Murray	11	12980	16.9

Upper Murray exc. Albury	17	42997	7.9
Armidale	15	38100	7.9
Inverell - Tenterfield	15	38920	7.7
Moree - Narrabri	15	25602	11.7
Tamworth - Gunnedah	25	84462	5.9
Lake Macquarie - East	41	125167	6.6
Lake Macquarie - West	25	81713	6.1
Newcastle	88	175596	10
Richmond Valley - Coastal	23	85157	5.4
Richmond Valley - Hinterland	49	71707	13.7
Tweed Valley	41	95896	8.6
Griffith - Murrumbidgee (West)	13	49819	5.2
Tumut - Tumbarumba	4	14834	3.4
Wagga Wagga	37	97860	7.6
Shoalhaven	41	105529	7.8
Southern Highlands	24	51133	9.4
Baulkham Hills	14	154081	1.8
Dural - Wisemans Ferry	9	27829	6.5
Hawkesbury	9	25212	7.1
Rouse Hill - McGraths Hill	2	45881	1.1
Blacktown	48	143490	6.7
Blacktown - North	14	122373	2.3
Mount Druitt	51	117580	8.7
Botany	25	55269	9
Marrickville - Sydenham - Petersham	31	56905	10.9
Sydney Inner City	181	232365	15.6
Eastern Suburbs - North	36	133434	5.4
Eastern Suburbs - South	85	143829	11.8
Bankstown	74	185197	8
Canterbury	39	143571	5.4
Hurstville	33	134270	4.9
Kogarah - Rockdale	27	147930	3.7
Canada Bay	24	89183	5.4
Leichhardt	37	58449	12.7
Strathfield - Burwood - Ashfield	59	163626	7.2

Chatswood - Lane Cove	23	119847	3.8
Hornsby	20	86990	4.6
Ku-ring-gai	14	125608	2.2
North Sydney - Mosman	18	98786	3.6
Manly	11	44574	4.9
Pittwater	19	63791	6
Warringah	40	158858	5
Camden	12	70527	3.4
Campbelltown (NSW)	54	173123	6.2
Wollondilly	9	44741	4
Blue Mountains	41	78656	10.4
Blue Mountains - South	0	6	0
Penrith	60	154000	7.8
Richmond - Windsor	11	37969	5.8
St Marys	24	56709	8.5
Auburn	23	102314	4.5
Carlingford	22	73273	6
Merrylands - Guildford	76	164024	9.3
Parramatta	60	154177	7.8
Pennant Hills - Epping	6	53515	2.2
Ryde - Hunters Hill	53	146817	7.2
Bringelly - Green Valley	34	128365	5.3
Fairfield	61	197041	6.2
Liverpool	49	131687	7.4
Cronulla - Miranda - Caringbah	30	116558	5.1
Sutherland - Menai - Heathcote	30	111819	5.4
Victoria			
Ballarat	50	111826	8.9
Creswick - Daylesford - Ballan	10	29964	6.7
Maryborough - Pyrenees	9	26216	6.9
Bendigo	58	100341	11.6
Heathcote - Castlemaine - Kyneton	17	50509	6.7
Loddon - Elmore	1	11864	4.2
Barwon - West	4	21083	2.4
Geelong	100	205386	9.7

Surf Coast - Bellarine Peninsula	21	84856	4.9
Upper Goulburn Valley	26	57580	9
Wangaratta - Benalla	19	47658	8
Wodonga - Alpine	20	74372	5.4
Baw Baw	12	54238	4.4
Gippsland - East	17	47437	7.2
Gippsland - South West	31	67575	9.2
Latrobe Valley	44	75900	11.6
Wellington	18	44525	8.1
Brunswick - Coburg	23	93553	4.9
Darebin - South	18	55638	6.5
Essendon	31	71301	8.7
Melbourne City	59	162597	7.3
Port Phillip	77	109188	14.1
Stonnington - West	21	67544	6.2
Yarra	64	95794	13.4
Boroondara	46	177011	5.2
Manningham - West	25	98848	5.1
Whitehorse - West	32	110356	5.8
Bayside	46	104083	8.8
Glen Eira	36	160293	4.5
Kingston	36	124878	5.8
Stonnington - East	1	44042	1.1
Banyule	37	129225	5.7
Darebin - North	45	99928	9
Nillumbik - Kinglake	9	68337	2.6
Whittlesea - Wallan	60	244775	4.9
Keilor	14	62669	4.5
Macedon Ranges	10	32281	6.2
Moreland - North	26	82571	6.3
Sunbury	18	43707	8.2
Tullamarine - Broadmeadows	39	193483	4
Knox	56	162128	6.9
Manningham - East	4	27132	1.8
Maroondah	32	116588	5.5

Whitehorse - East	27	64464	8.4
Yarra Ranges	60	156979	7.6
Cardinia	28	111499	5
Casey - North	33	139812	4.7
Casey - South	41	209586	3.9
Dandenong	86	200459	8.6
Monash	44	189465	4.6
Brimbank	81	195181	8.3
Hobsons Bay	32	89438	7.2
Maribyrnong	56	88395	12.7
Melton - Bacchus Marsh	63	184547	6.8
Wyndham	64	275900	4.6
Frankston	84	141312	11.9
Mornington Peninsula	56	167843	6.7
Grampians	27	59828	9
Mildura	25	56491	8.9
Murray River - Swan Hill	15	38059	7.9
Campaspe	13	38282	6.8
Moira	15	30047	10
Shepparton	27	67254	8
Glenelg - Southern Grampians	13	36364	7.1
Colac - Corangamite	10	38101	5.2
Warrnambool	10	52015	3.8
Queensland			
Capalaba	17	75093	4.5
Cleveland - Stradbroke	26	91259	5.7
Wynnum - Manly	24	73255	6.6
Bald Hills - Everton Park	8	45093	3.5
Chermside	22	74428	5.9
Nundah	15	42563	7
Sandgate	19	61868	6.1
Carindale	8	54353	2.9
Holland Park - Yeronga	46	79290	11.6
Mt Gravatt	18	78804	4.6
Nathan	14	40804	6.9

Rocklea - Acacia Ridge	18	66238	5.4
Sunnybank	10	52232	3.8
Centenary	10	33797	5.9
Kenmore - Brookfield - Moggill	3	48274	1
Sherwood - Indooroopilly	11	55752	3.9
The Gap - Enoggera	14	54126	5.2
Brisbane Inner	68	84053	16.2
Brisbane Inner - East	13	44611	5.8
Brisbane Inner - North	35	99045	7.1
Brisbane Inner - West	18	61408	5.9
Cairns - North	13	57217	4.5
Cairns - South	54	106241	10.2
Innisfail - Cassowary Coast	11	35809	6.1
Port Douglas - Daintree	6	12234	9.8
Tablelands (East) - Kuranda	13	42594	6.1
Darling Downs (West) - Maranoa	12	44841	5.4
Darling Downs - East	4	43340	1.2
Granite Belt	9	41503	4.3
Central Highlands (Qld)	6	29549	4.1
Rockhampton	41	120666	6.8
Biloela	2	14598	3.4
Gladstone	22	63580	6.9
Broadbeach - Burleigh	26	66302	7.8
Coolangatta	20	57112	7
Gold Coast - North	38	69623	10.9
Gold Coast Hinterland	2	19870	2.5
Mudgeeraba - Tallebudgera	14	35819	7.8
Nerang	18	70568	5.1
Ormeau - Oxenford	42	147122	5.7
Robina	11	53759	4.1
Southport	32	64234	10
Surfers Paradise	20	44757	8.9
Forest Lake - Oxley	25	78657	6.4
Ipswich Hinterland	11	66727	3.3
Ipswich Inner	33	113401	5.8

Springfield - Redbank	25	99156	5
Beaudesert	6	14710	8.2
Beenleigh	15	44971	6.7
Browns Plains	22	89750	4.9
Jimboomba	6	56221	2.1
Loganlea - Carbrook	19	64390	5.9
Springwood - Kingston	27	80802	6.7
Bowen Basin - North	6	35236	3.4
Mackay	26	120091	4.3
Whitsunday	3	23035	2.2
Bribie - Beachmere	14	36028	7.8
Caboolture	19	76497	5
Caboolture Hinterland	5	14492	6.9
Narangba - Burpengary	18	68233	5.3
Redcliffe	29	63223	9.2
The Hills District	9	90762	2
North Lakes	10	84441	2.4
Strathpine	18	39745	9.1
Far North	4	33326	1.5
Outback - North	9	30936	5.8
Outback - South	6	17575	6.8
Buderim	9	58719	3.1
Caloundra	23	91451	5
Maroochy	23	62404	7.4
Noosa	17	45854	7.4
Sunshine Coast Hinterland	18	55650	6.5
Nambour	17	47834	7.1
Noosa Hinterland	5	23718	4.2
Toowoomba	44	160196	5.5
Charters Towers - Ayr - Ingham	12	42182	5.7
Townsville	62	194096	6.4
Bundaberg	33	92481	7.1
Burnett	13	49834	5.2
Gympie - Cooloola	23	52373	8.8
Hervey Bay	23	61531	7.5

Maryborough	13	46838	5.6
South Australia			
Adelaide City	11	25186	8.7
Adelaide Hills	11	77240	2.8
Burnside	7	46136	3
Campbelltown (SA)	8	54065	3
Norwood - Payneham - St Peters	18	37434	9.6
Prospect - Walkerville	9	29922	6
Unley	7	39269	3.6
Gawler - Two Wells	8	36824	4.3
Playford	24	97285	4.9
Port Adelaide - East	28	74982	7.5
Salisbury	45	144053	6.2
Tea Tree Gully	21	96549	4.4
Holdfast Bay	13	35591	7.3
Marion	27	95396	5.7
Mitcham	14	66390	4.2
Onkaparinga	50	174854	5.7
Charles Sturt	44	116746	7.5
Port Adelaide - West	29	60530	9.6
West Torrens	25	64813	7.7
Barossa	6	37866	3.2
Lower North	7	23107	6.1
Mid North	9	27830	6.5
Yorke Peninsula	9	26586	6.8
Eyre Peninsula and South West	16	58576	5.5
Outback - North and East	10	26969	7.4
Fleurieu - Kangaroo Island	7	54306	2.6
Limestone Coast	10	67770	3
Murray and Mallee	25	72604	6.9
Western Australia			
Augusta - Margaret River - Busselton	21	56450	7.4
Bunbury	54	108324	10
Manjimup	2	23842	2.1
Mandurah	63	106275	11.9

Cottesloe - Claremont	23	73190	6.3
Perth City	73	111814	13.1
Bayswater - Bassendean	51	85729	11.9
Mundaring	18	44251	8.1
Swan	59	144974	8.1
Joondalup	54	163478	6.6
Stirling	107	209594	10.2
Wanneroo	53	207800	5.1
Armadale	45	91518	9.8
Belmont - Victoria Park	49	76263	12.9
Canning	32	100398	6.4
Gosnells	61	127512	9.6
Kalamunda	26	59996	8.7
Serpentine - Jarrahdale	11	31375	7
South Perth	20	44601	9
Cockburn	65	113738	11.4
Fremantle	43	40118	21.4
Kwinana	24	44734	10.7
Melville	32	107401	6
Rockingham	50	135654	7.4
Albany	30	62520	9.6
Wheat Belt - North	25	57104	8.8
Wheat Belt - South	2	20127	2.5
Kimberley	7	37657	3.7
East Pilbara	10	26373	7.6
West Pilbara	9	32917	5.5
Esperance	5	16340	6.1
Gascoyne	9	9834	18.3
Goldfields	25	40129	12.5
Mid West	25	56105	8.9
Tasmania			
Brighton	8	18748	8.5
Hobart - North East	14	57433	4.9
Hobart - North West	24	57467	8.4
Hobart - South and West	11	36131	6.1

Hobart Inner	17	55477	6.1
Sorell - Dodges Ferry	7	17796	7.9
Launceston	29	87342	6.6
Meander Valley - West Tamar	3	23896	2.1
North East	8	39304	4.1
Central Highlands (Tas.)	3	12171	4.1
Huon - Bruny Island	8	21267	7.5
South East Coast	6	7335	16.4
Burnie - Ulverstone	10	50188	4
Devonport	5	47904	2.1
West Coast	4	17976	2.8
Northern Territory			
Darwin City	9	28916	6.2
Darwin Suburbs	16	58138	5.5
Litchfield	6	23594	5.1
Palmerston	16	38226	8.4
Alice Springs	20	40145	10
Barkly	2	6056	8.3
Daly - Tiwi - West Arnhem	4	17964	2.8
East Arnhem	2	14513	3.4
Katherine	10	21012	9.5
Australian Capital Territory			
Belconnen	26	103892	5
Canberra East	3	1771	28.2
Gungahlin	17	83138	4.1
North Canberra	34	59499	11.4
South Canberra	13	30667	8.5
Tuggeranong	29	88338	6.6
Weston Creek	6	24103	5
Woden Valley	13	38091	6.8
Molonglo	0	8376	0
Urriarra - Namadgi	0	610	0

Note: Data are aggregated over the five-year period. For areas with fewer than five deaths, the actual number of deaths has been suppressed to maintain confidentiality. For these areas, the rate has been calculated based on an assigned number of 2.5 deaths.

12.6 Data cubes for Chapter 9

Data for Figure 86: Number of drug- and alcohol-related ambulance attendances, by age group, 2021

	15–24	25–34	35–44	45–54	55+
Alcohol and other drugs	38,034	32,347	30,348	26,951	29,153

Data for Figure 87: Number of drug- and alcohol-related ambulance attendances, by sex, 2021

	Males	Females	Other
Alcohol and other drugs	86,820	69,455	6,599

Data for Figure 88: Number of drug- and alcohol-related ambulance attendances involving alcohol, by age group, 2021

	15–24	25–34	35–44	45–54	55+
Alcohol	18,201	15,749	17,424	18,539	22,231

Data for Figure 89: Number of drug- and alcohol-related ambulance attendances involving any pharmaceutical, by age group, 2021

	15–24	25–34	35–44	45–54	55+
Any pharmaceutical	12,018	7,750	6,513	5,507	5,855

Data for Figure 90: Number of drug- and alcohol-related hospitalisations in Australia, by drug type (excluding alcohol) 2015-16 to 2020-21

Drug-type	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Stimulants	15,997	15,353	14,734	16,211	18,157	15,148
Methamphetamine	9,317	10,395	10,403	12,042	14,053	12,422
Antiepileptics	10,259	10,790	9,905	9,493	10,685	10,422
Non-opioid analgesics	8,574	9,172	7,826	7,197	6,783	8,213
Cannabinoids	6,020	6,302	6,461	6,100	6,640	7,488
Opioids	9,194	8,882	8,763	8,650	7,597	6,690
Benzodiazepines	6,253	6,361	5,479	5,204	5,001	4,687
Antidepressants	4,446	4,616	4,156	4,120	4,137	4,187
Antipsychotics	4,658	4,674	4,409	4,433	4,163	4,110
Cocaine	776	818	1040	1,217	1,275	1,786
Hallucinogens	263	339	335	376	435	471
Total	135,547	137,728	136,151	140,570	140,709	151,797

Data for Figure 91. Number of drug-related hospitalisations by principal diagnosis, 2001-02 – 2020-21

Principal Diagnosis	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Poisoning	24885	25139	25047	25733	25429	26116	26717	28068	27229	26717
Substance use disorder	13441	12704	14033	13695	14407	14710	14636	14117	14703	17038
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Poisoning	27930	27829	27551	29173	32156	33973	30377	29652	29170	29453
Substance use disorder	19107	20570	22741	27384	31616	30978	30220	32098	33553	32966