This report replaces the Opioid Use and Related Harms in NSW – Surveillance Report to December 2019. This version includes the previously reported historical data with updated longitudinal data trends and enhanced reporting of heroin seizures, emergency department presentations, forensic toxicology detections and treatment episodes. More comprehensive explanatory text and notes have also been included.
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Executive summary

The rate of opioid-related deaths increased between 2004 and 2015, and has subsequently stabilised in the most recent available data. Rates of opioid-related hospitalisations and emergency department presentations have remained relatively stable between 2013-14 and 2019-20.

There was a decline in the total opioids dispensed in NSW under the Pharmaceutical Benefits Scheme (PBS) between 2014 and 2020, as measured by oral morphine equivalent dose.

The highest rates of opioid-related harm were seen in: males, people aged 35-44 years, the most disadvantaged socioeconomic groups, and Aboriginal people. Harms seen in these groups were measured by emergency department presentations, hospitalisations, and deaths data.

The reductions in both use and harms of codeine – as reflected in survey, emergency department, and call centre data – has been maintained since the rescheduling of codeine to a prescription only medicine in 2018. Prescription and call centre data shows that although oxycodone remains a concern, there are notable increases in use and calls relating to tapentadol.

Certain groups of people with high rates of use and harms may not be well reflected in overall statewide data. The limitations of the data sources used to inform this report are described further in the appendices.

This report primarily focuses on data up until 31 December 2020. The impact of the COVID-19 pandemic on our society may have influenced opioid-related use and harms in NSW.

Opioid use in NSW

1. Between 2014 and 2020, there was a reduction in opioids dispensed in NSW under the PBS from 929 to 686 oral morphine equivalent doses (OME) per 1,000 population per day. Note that this analysis excludes opioids dispensed for opioid dependency.
2. There was a decrease in the amount of fentanyl dispensed in NSW between 2014 and 2020.
3. Since it was listed on the PBS in 2014, there has been a notable increase in the amount of tapentadol dispensed in NSW between 2014 and 2020.
4. Remote areas appeared to have higher rates of opioids dispensed under the PBS (as measured by oral morphine equivalent dose) than metropolitan areas.
5. In Australia, there was a reduction in the percentage of people who reported using ‘pain-killers/pain relievers and opioids’ between 2016 and 2019 from 3.6% to 2.7%.
6. The rescheduling of codeine in 2018 to a prescription only medicine appeared to influence several indicators. Codeine combination analgesic enquiries to the Poisons Information Centre from NSW callers dropped from 1,177 (2017) to 663 (2019) and remains low at 619 (2020).
7. According to wastewater analysis between August 2018 and June 2021, heroin consumption was higher in Sydney than regional NSW, while the inverse was true for oxycodone. From August 2018 to June 2021, estimated average consumption of fentanyl decreased in NSW, other than one spike in Sydney in December 2020.
8. Among people who inject drugs, heroin remained the drug reported as most frequently injected between 2004 and 2020.

9. Overall, the median purity of analysed heroin seizures by NSW police increased from 2012-13 to 2019-20. In 2019-20, the median purity value was 73.5%. The increase may have been influenced by legislative changes in 2017, resulting in a greater percentage of seizures of heroin tested being of a larger quantity, which may have higher purity than smaller seizures of the drug.

Opioid-related harms in NSW

1. Rates of opioid-related hospitalisations remained stable in NSW between 2013-14 and 2019-20. The rate of opioid-related hospitalisations in NSW in 2019-20 was 157 per 100,000 population.

2. The highest rates of opioid-related hospitalisations were in: males, Aboriginal people, people aged 35-44 years, and people in the most disadvantaged socioeconomic group. Rates of opioid-related hospitalisations were six times higher for Aboriginal people than non-Aboriginal people in NSW in 2019-20.

3. Heroin-related presentations to emergency departments remained stable at a rate of 1 per 1,000 presentations between 2011-12 and 2019-20.

4. The highest rates of heroin-related emergency department presentations were in males and people aged 35-44 years.

5. Rates of heroin-related emergency department presentations were higher at metropolitan than regional hospitals, while rates of fentanyl-related emergency department presentations were higher at regional hospitals than metropolitan hospitals.

6. There was a steady increase in the rate of opioid-related deaths in NSW between 2004 (2.8 per 100,000 population) and 2015 (5.9 per 100,000 population), which then stabilised through to 2019 (5.3 per 100,000 population).

7. Among deaths in NSW where opioids were detected in toxicological analysis, morphine and drugs that can be metabolised into morphine (heroin and codeine) were the most common opioids detected between 2010 and 2020.

8. Among the deaths in NSW in 2020 where opioids were detected in toxicological analysis, 59% also had a benzodiazepine detected.

NOTES

In 2021, all trend data from 2010 to 2018 were re-analysed using updated data collections. Results in this 2021 report should be considered correct in cases where they conflict with previously published results.
1. Opioid use

1.1 Prescription opioids dispensed under the Pharmaceutical Benefits Scheme

**Figure 1:** Total age- and sex-adjusted oral morphine equivalent dose (OME) dispensed, NSW, 2014 to 2020

Source: Pharmaceutical Benefits Scheme

Notes: Oral Morphine Equivalent (OME) is based on the idea that different doses of different opioids may give a similar analgesic effect. Where the doses of two different opioids are considered to give a comparable analgesic effect, they are deemed to be equianalgesic doses (NDARC, 2014). More information is provided in the methods section (Appendix C). This analysis used updated data from the Opioid Use and Related Harms in NSW Surveillance Report to December 2019. The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

There was a reduction in total opioids dispensed in NSW under the Pharmaceutical Benefits Scheme (PBS) between 2014 and 2020 from 929.1 to 685.5 oral morphine equivalent doses (OME) per 1,000 population per day (**Figure 1**).
Figure 2: Percentage of oral morphine equivalent dose (OME) dispensed, by age group and sex, NSW, 2014 to 2020

Source: Pharmaceutical Benefits Scheme

Notes: Oral Morphine Equivalent (OME) is based on the idea that different doses of different opioids may give a similar analgesic effect. Where the doses of two different opioids are considered to give a comparable analgesic effect, they are deemed to be equianalgesic doses (NDARC, 2014). More information is provided in the methods section (Appendix C). The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

Those aged 55–64 years were dispensed the most opioids in NSW under the PBS between 2014 and 2020, as measured by oral morphine equivalent dose (OME), accounting for 22.3% of the total opioids dispensed in NSW (Figure 2). For each age group over 65 years, females were dispensed a greater percentage of opioids than males, potentially reflecting the larger number of females than males in those age groups in the general population.
Figure 3: Pattern of opioid prescriptions dispensed to different age groups, by percentage of total for each opioid, NSW, 2014 to 2020

Source: Pharmaceutical Benefits Scheme

Notes: The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

Dispensing patterns for both buprenorphine and fentanyl over the period 2014 to 2020 show a linear increase in line with increased age (Figure 3). Buprenorphine is a recognised treatment option for chronic pain in the elderly, which is consistent with increased dispensing of buprenorphine in this age group (Vadivelu & Hines, 2008).
Figure 4: Pattern of opioid prescriptions dispensed to different age groups, by percentage of total for each age group, NSW, 2014 to 2020

Source: Pharmaceutical Benefits Scheme

Notes: The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

Codeine and oxycodone were the most commonly prescribed opioids dispensed to all age groups in NSW over the period from 2014 to 2020 (Figure 4).

Codeine was the most commonly dispensed opioid to those aged 15–24 years (55% of opioid prescriptions dispensed to this age group were codeine), whereas those under 15 years were more commonly dispensed oxycodone (53% of opioid prescriptions dispensed to this age group were oxycodone). This likely stems from evidence regarding the risk of codeine ‘ultrarapid metabolisers’ who metabolise codeine to morphine more rapidly and more completely (TGA, 2015; Dean, 2012). The TGA advised all codeine products should no longer be used in children under 12 years of age, or in children aged 12-18 years who have recently undergone surgery to remove their tonsils or adenoids (TGA, 2017). This explains the larger percentage of oxycodone dispensed in the <15 years age group in Figure 4. Note that Figure 3 demonstrates those aged under 15 years and 15–24 years were dispensed a relatively small amount of opioids compared with older age groups.
When the potency of each type of opioid is taken into account, oxycodone represented the largest percentage of opioids dispensed in NSW, accounting for 36-40% of OME doses over the period from 2014 to 2020 (Figure 5). Between 2014 and 2020, there was a noticeable decrease in fentanyl OME dispensing (from 15% in 2014 to 7% in 2020, of all OME); and an increase in tapentadol OME dispensing, newly listed on the PBS in 2014 (from 1% in 2014 to 17% in 2020, of all OME). In 2020 tapentadol represented the second largest percentage of opioids dispensed in NSW by OME (17%). The potency of fentanyl is highlighted given the relatively low percentage of prescriptions dispensed (see Figure 4) in comparison to the large percentage of OME dispensed represented by fentanyl in NSW (Figure 5).
Figure 6: Age- and sex-adjusted OME dispensing per 1,000 persons per day, by socioeconomic status*, NSW, 2014 to 2020

Source: Pharmaceutical Benefits Scheme

Notes: Oral Morphine Equivalent (OME) is based on the idea that different doses of different opioids may give a similar analgesic effect. Where the doses of two different opioids are considered to give a comparable analgesic effect, they are deemed to be equianalgesic doses (NDARC, 2014). More information is provided in the methods section (Appendix C). The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

* According to the Socio-Economic Indexes for Areas (SEIFA) developed by the Australian Bureau of Statistics.

In NSW between 2014 and 2020, the two lowest socioeconomic groups showed higher OME dispensing per 1,000 people per day compared with the highest socioeconomic group (Figure 6). Data suggest that there was a decrease in OME dispensing per 1,000 persons per day across each group, most notably in the two lowest socioeconomic groups.
Figure 7: Age-adjusted OME dispensing per 1,000 persons per day, by remoteness, NSW, 2014 to 2020

Source: Pharmaceutical Benefits Scheme

Notes: Oral Morphine Equivalent (OME) is based on the idea that different doses of different opioids may give a similar analgesic effect. Where the doses of two different opioids are considered to give a comparable analgesic effect, they are deemed to be equianalgesic doses (NDARC, 2014). More information is provided in the methods section (Appendix C). The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

Very remote, remote and outer regional had the highest rates of OME dispensing per 1,000 persons per day over the period from 2014 to 2020 (Figure 7). Data for all areas appeared to show decreases in OME per 1,000 persons per day between 2016 and 2020.
Over the period 2014 to 2020, most metropolitan Local Health Districts (LHDs) in NSW had lower rates of opioids dispensed compared with regional LHDs in terms of OME per 1,000 population per day (Figure 8). Many LHDs appeared to show decreases in OME dispensing under the PBS over this period.
Figure 9: The percentage of people exposed to PBS dispensed benzodiazepines and opioids concurrently, among people dispensed opioids under the PBS, NSW 2015-2020

Source: Pharmaceutical Benefits Scheme

Notes: Oral Morphine Equivalent (OME) is based on the idea that different doses of different opioids may give a similar analgesic effect. Where the doses of two different opioids are considered to give a comparable analgesic effect, they are deemed to be equianalgesic doses (NDARC, 2014). Estimated period of exposure is based on P75. More information is provided in the methods section (Appendix C). The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

Figure 9 shows the estimated percentage of people exposed to opioids and benzodiazepines concurrently, among people exposed to opioids, where exposure is from medicines dispensed under the PBS only. The figure shows both a >14 days co-exposure and a >60 days co-exposure estimate. Between 2015 and 2020 the indicators appeared to stay relatively stable: 2015 estimates were 9.8% (>14-days) and 7.2% (>60-days); and for 2020 estimates were 9.0% (>14-days) and 6.6% (>60-days).

1 There are limitations to both measures. The >14 days period may misclassify changing between medicines as co-exposure; while the longer >60 days co-exposure may misclassify short periods of co-exposure as monotherapy.
**Figure 10:** The percentage of people exposed to PBS dispensed pregabalin and opioids concurrently, among people dispensed opioids under the PBS, NSW 2015-2020

![Diagram showing percentage of people exposed to PBS dispensed pregabalin and opioids concurrently, among people dispensed opioids under the PBS, NSW 2015-2020.](image)

**Source:** Pharmaceutical Benefits Scheme

**Notes:** Oral Morphine Equivalent (OME) is based on the idea that different doses of different opioids may give a similar analgesic effect. Where the doses of two different opioids are considered to give a comparable analgesic effect, they are deemed to be equianalgesic doses (NDARC, 2014). Estimated period of exposure is based on P75. More information is provided in the methods section (Appendix C). The PBS dataset includes information on prescriptions (subsidised and under co-payment) dispensed from community and private hospital pharmacies, but excludes private prescriptions. More information on the PBS dataset is provided in the Appendix.

Figure 10 shows the estimated percentage of people exposed to opioids and pregabalin concurrently, among people exposed to opioids, where exposure is from medicines dispensed under the PBS only. The figure shows both a >14 days co-exposure and a >60 days co-exposure estimate. Between 2016 and 2020 the indicators appeared to stay relatively stable; 2016 estimates were 5.9% (>14-days) and 3.4% (>60-days); and for 2020 estimates were 5.8% (>14-days) and 3.4% (>60-days).

Pregabalin was first listed on the PBS in March 2013. Like other drugs presented here, pregabalin can be purchased under a private prescription (i.e. not subsidised under the PBS) and those cases would not be captured as part of this analysis.

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2 There are limitations to both measures. The >14 days period may misclassify changing between medicines as co-exposure; while the longer >60 days co-exposure may misclassify short periods of co-exposure as monotherapy.
1.2 Opioid use at the population level

Table 1: Self-reported recent use of painkillers/pain relievers and opioids for non-medical use among people aged 14 years or older, age-standardised percentage (%), by remoteness and socioeconomic status, Australia, 2016 and 2019

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<thead>
<tr>
<th></th>
<th>2016</th>
<th>2019</th>
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<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>3.6</td>
<td>2.7#</td>
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<tr>
<td><strong>By area:</strong></td>
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<tr>
<td>Major cities</td>
<td>3.3</td>
<td>2.6#</td>
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<tr>
<td>Inner regional</td>
<td>3.6</td>
<td>2.5#</td>
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<tr>
<td>Outer regional</td>
<td>4.2</td>
<td>3.5</td>
</tr>
<tr>
<td>Remote / Very remote</td>
<td>*6.6</td>
<td>*4.1</td>
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<tr>
<td><strong>By socioeconomic status</strong></td>
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</tr>
<tr>
<td>1st (most disadvantaged)</td>
<td>4.8</td>
<td>3.0#</td>
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<tr>
<td>2nd</td>
<td>4</td>
<td>3.0#</td>
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<tr>
<td>3rd</td>
<td>3.6</td>
<td>2.8</td>
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<td>4th</td>
<td>2.8</td>
<td>2.8</td>
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<tr>
<td>5th (least disadvantaged)</td>
<td>2.6</td>
<td>1.8#</td>
</tr>
</tbody>
</table>

Notes: Excludes over-the-counter medications such as paracetamol and aspirin.
# Statistically significant decrease
* Estimate has a relative standard error of 25% to 50% and should be used with caution.

In Australia, there was a reduction in the percentage of people using ‘pain-killers/pain relievers and opioids for non-medical use’ between 2016 and 2019 (Table 1). Driving this change was the percentage of people using codeine for non-medical purposes falling from 3.0% to 1.5% during the same period. This aligns with the rescheduling of codeine in 2018 making it a prescription only medication. Statistically significant decreases were seen across most strata by area and by socioeconomic status.

**Wastewater**

Wastewater analyses showed that, from August 2018 to June 2021, estimated average consumption of oxycodone was higher in regional NSW compared with Sydney. This regional to capital city difference was observed in most states and territories. In NSW, estimated consumption of oxycodone was generally higher between August 2018 and February 2020, compared with April 2020 to June 2021.

From August 2018 to June 2021, estimated average consumption of fentanyl decreased, other than one spike in Sydney in December 2020. Throughout this time period there was higher estimated consumption in regional NSW compared with Sydney; however estimated regional NSW consumption rates were lower in April 2021 than most Sydney consumption estimates in 2018 and 2019.

From August 2018 to June 2021, estimated average consumption of heroin has stayed relatively stable in NSW. Sydney has had consistently higher estimated average consumption compared with regional NSW.

Source: National Wastewater Drug Monitoring Program – 14th Report, October 2021, Australian Criminal Intelligence Commission
1.3 Opioid use in selected populations in NSW

Figure 11: Self-report of drug reported as injected most often in the past month among people who inject drugs, NSW, 2003 to 2020

From 2003 to 2020 in NSW among people who inject drugs, heroin remained the drug reported as being injected most often in the past month (IDRS NSW, 2020), despite the increased use of methamphetamine as the drug injected most often in this group over this period (Figure 11).

Among people surveyed at Needle and Syringe Program services, the most frequently reported last drug injected in 2020 was methamphetamine (35%); heroin was the second most reported (28%) (ANSPS, 2016-20).
Of the Reception Screening Assessments (RSA) conducted among those entering prison in NSW in 2020, around 10% reported using heroin in the four weeks preceding incarceration; and 3% reported recent use of non-prescribed pharmaceutical opioids (Figure 12). Rates appear to have remained relatively stable since 2017.

For a range of reasons, the clinical information provided by people on entry to or during custody may not always be accurate. For example, drug or alcohol use may be inflated, underestimated or denied.
1.4 Heroin purity

**Figure 13:** Median purity of analysed heroin seizures by NSW Police, NSW, 2010-11 to 2019-20.

Heroin seizures by NSW Police that were tested for purity showed an increase in the median purity from 23.2% in 2012-13 to 73.5% in 2019-20 *(Figure 13).*

**Figure 14:** Median purity of analysed heroin seizures by Australian Federal Police, NSW, 2010-11 to 2019-20.

The median purity values for analysed heroin seizures by Australian Federal Police varied during 2010-11 to 2019-20, with values ranging from 43.4% in 2011-12 to 75.3% in 2018-19 *(Figure 14).*

**Notes:** The shaded region represents the maximum and minimum purity values of the analysed heroin seizures. The values indicate the range of purity values estimated. Changes to the Drug Misuse and Trafficking Regulation in 2017 for seized substances requiring testing may affect trend analyses.

The figures do not represent the purity values of all heroin seizures, only those seizures that have been analysed at a forensic laboratory. The period of time between the date of seizure by police and the date of receipt at the laboratory and subsequent analysis can vary greatly. No adjustment has been made to account for double counting data from joint operations between the Australian Federal Police and NSW police (Australian Criminal Intelligence Commission, 2010-2020b).
Table 2: Number of heroin seizures and heroin seizures analysed, by police agency, NSW 2010-11 to 2019-20

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<td><strong>Number of seizures analysed</strong></td>
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<td>8</td>
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<td>200</td>
<td>144</td>
<td>73</td>
<td>141</td>
<td>71</td>
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Source: Australian Criminal Intelligence Commission – Illicit Drug Data Report

Note: No adjustment has been made to account for double counting data from joint operations between the Australian Federal Police and NSW police (Australian Criminal Intelligence Commission, 2010-2020b).

The total number of heroin seizures increased from 940 in 2010-11 to 1,298 in 2019-20, whilst the total number of heroin seizures analysed decreased from 197 in 2010-11 to 71 in 2019-20 (Table 2).
2. Health harms from opioid use

2.1 Suspected opioid-related ambulance callouts

Figure 15a: Number of naloxone administrations per quarter by NSW Ambulance, July 2013 to June 2021

Source: NSW Ambulance

Note: Cases included where naloxone administration (Pharmacology: ‘215’) was in either the electronic Medical Record (eMR) or Patient Health Care Record (PHCR).

The number of ambulance callouts where naloxone was administered stayed relatively stable between 2013 and 2019 (from around 500 to 700 per quarter), but declined from Q3 2020 to around 400 per quarter (Figure 15a).
Generally, the 35–44 years age group made up the largest percentage of naloxone administrations until the latest year where the percentage was similar to the 45–54 years and 25–34 years age groups (Figure 15b).

Naloxone became subsided and more widely available for people in the community through the take home naloxone program in December 2019.
2.2 Opioid-related emergency department presentations

Figure 16: Heroin-related emergency department presentations per 1,000 presentations, NSW, 2011-12 to 2020-21

Heroin-related presentations to NSW emergency departments have remained stable between 2011-12 and 2020-21, with a slight decline between 2019-20 and 2020-21 (Figure 16). For context, there was a decrease in all hospital admissions in 2020-21, likely in part to be due to the COVID-19 pandemic.

Drug-related emergency department presentation data from the NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system (PHREDSS) is likely to be an undercount. Therefore, the emergency department data presented in this report should be used to analyse trends over time or signals in the data, rather than as a measure of burden for drug-related harm.
The highest rates of heroin-related emergency department presentations in NSW over the period 2012-13 to 2020-2021 were in those aged 35–44 years (Figure 17).
In NSW, males had more than double the rate of heroin-related emergency department presentations in 2020-21 compared with females (Figure 18). These rates have remained largely consistent over the period from 2011-12 to 2020-21.

**Source:** NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system (PHREDSS)
Figure 19: Percentage of heroin-related emergency department presentations, by triage category, NSW, 2011-12 to 2020-21

Source: NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system (PHREDSS)

Notes:
Triage category 1 - treatment immediately or within two minutes (immediately life-threatening condition)
Triage category 2 - treatment within 10 minutes (imminently life-threatening condition)
Triage category 3 - treatment within 30 minutes (potentially life-threatening condition)
Triage category 4 - treatment within one hour (potentially serious condition)
Triage category 5 - treatment within two hours (less urgent condition)

The percentage of heroin-related emergency department presentations triaged into the most urgent group (treatment immediately or within two minutes) has remained stable over the last 10 years, whilst the percentage in triage category 2 has increased (Figure 19).
Oxycodone and codeine related emergency department presentations have continued to decline since 2015-16. Fentanyl related emergency department presentations have stayed relatively stable since 2011-12 (Figure 20).

Source: NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system (PHREDSS)

Of note, the selection criteria for pharmaceutical opioid-related emergency department presentations were different from heroin-related emergency department presentations. Therefore, it is difficult to make direct comparisons between heroin- and pharmaceutical opioid-related emergency department presentations. Furthermore, not all types of pharmaceutical opioids were readily identified in the emergency department data analysis.
In NSW between 2013-14 and 2017-18, fentanyl-related emergency department presentations were higher in rural and regional areas compared with metropolitan Sydney (Figure 21). However, between 2018-19 and 2020-21, rates have remained comparable.

Source: NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system (PHREDSS)
In contrast to fentanyl, heroin-related emergency department presentations were higher in metropolitan Sydney hospitals compared with rural and regional hospitals in NSW across the period from 2011-12 to 2020-21. (Figure 22)
2.3 Opioid-related hospitalisations

Figure 23: Rate of opioid-related hospitalisations per 100,000 population, by public and private hospitals, NSW, 2010-11 to 2019-20

The rate of opioid-related hospitalisations in NSW in 2019-20 was 157 per 100,000 population (Figure 23). Though there appeared to be a slight increase between 2010-11 and 2013-14, this rate remained stable over the period from 2013-14 to 2019-20.

In NSW across the period from 2010-11 to 2019-20, opioid-related hospitalisations were more frequently coded as ‘mental health and behavioural disorders’ than ‘injury, poisoning and certain other consequences of external causes’. These are the two main categories within the International Classification of Diseases to identify opioid-related presentations.
Figure 24: Rate of opioid-related hospitalisations per 100,000 population to all hospitals, by sex, NSW, 2010-11 to 2019-20

Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: The shaded area represents the 95% confidence interval for each data point.

The rate of opioid-related hospitalisations in NSW was higher for males than females across the period from 2010-11 to 2019-20. In 2019-20, males had an opioid-related hospitalisation rate of 193 per 100,000 population compared with 126 per 100,000 population in females (Figure 24). The difference between males and females also appears to be increasing over time.
Figure 25: Rate of opioid-related hospitalisations per 100,000 population to all hospitals, by remoteness, NSW, 2010-11 to 2019-20

Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: The shaded area represents the 95% confidence interval for each data point. Outer regional/remote refers to the ARIA designations of: ‘outer regional’, ‘remote’ and ‘very remote.’

In NSW in 2019-20, opioid-related hospitalisations were slightly lower in outer regional/remote areas (140 per 100,000 population) compared with major cities and inner regional areas (158 per 100,000 population and 152 per 100,000 population respectively) (Figure 25).

All areas have seen slight increases in opioid-related hospitalisations compared with estimates from 2010-11: major cities (135 per 100,000 population); inner regional (119 per 100,000 population); and outer regional/remote (108 per 100,000 population).
In NSW, rates of opioid-related hospitalisations were far higher in Aboriginal people than non-Aboriginal people, and this disparity increased over the period from 2010-11 to 2019-20 (Figure 26). In 2019-20, the rate of opioid-related hospitalisations was 828 per 100,000 population among Aboriginal people compared with 138 per 100,000 population for non-Aboriginal people. The count of opioid-related hospitalisations for Aboriginal and non-Aboriginal people from 2010-11 to 2019-20 are shown in Table 3.
Table 3: Counts of opioid-related hospitalisations to all hospitals, by Aboriginality, NSW, 2010-11 to 2019-20

<table>
<thead>
<tr>
<th>Year</th>
<th>Aboriginal</th>
<th>Non-Aboriginal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>743</td>
<td>6,456</td>
</tr>
<tr>
<td>2011-12</td>
<td>793</td>
<td>6,807</td>
</tr>
<tr>
<td>2012-13</td>
<td>921</td>
<td>7,471</td>
</tr>
<tr>
<td>2013-14</td>
<td>1,038</td>
<td>8,351</td>
</tr>
<tr>
<td>2014-15</td>
<td>1,086</td>
<td>8,859</td>
</tr>
<tr>
<td>2015-16</td>
<td>1,223</td>
<td>8,972</td>
</tr>
<tr>
<td>2016-17</td>
<td>1,365</td>
<td>9,289</td>
</tr>
<tr>
<td>2017-18</td>
<td>1,431</td>
<td>9,766</td>
</tr>
<tr>
<td>2018-19</td>
<td>1,478</td>
<td>9,226</td>
</tr>
<tr>
<td>2019-20</td>
<td>1,433</td>
<td>8,528</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11,511</td>
<td>83,725</td>
</tr>
</tbody>
</table>

Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: Based on data from the NSW Admitted Patient Data and Admitted Patient, Emergency Department Attendance and Deaths Register dataset (Centre for Epidemiology and Evidence, NSW Ministry of Health), from 2010-11 to 2019-20, the estimated percentage of NSW admitted patient records correctly reported for Aboriginal people rose from 72.5% to 89.2%. Similar improvements in reporting of Aboriginal people are expected for the hospitalisation data used for this report (NSW Combined Admitted Patient Epidemiology Data (CAPED), Centre for Epidemiology and Evidence, NSW Ministry of Health). Most incorrect reporting in the hospitalisations data is due to Aboriginal people incorrectly being reported as non-Aboriginal. There are also a relatively small percentage of records with missing information on Aboriginal status. For information on the method of calculating the level of reporting of Aboriginal people hospitalised, see https://www.healthstats.nsw.gov.au/#/page/Enhanced-Reporting-of-Aboriginality Similar improvements in reporting of Aboriginal status over time have been reported at a national (census) level, see https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2077.0main+features52006-2011
Figure 27: Number of opioid-related hospitalisations to all hospitals, where people were reported as Aboriginal, by remoteness area, NSW, 2010-11 to 2019-20

The number of opioid-related hospitalisations where people were reported as Aboriginal was highest in major cities compared with inner regional, and outer regional and remote areas. In 2019-20 there were 866 opioid-related hospitalisations in major cities, 342 in inner regional areas, and 144 in outer regional and remote areas, where people were reported as Aboriginal (Figure 27).

In contrast, as a percentage of opioid-related hospitalisations where Aboriginality was reported, outer regional and remote areas had the highest percentage of hospitalisations where people were reported as Aboriginal. In 2019-20, 11% of opioid-related hospitalisations in major cities, 21% in inner regional areas, and 30% in outer regional and remote areas were hospitalisations where people were reported as Aboriginal (Figure 28).
Figure 28: Percentage of opioid-related hospitalisations where people were reported as Aboriginal, by remoteness area, NSW, 2010-11 to 2019-20

Source: NSW Combined Admitted Patient Epidemiology Data (CAPEd), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: Based on data from the NSW Admitted Patient Data and Admitted Patient, Emergency Department Attendance and Deaths Register dataset (Centre for Epidemiology and Evidence, NSW Ministry of Health), from 2010-11 to 2019-20, the estimated percentage of NSW admitted patient records correctly reported for Aboriginal people rose from 72.5% to 89.2%. Similar improvements in reporting of Aboriginal people are expected for the hospitalisation data used for this report (NSW Combined Admitted Patient Epidemiology Data (CAPEd), Centre for Epidemiology and Evidence, NSW Ministry of Health). Most incorrect reporting in the hospitalisations data is due to Aboriginal people incorrectly being reported as non-Aboriginal. There are also a relatively small percentage of records with missing information on Aboriginal status and these records have been excluded from the analyses. For information on the method of calculating the level of reporting of Aboriginal people hospitalised, see https://www.healthstats.nsw.gov.au/#/page/Enhanced-Reporting-of-Aboriginality. Similar improvements in reporting of Aboriginal status over time have been reported at a national (census) level, see https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2077.0main+features52006-2011.
Figure 29: Rate of opioid-related hospitalisations per 100,000 population to all hospitals, by socioeconomic status*, NSW, 2010-11 to 2019-20

Source: NSW Combined Admitted Patient Epidemiology Data (CAPEd), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: The shaded area represents the 95% confidence interval for each data point. The most recent population estimates by socioeconomic status available on SAPHaRI are for 2016. In this analysis, the 2016 population estimates by socioeconomic status have been carried forward to provide the denominators for rate calculations in 2017-18 and 2018-19. The effect is that rate estimates in this analysis for 2017-18 and 2018-19 may be slightly higher than expected given trends in population growth in NSW.

* According to the Socio-Economic Indexes for Areas (SEIFA) developed by the Australian Bureau of Statistics.

Over the period 2010-11 to 2019-20 in NSW, socioeconomic status was clearly reflected in the rate of opioid related hospitalisations, with the most socioeconomically disadvantaged group having the highest rate of hospitalisations (211 per 100,000 population in 2019-20) compared with the least disadvantaged group (123 per 100,000 population in 2019-20) (Figure 29).
**Figure 30:** Rate of opioid-related hospitalisations per 100,000 population to all hospitals, by age group, NSW, 2010-11 to 2019-20

Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health

Notes: The shaded area represents the 95% confidence interval for each data point.

Similar to opioid-related ED presentations, those aged 35–44 years had the highest rate of opioid-related hospitalisations in 2019-20 at 254 per 100,000 population (**Figure 30**). Increases were seen across the period from 2010-11 to 2019-20 in all groups aged 35 years and older, with a decrease in those aged 25–34 years.
2.4 Treatment for opioid use

**Opioid Pharmacotherapy Treatment**

As at 30 June 2020, there were 22,949 people in NSW with an active authority to receive opioid pharmacotherapy for the treatment of opioid dependence. This is inclusive of data from public, private and correctional settings across NSW. Of these, approximately 60% had an active authority for methadone, and 40% for buprenorphine. Males accounted for approximately 67% of clients in each year between 2017 and 2020 (Figure 31).

**Figure 31:** Number of clients receiving opioid pharmacotherapy, by pharmacotherapy type, on a snapshot date, NSW, 2017 to 2020

![Graph showing number of clients receiving opioid pharmacotherapy](image)

**Source:** National Opioid Pharmacotherapy Statistics Annual Data (NOPSAD), AIHW

**Note:** NOPSAD data is collected for a snapshot date (for NSW, 30 June each year). This data represents the number of people in NSW who have an active authority to receive opioid pharmacotherapy for the treatment of opioid dependence on 30 June of that year. The buprenorphine\* category includes 1) buprenorphine, 2) buprenorphine LAI (long-acting injection), and 3) buprenorphine-naloxone. Increases to client numbers in NSW between the 2019 and 2020 snapshot could be attributed to the introduction of buprenorphine LAI during the year. The additional prescribing of buprenorphine occurring in correctional facilities may have contributed to an increase in access to treatment. Some Local Health Districts reported having capacity to increase the number of new patients more than usual due to depot buprenorphine.
**Closed Drug and Alcohol Treatment Episodes**

Following assessment, clients in NSW with an identified principal drug of concern within the opioid category can receive services from a specialist NSW Health funded drug and alcohol services. These services can be provided within a government or non-government facility. The main services provided are listed in Table 4. In total there were 4,057 closed treatment episodes provided by NSW government services, and 925 closed treatment episodes provided by non-government services in NSW in 2019-2020 to clients with an identified principal drug of concern of opioids (Figure 32).

Figure 32: Number of closed treatment episodes by NSW Health-funded drug and alcohol services for opioids as principal drug of concern, NSW, 2017 to 2020

Source: NSW Alcohol and Other Drugs Treatment Service Minimum Data Set, Centre Alcohol and Other Drugs, NSW Ministry of Health

Note: Administrative closed service episodes and Commonwealth funded agencies excluded. Treatment episodes for the NSW Health funded Opioid Treatment Program are excluded from this data, as they are represented in the NOPSAD data (Figure 31).

---

4 A treatment episode is the unit of measure for the NSW Minimum Data Set Drug and Alcohol Treatment Services (MDS DATS) collection. There is a clear start and end date which marks the period of time the client receives treatment from the service provider. It has a distinct main service to be provided by the service provider and a principal drug of concern identified as an issue to be treated. The treatment episode is closed when the treatment is completed. The MDS can describe sequential and concurrent service episodes.
Table 4: Number of closed treatment episodes by NSW Health-funded drug and alcohol services for opioids as principal drug of concern, NSW, 2020

<table>
<thead>
<tr>
<th>Main service provided</th>
<th>Counts</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultation activities</td>
<td>1,304</td>
<td>26%</td>
</tr>
<tr>
<td>Counselling</td>
<td>1,092</td>
<td>22%</td>
</tr>
<tr>
<td>Assessment Only</td>
<td>880</td>
<td>18%</td>
</tr>
<tr>
<td>Withdrawal Management (detox)</td>
<td>627</td>
<td>13%</td>
</tr>
<tr>
<td>Support and case management only</td>
<td>618</td>
<td>12%</td>
</tr>
<tr>
<td>Rehabilitation activities</td>
<td>441</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Information and education only</td>
<td>7</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Maintenance pharmacotherapy (Non-Opioid)</td>
<td>&lt;5</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Involuntary drug and alcohol treatment program</td>
<td>&lt;5</td>
<td>&lt;1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,982</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: NSW Alcohol and Other Drugs Treatment Service Minimum Data Set, Centre Alcohol and Other Drugs, NSW Ministry of Health

Notes: Administrative closed service episodes and Commonwealth funded agencies excluded. Treatment episodes for the NSW Health funded Opioid Treatment Program are not included in this table. Includes data from government and non-government services. Definitions of 'main service provided' are provided in Appendix C, as per the Data Dictionary and Collection Requirements for the NSW Minimum Data Set for Drug and Alcohol Treatment Services.
2.5 Opioid-related deaths

Figure 33: Total opioid deaths (opioid-induced and opioid-related deaths), and opioid-induced deaths only, by number of deaths and rate of deaths per 100,000 population, NSW, 1999 to 2019

Source: Mortality estimates for years up to 2005 are based on Australian Bureau of Statistics death registration data. Data from 2006 onwards were provided by the Australian Coordinating Registry, Cause of Death Unit Record File; the data for the two most recent years are preliminary (SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health)

Notes: Data is presented on when drugs directly cause a death and coded as the underlying cause of death (drug-induced), such as an overdose, and when they contribute to a death and coded as an associated cause of death (drug-related), such as drowning while under the influence.

Total opioid deaths (opioid-induced and –related deaths) increased in NSW between 2004 and 2019 from 187 (2004) to 420 (2019). Opioid-induced deaths (underlying cause of death only) increased from 168 (2004) to 340 (2019) (Figure 33).

Correspondingly, the population rate of total opioid deaths in NSW increased between 2004 and 2019 from 2.8 per 100,000 population (2004) to 5.3 per 100,000 population (2019). For opioid-induced deaths (underlying cause of death only), the rate increased from 2.5 per 100,000 population (2004) to 4.3 per 100,000 population (2019) (Figure 33).
**Figure 34:** Total opioid deaths (opioid-induced and opioid-related deaths) per 100,000 population, by remoteness NSW, 2001 to 2019

Source: Mortality estimates for years up to 2005 are based on Australian Bureau of Statistics death registration data. Data from 2006 onwards were provided by the Australian Coordinating Registry, Cause of Death Unit Record File; the data for the two most recent years are preliminary (SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health)

Notes: ‘Rural and remote’ refers to the ARIA designations of: ‘inner regional’, ‘outer regional’, ‘remote’ and ‘very remote.’ This analysis includes total opioid deaths identified in both underlying (drug-induced) or associated (drug-related) cause of death.

There was an increase in total opioid deaths (opioid-induced and –related deaths) in both metropolitan and rural areas in NSW between 2001 and 2019 (Figure 34). In 2019, rates were similar in regional and remote areas (5.2 per 100,000 population) compared with major cities (5.3 per 100,000 population).
**Figure 35**: Opioid-induced deaths by intent per 100,000 population, NSW, 2007 to 2019

![Graph showing opioid-induced deaths by intent per 100,000 population from 2007 to 2019. The majority of deaths were coded as accidental poisoning.](image)

**Source**: Mortality estimates for years up to 2005 are based on Australian Bureau of Statistics death registration data. Data from 2006 onwards were provided by the Australian Coordinating Registry, Cause of Death Unit Record File; the data for the two most recent years are preliminary (SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health).

**Note**: This analysis includes opioid deaths identified in the underlying (drug-induced) cause of death.

In NSW, between 2007 and 2019 the majority of opioid-induced deaths were coded as an ‘accidental poisoning’ (**Figure 35**). In 2019, the highest rate of opioid-related deaths was for those coded as accidental poisoning (3.6 per 100,000 population), compared with intentional self-poisoning (0.5 per 100,000 population), and undetermined intent (0.2 per 100,000 population).
Figure 36: Deaths where opioids were detected in forensic toxicology, by selected drug type, NSW, 2010 to 2020

Source: NSW Health Pathology Forensic & Analytical Science Service

Notes: At the forensic toxicology laboratory within FASS, prior to 2012, the levels of detection for morphine and codeine were 0.02mg/L. The previous method did not include 6-monoacetylmorphine (6-MAM, a heroin specific metabolite). In September 2014, FASS also implemented the screening method in urine for 6-MAM and 6-acetylcodrine with level of detection (LOD) for both 0.002mg/L. Tapentadol was not included in routine screening methods until April 2019.

Among deaths in NSW where opioids were detected in toxicological analysis over the period from 2010 to 2020, morphine and drugs that can be metabolised into morphine (coded as morphine/heroin/codeine) were the most commonly detected group (Figure 36). In 2020, there were 758 deaths in total where an opioid was detected in forensic toxicology in NSW.

Note: Detection of a substance means that the substance was present at the time of death. It does not confirm that the substance detected was the underlying or associated cause of death. In many cases, a number of substances were detected at the time of death.

Determination of the cause of death in cases where forensic toxicology tests were performed is a matter for the coroner. Cause of death information is presented separately above (see Figures 33 to 35).
Figure 37: Deaths where opioids were detected in forensic toxicology, by drug combination, NSW, 2010 to 2020

Among deaths in NSW where opioids were detected in toxicological analysis from 2010 to 2020, many cases had detections of other drugs (Figure 37). For instance, among the 758 deaths where an opioid was detected in 2020, 448 (59%) also had a benzodiazepine detected; and 273 (36%) had an antidepressant detected.

Note that the above groupings are not mutually exclusive, and toxicological analysis for some cases may have identified three or more classes of drugs.

Source: NSW Health Pathology Forensic & Analytical Science Service
Figure 38: Deaths where opioids were detected in forensic toxicology, by remoteness, NSW, 2010 to 2020

Source: NSW Health Pathology Forensic & Analytical Science Service

Notes: The shaded area represents the 95% confidence interval for each data point. ‘Rural and remote’ refers to the ARIA designations of: ‘inner regional’, ‘outer regional’, ‘remote’ and ‘very remote.’

Among deaths in NSW where opioids were detected in toxicological analysis, the rate of deaths for major cities was similar to that in rural and remote areas in 2018 to 2020 (Figure 38). However, the data suggest that rural and remote areas had a slightly higher rate than major cities between 2013 and 2017.
2.6 Opioid-related calls to drug information services

**Figure 39:** Opioid-related phone calls to NSW Alcohol and Drug Information Service (ADIS) NSW, 2012 to 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Buprenorphine</th>
<th>Codeine</th>
<th>Fentanyl</th>
<th>Heroin</th>
<th>Methadone</th>
<th>Morphine</th>
<th>Other opioids</th>
<th>Oxycodone</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>2016</td>
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<td></td>
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<tr>
<td>2017</td>
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<td></td>
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<td></td>
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<tr>
<td>2018</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
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<tr>
<td>2020</td>
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</tr>
</tbody>
</table>

**Source:** Alcohol and Drug Information Service (ADIS), NSW Health. Includes calls to ADIS, Opioid Treatment Line, Stimulant Treatment Line, Cannabis Caution and the Drug & Alcohol Specialist Advisory Service

**Notes:** Alcohol and Drug Information Service (ADIS) is a NSW state-wide telephone service providing education, information, referral, crisis counselling and support about illegal drugs such as heroin, ice and cannabis, as well as legal drugs such as alcohol. ADIS is available to all residents of NSW. The data shown in this figure includes calls to Alcohol and Drug Information Service (ADIS) as well as the St Vincent’s Opioid Treatment Line, Stimulant Treatment Line, calls to ADIS directly related to the NSW Police Force Cannabis Cautioning Scheme, and health professional calls to the Drug and Alcohol Specialist Advisory Service.

Over the period 2012 to 2020, heroin remained the main opioid of concern among opioid-related phone calls to NSW Alcohol and Drug Information Service (**Figure 39**). There has also been an increase in buprenorphine related calls between 2018 (134 calls) and 2020 (263 calls).
**Figure 40:** Total opioid- and codeine combination analgesic-related phone calls to the Poisons Information Centre from NSW callers, NSW, 2015 to 2020

Total opioid-related calls to the Poisons Information Centre from NSW callers decreased between 2017 (2,228 calls) and 2020 (1,759 calls) (**Figure 40**). This is likely to be the result of the rescheduling of over-the-counter codeine in 2018 to a prescription only (S4) substance, also affecting the codeine combination products. This is demonstrated by the decrease in codeine combination analgesic-related calls over this period from 1,177 (2017) to 619 (2020), noting that the total opioid-related calls include the codeine combination analgesic-related calls, which clearly drove this change.

Note that **Figure 40** and **Figure 41** include calls from exposures of various intent types. In 2020, the main intent types include: deliberate-self poisoning (41%); therapeutic error (26%); other intentional (12%); accidental (5%); adverse reaction (8%); and recreational (5%).
Figure 41: Phone calls to the Poisons Information Centre from NSW callers, by selected opioids, NSW, 2015 to 2020

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapentadol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Methadone</td>
<td></td>
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<tr>
<td>Morphine</td>
<td></td>
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<tr>
<td>Buprenorphine +/- Naloxone</td>
<td></td>
<td></td>
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<tr>
<td>Codeine</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Fentanyl</td>
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<tr>
<td>Oxycodone</td>
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<tr>
<td>Oxycodone + naloxone</td>
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<tr>
<td>Tramadol</td>
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</tbody>
</table>

Source: NSW Poisons Information Centre

Notes: All age groups and exposure types were included. Different formulations of drugs such as buprenorphine are included in the one substance group e.g. patches, injectables, films. ‘Codeine’ in the above figure refers to single ingredient products.

Following the listing of tapentadol on the PBS in 2014, there was a marked increase in tapentadol-related calls to the Poisons Information Centre from NSW callers between 2015 and 2020 (Figure 41). There were also slight reductions in calls relating to fentanyl and single ingredient codeine products between 2015 and 2020.
3. Limitations of the data

This report draws on multiple sources of data in order to support a comprehensive, balanced and up-to-date understanding of the evidence around opioid use and harms in NSW. Each source of data has a number of limitations. A brief overview of the limitations of the data used to inform this report is presented below.

**Pharmaceutical Benefits Scheme (PBS) data**

The PBS analyses in this report do not contain Anatomical Therapeutic Classification code N07BC (“Drugs used in opioid dependence”), which includes prescriptions for methadone and buprenorphine when used for managing opioid dependence. This means that the prescriptions for these two opioids will be under numerator in this analysis. All methadone and buprenorphine measures in this report should be assumed to be for the treatment of pain. This same selection criterion has been used by the AIHW in their report *Opioid harm in Australia and comparisons between Australia and Canada* (AIHW, 2018).

The PBS dataset does not contain information on all prescriptions and pharmaceuticals dispensed in NSW. Examples of prescriptions and pharmaceuticals not included in the dataset are: privately dispensed prescriptions; over the counter medications, such as codeine prior to February 2018; and opioids dispensed during a public hospital admission or at discharge. Of note, NSW and the ACT are the only two jurisdictions where PBS data for medicines used in and supplied from public hospitals is not recorded (under the Public Hospital Pharmaceutical Reforms).

The specific condition(s) for which opioids are prescribed are not recorded in the PBS dataset.

Information about how the drug is intended to be administered (for example, how often the drug is taken and for how long) is not recorded. In addition, this analysis assumes that all medication dispensed is consumed by the patient.

Dispensed records are not available until the claim has been processed, meaning some claims can be delayed in appearing in the PBS dataset. Given the data was extracted more than six months after the end of the study period any effect of this delay is likely to be minimal.

**Survey data**

Survey data usually provides the responses of individuals who voluntarily completed a survey. In most cases, a sample of the population was measured and then results weighted to make an estimation about the whole population. Sampling error can occur when the survey group does not accurately reflect the population. This can occur purely by chance or can be a result of the design of the study.

For example, certain populations that may be more difficult to interview, such as people living in regional areas, homeless people, and those in clinical and institutional settings, may be excluded from the survey. Certain groups of respondents may also choose not to participate or provide inaccurate or incomplete responses. For example, people may be unwilling to report their use of illicit drugs. In these cases, bias may be introduced into the results of the study. However, if similar survey methods are used over time and the coverage of the sampling frame does not decline, then trends in the results over time should be reliable.

Surveys that focus on specific population groups, such as people who inject drugs, may not be representative of the general population. However, because of their targeted nature, these surveys may provide an opportunity to obtain much more comprehensive information from the population group of interest.

When reported findings are based on self-reported data, estimates of illicit drug use and related behaviours are likely to be underestimates of actual use.
**Routinely collected data**

Routinely collected data, or administrative data, contains information collected by services or organisations such as hospitals or police as part of their ongoing activities. While these data sources usually have good service or population coverage, they are often not designed for surveillance purposes. If a service does not ask for or record specific information, it is not possible to routinely report on that information using this source. There can also be a bias toward those people who access a service frequently or easily, or where services or organisations have prioritised certain activities. There may be a significant delay in the availability of data due to administrative processes.

Routinely collected data are useful for examining harms at the state level and trends over time, however, there may be challenges in identifying specific groups at higher risk. For example, detailed information is not routinely collected on gender identity or sexual preference in administrative hospital data, which means that information cannot be reported for lesbian, gay, bisexual, transgender, intersex and queer (LGBTIQ) communities.

For specific details of the data used in this report, please refer to the original sources, or for NSW Health data presented, please refer to Appendix C.
## Appendix A: Data sources and description

<table>
<thead>
<tr>
<th>Data source</th>
<th>Data description</th>
<th>Data custodian</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Drug Strategy Household Survey</td>
<td>Survey conducted every two to three years since 1985. Household survey of non-institutionalised persons aged 14 years and over.</td>
<td>Australian Institute of Health and Welfare</td>
</tr>
<tr>
<td>Illicit Drug Reporting System</td>
<td>Annual interview of a sentinel group of people who regularly inject drugs, conducted in Australian capital cities.</td>
<td>National Drug and Alcohol Research Centre</td>
</tr>
<tr>
<td>NSW Health Pathology Forensic &amp; Analytical Science Service</td>
<td>The NSW Health Pathology Forensic &amp; Analytical Science Service is the provider of Forensic Medicine, Forensic Science and Analytical Science Services to the NSW Government. The Service currently provides analytical services to NSW Police Force, NSW Coroner Jurisdiction, NSW Road and Maritime Services, NSW Health, Local Government Bodies and private industry.</td>
<td>NSW Health Pathology</td>
</tr>
<tr>
<td>National Wastewater Drug Monitoring Program</td>
<td>Collection and analysis of wastewater samples across Australia to detect and measure the presence of 13 illicit and licit drugs, with reports published three times per year. In April 2021, 56 wastewater sites were monitored nationally, covering approximately 56% of the Australian population.</td>
<td>Australian Criminal Intelligence Commission</td>
</tr>
<tr>
<td>NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system</td>
<td>The NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance (PHREDSS) system provides daily monitoring of most unplanned presentations to NSW public hospital emergency departments (EDs) and all emergency Triple Zero (000) calls to NSW Ambulance.</td>
<td>Centre for Epidemiology and Evidence, NSW Ministry of Health</td>
</tr>
<tr>
<td>NSW Admitted Patient Data Collection and Combined Admitted Patient Epidemiology Data</td>
<td>This collection records all admitted patient services provided by NSW Public Hospitals, Public Psychiatric Hospitals, Public Multi-Purpose Services, Private Hospitals, and Private Day Procedures Centres.</td>
<td>Centre for Epidemiology and Evidence, NSW Ministry of Health</td>
</tr>
<tr>
<td>National Opioid Pharmacotherapy Statistics Annual Data collection (NOPSAD)</td>
<td>This data collection is compiled from jurisdictional data and provides information about, i) clients receiving opioid pharmacotherapy treatment; ii) the health professionals prescribing opioid pharmacotherapy; and iii) the dosing points (such as pharmacies) that clients attend to receive their medication. The data is a snapshot on a day in June each year. The exact date varies between jurisdictions; NSW data are reported on 30 June each year.</td>
<td>Australian Institute of Health and Welfare</td>
</tr>
<tr>
<td>NSW Minimum Data Set Drug and Alcohol Treatment Services (NSW MDS DATS)</td>
<td>The NSW MDS for Drug and Alcohol Treatment services (NSW MDS DATS) contains information about alcohol and other drug treatment services, the clients who use these services, the types of drug problems for which treatment was sought, and the types of treatment provided. Administrative closed treatment service episodes and services provided by Commonwealth-funded agencies and Justice Health Forensic Mental Health Network are excluded.</td>
<td>Centre for Alcohol and Other Drugs, NSW Ministry of Health</td>
</tr>
<tr>
<td>Alcohol and Drug Information Service</td>
<td>Alcohol and Drug Information Service (ADIS) is a NSW state-wide telephone service providing education, information, referral, crisis counselling and support about illegal drugs such as heroin, ice and cannabis, as well as legal drugs such as alcohol. ADIS is available to all residents of NSW. The data from this service also includes the St Vincent’s Opioid Treatment Line, Stimulant Treatment Line, calls to ADIS directly related to the NSW Police Force Cannabis Cautioning Scheme, and health professional calls to the Drug and Alcohol Specialist Advisory Service.</td>
<td>St Vincent’s Hospital Network</td>
</tr>
<tr>
<td>Data source</td>
<td>Data description</td>
<td>Data custodian</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Justice Health and Forensic Mental Health Network</td>
<td>Justice Health &amp; Forensic Mental Health Network (JH&amp;FMHN) triages all patients entering NSW Correctional Centres. The Reception Screening Assessment (RSA) was completed by a registered nurse or enrolled nurse on the Justice Health electronic Health System. Junee and Parklea Correctional Health are not included in this data extract.</td>
<td>Justice Health and Forensic Mental Health Network</td>
</tr>
<tr>
<td>NSW Poisons Information Centre</td>
<td>The NSW Poisons Information Centre (PIC) provides call centre data on exposure calls to the service. The NSW PIC is a call centre staffed by pharmacists and scientists, who provide poisons information. The Centre also employs clinical toxicologists who provide specialist expertise in the medical management of human poisoning and envenoming.</td>
<td>NSW Poisons Information Centre</td>
</tr>
<tr>
<td>Cause of death unit record file (NSW)</td>
<td>The Cause of Death Unit Record File (COD URF) is provided by the Australian Coordinating Registry for COD URF on behalf of Australian Registries of Births, Deaths and Marriages, Australian Coroners and the National Coronial Information System. The cause of death was compiled and coded by the Australian Bureau of Statistics (ABS) based on data from the data custodians that was correct at that point in time.</td>
<td>Centre for Epidemiology and Evidence, NSW Ministry of Health</td>
</tr>
<tr>
<td>NSW Ambulance electronic Medical Record (eMR) NSW Ambulance Patient Health Care Record (PHCR)</td>
<td>NSW Ambulance records if naloxone was administered to a patient during a callout. NSW Health uses the number of callouts where naloxone was administered as a proxy measure for opioid overdoses in the community. We used data where Naloxone administration was recorded (Pharmacology: ‘215’) in either the electronic Medical Record (eMR) or Patient Health Care Record (PHCR)</td>
<td>NSW Ambulance</td>
</tr>
<tr>
<td>Australian Criminal Intelligence Commission - Illicit Drug Data Report</td>
<td>The Australian Criminal Intelligence Commission produce an annual Illicit Drug Data Report (‘IDDR’). This report synthesizes and presents information on trends, detections, seizures, arrests, purity, profiling and pricing of illicit drugs. The data is collected from state, territory and federal police agencies and forensic laboratories, research institutes and the Department of Home Affairs.</td>
<td>Australian Criminal Intelligence Commission</td>
</tr>
</tbody>
</table>
Appendix B:
Reference list


Appendix C:
Case selection

Pharmaceutical Benefits Scheme

Source
Pharmaceutical Benefits Scheme. Data provided by the Technology Assessment and Access Division, Department of Health, Australian Government. Data analysed by Clinical Quality and Safety Branch, Centre for Alcohol and Other Drugs, NSW Ministry of Health. Data extracted May 2021

Acknowledgements
For their assistance in the analysis of PBS data we thank:
• Kevin Monahan from the Australian Institute of Health Welfare
• Chloe Burns from the Australian Department of Health

Case Selection and analysis
• The data extract was for prescriptions with Anatomical Therapeutic Classification code N02A (“Opioids”) dispensed to NSW residents from 1 July 2013 to 31 March 2021, although only records between 1 January 2014 and 31 December 2020 are included in these analyses. Date was based on date of supply (when the prescription was dispensed).
• These include the following opioids drug groups (drugs are analysed by the active opioid ingredient) and their associated item codes:
  – Buprenorphine
  – Codeine (Includes codeine, codeine + paracetamol, and codeine + aspirin drug preparations)
    • 04286N, 05063L, 01215Y, 03316M, 04275B, 08785J, 04170L, 04171M, 4275B, 08785J, 04170L, 04171M, 10186D
  – Fentanyl
  – Hydromorphone
  – Methadone
    • 01606M, 05399E, 05400F, 01609Q
  – Morphine
  – Oxycodone (includes oxycodone and oxycodone + naloxone preparations)
    – Tapentadol
      • 10091D, 10092E, 10094G, 10096J, 10100N
    – Tramadol
      • 05232J, 08455B, 0861F, 05231H, 08582Q, 05150C, 08843K, 02527B, 08523N, 08524P, 08525Q
  • Data were analysed:
    – As age and sex standardised rates of prescriptions and people per 100 population by calendar year
    – For all opioids, for select opioids (codeine + paracetamol, 50mg oxycodone tablets, fentanyl patches)
    – As age and sex standardised oral morphine equivalent (OME) and defined daily dose (DDD) per 1,000 people per day
    – For all opioids, for select opioids (codeine + paracetamol, 50mg oxycodone tablets, fentanyl patches)
    – By socioeconomic status, LHD, remoteness
  • Inclusion criteria:
    – Date of supply between 1 January 2014 and 31 December 2020
    – Records with complete data recorded
    – Records with postcodes mappable to remoteness, LHD and ABS postal areas within NSW
Notes

- Refer to Section 3 for limitations on PBS data.
- PBS data include prescriptions that were priced under the PBS co-payment thresholds.
- Prescriptions of buprenorphine and methadone under code N07BC (“Drugs used in opioid dependence”) were not included in this analysis, so rates of these opioids will be lower than the true population incidence.
- Geographic analysis is based on patient postcode proportionally assigned to:
  - NSW Local Health District (2010 boundaries)
  - Statistical area 2 (SA2), used for ABS SEIFA mapping (2016 boundaries)
  - Australian Statistical Geography Standard (ASGS)
    - Remoteness Structures (2011 boundaries)
- Socioeconomic status was estimated using ABS Index of Relative Socioeconomic Disadvantage 2016 (IRSD) as a proxy. Deciles were converted to quintiles, where 1 = highest socioeconomic disadvantage and 5 = lowest socioeconomic disadvantage.
Calculations

Calculating OME:
\[
\frac{\text{OME}}{1000 \text{ population} / \text{day}} = \frac{\text{mass (mg)} \times \text{units dispensed} \times 1000 \times \text{conversion factor}}{\text{population} \times \text{days}}
\]
Calculating DDD:
\[
\frac{\text{DDD}}{1000 \text{ population} / \text{day}} = \frac{\text{mass (mg)} \times \text{units dispensed} \times 1000}{\text{DDD (mg)} \times \text{population} \times \text{days}}
\]

Calculating co-prescribing:
Estimated exposure
• The estimated period of exposure (EPE) was calculated from the number of days 75% of people were dispensed the same medicine a second time (P75). The calculation was done at the PBS item code level. Dispensing intervals greater than 180 days and Regulation 49 prescriptions were excluded from the calculation. Where it was not possible to calculate the opioid exposure, this was manually imputed using the mean opioid EPE of the whole cohort (34.71 days).

Polypharmacy
• Polypharmacy is presented in this report as >14 days co-exposure and >60 days co-exposure.
• A >14 days co-exposure represents an estimated period of exposure to a PBS dispensed opioid and a benzodiazepine or pregabalin for more than 14 days.
• A >60 days co-exposure represents an estimated period of exposure to a PBS dispensed opioid and a benzodiazepine or pregabalin for more than 60 days.
• There are limitations to both measures. The >14 days period may misclassify changing between medicines as co-exposure; while the longer >60 days co-exposure may misclassify short periods of co-exposure as monotherapy.
• The data presented are counts of people, not episodes of co-exposure. Therefore a person having multiple periods of co-exposure in a year will only be counted once per year.


Hospitalisations
Source
NSW Combined Admitted Patient Epidemiology Data (CAPEd) and ABS population estimates (SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Data extracted May 2021.

Case Selection and analysis
Data were analysed:
• as age-standardised rates per 100,000 population
• by age, sex, remoteness area, Aboriginal status, socioeconomic status and ICD-10-AM code category (mental health or poisoning)
• for total opioid-related hospitalisations.

Inclusion criteria:
• episode end dates from 1 July 2010 to 30 June 2020
• in persons aged 16 years and over
• in NSW residents attending NSW public and private hospitals as well as interstate public hospitals
• where the primary or secondary diagnoses included the following poisoning or mental/behavioural disorders International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) codes:
  – all opioids: T40.0-T40.4, T40.6 and F11.0-F11.9
  – opioids (mental health diagnosis): F11.0-F11.9
  – opioids (poisoning diagnosis): T40.0-T40.4
• where episode of care was coded as acute, mental health or other
• where episode of care was not an admission to an emergency department only
• 95% confidence intervals for directly standardised rates are calculated using the Dobson method described by HealthStats and are illustrative of error (or “noise”) present in the data. These can be used as a measure of uncertainty and as an inexact measure of potential group differences (HealthStats NSW, 2015).
• Analysis of remoteness areas uses the ABS Accessibility/Remoteness Index of Australia Plus (ARIA plus). This is an index value based on road distance to major service centres e.g. health, education, or retail (GISCA). In the report, remoteness areas are classified as major cities; inner regional; and outer regional, remote and very remote areas combined. The term rural and remote is used when referring generally to areas outside major cities. For example:
  • Major cities includes: Sydney, Newcastle and Wollongong
  • Inner regional includes: Wagga Wagga, Goulburn, Nowra, Dubbo, Tamworth, Taree, Coffs Harbour and Lismore
  • Outer regional includes: Bega, Griffith, Broken Hill, Parkes, Moree
• Remote includes: Hay and Walgett
• Very remote includes: Cobar and Bourke.
• Analysis of socioeconomic status uses the ABS SEIFA Index of Relative Socio-Economic Disadvantage (IRSD). This is an index value that summarises a range of information about the economic and social conditions of people and households within an area to provide a measure of relative disadvantage.
• A recent policy change (PD2017 _015) resulted in patients treated solely within the emergency department being excluded from admitted patient records. A minority of patients managed in short stay areas of emergency departments were still included (HealthStats NSW, 2019).

Notes
• Hospitalisation refers to a period of time during which a person stayed in a hospital for a defined purpose, which could be diagnostic, curative or palliative. A hospital stay starts with a formal process of admission and ends with a formal separation. Hospitalisations are analysed on the basis of separations (i.e. the date that the person completed the hospital episode, rather than the date the person was admitted into the hospital episode).

Emergency department presentations

Source
The NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance (PHREDSS), Centre for Epidemiology and Evidence, NSW Ministry of Health.

Data extracted May 2021

Case selection and analysis
• Data were analysed:
  – as rates per 1,000 unplanned ED Presentations by age, and year
• Inclusion criteria:
  – unplanned ED presentations to 64 NSW hospitals
  – in persons aged 16 years and over
  – arriving from 1 July 2011 to 30 June 2020
  – assigned a provisional diagnosis within one of four PHREDSS alcohol and other drugs surveillance syndromes (overdose/poisoning, alcohol problems, illicit drugs, mental health problems), with the exception of heroin, which is searched across all visits
  – where the nursing assessment text, presenting problem or diagnosis description fields contained any of the terms:
    • heroin; “heroin”, “herion”
    • fentanyl: “fent”, “durogesic”
    • oxycodone: “oxyco”, “oxynorm”, “endone”, “targin”
    • opioid treatment program opioids: “methadone”, “bupren”, “subox”
    • other or unspecified opioids not included in above opioids classes: “opium”, “opioid”, “opiate”, “narcotic”.
  – Except in circumstance where the text related to allergies, history of use, or where opioids were given by Ambulance.

Unplanned presentations: Unplanned presentations include presentations that were not pre-arranged, with the majority classified as emergency presentations. Unplanned presentations are defined by the “ED visit type” field and include the codes: ’01 Emergency Presentation’, ’03 Unplanned Return Visit for continuing condition’, ’09 Person in transit’, ’10 Dead On Arrival’, ’11 Disaster’, and ’13 Current Admitted Patient Presentation’.

Notes
• The opioid key word searches may under count presentations of interest, however, the purpose of surveillance is to identify trends over time rather than estimate burden.
• The analysis depends on both the identification and recording of relevant information during ED triage.
• ED data only include one diagnosis code and coding of diagnoses are conducted by clinicians at the completion of the presentation, not clinical coders. Non-specific codes are used most frequently making the identification of drug types challenging.
• The 64 EDs included in PHREDSS reporting for this report accounted for 86% of total NSW public emergency department activity in 2019-20.
• The number of PHREDSS reporting hospitals have increased over time, although coverage remains lower in rural locations. Coverage was higher in metropolitan Sydney areas (96%) compared with the rest of NSW (73%) and can be reported from January 2011. The PHREDSS system includes continuously updating data, and future improvements to the keyword search strategy may result in updates to previously reported numbers of opioid-related ED presentations.
• ED data are captured at the presentation level (not unique persons).
• Even with the same number of hospitals included in reporting, ED presentations increase over time due to increased service use and population growth.

Abbreviations
• PHREDSS: Public Health Rapid, Emergency, Disease and Syndromic Surveillance
• LHD: Local health district of hospital location
• ED: Emergency department
Deaths (Cause of Death Unit Record File)

Source

Mortality estimates for years up to 2005 are based on Australian Bureau of Statistics death registration data. Data from 2006 onwards were provided by the Australian Coordinating Registry, Cause of Death Unit Record File; the data for the two most recent years are preliminary (SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health). Extracted May 2021.

The Cause of Death Unit Record File (COD URF) is provided by the Australian Coordinating Registry for COD URF on behalf of Australian Registries of Births, Deaths and Marriages, Australian Coroners and the National Coronial Information System.

Case selection and analysis

- Rates were age-adjusted using the Australian standard population as at 30 June 2001.
- Counts of deaths for the latest year of data include an estimate of the number of deaths occurring in that year but registered in the next year.
- The data were derived from ICD-10 codes: T40.0-T40.4, T40.6 and F11.0-F11.9
- Deaths registered between 1999 and 2019.
- For drug-related deaths, a death was counted if the selected ICD-10 codes were found in the underlying or associated causes of death.
- For drug-induced deaths, a death was only counted if the selected ICD-10 codes were found in the underlying cause of death.
- 95% confidence intervals for directly standardised rates are calculated using the Dobson method described by HealthStats and are illustrative of error (or “noise”) present in the data. These can be used as an indication of uncertainty and as an inexact measure of potential group differences (HealthStats NSW, 2015).
- Only NSW residents are included.

Notes

- Data for 2018-2019 are preliminary, data for 2017 are revised, and data 1999 to 2016 are final.

Deaths – Forensic Toxicology, Forensic & Analytical Science Service

Source

Forensic toxicology laboratory, NSW Health Pathology Forensic & Analytical Science Service.

Extracted January 2022

Case selection and analysis

- Dates are based on ‘post-mortem date’. Other analysis of these data may instead be based on the ‘approved date’.
- Post-mortem dates included were between 1 January 2010 and 31 December 2020.
- Analysis includes only those aged 16 years and over.
- Geographic analyses use the place of death postcode which are proportionately assigned to The Australian Statistical Geography Standard (ASGS) Remoteness Structure. Due to small numbers, four areas are grouped together: inner regional, outer regional, remote, and very remote.
- 95% confidence intervals for directly standardised rates are calculated using the Dobson method described by HealthStats and are illustrative of error (or “noise”) present in the data. These can be used as an indication of uncertainty and as an inexact measure of potential group differences (HealthStats NSW, 2015).
- The following substances names are captured to identify opioids:
  - 6-acetylcodine
  - 6MAM
  - Acetylcodine
  - Acetylfentanyl
  - Alfentanil
  - Buprenorphine
  - Buprenorphine (free)
  - Buprenorphine (total)
  - Carfentanil
  - Codapane
  - Codeine
  - Codeine (free)
  - Codeine (total)
  - Codeine-6-Glucuronide
  - Codeine-6-Glucone
  - Dextromethorphan,Methorphan,Levomethorphan
  - Dextropropoxyphene
  - Diacetylmorphine
  - Dihydrocodeine
  - Diphenoxylate
  - EDDP
  - Fentanyl
  - Furanylferntanyl
  - Heroin
  - Hydrocodone
  - Hydromorphone
  - Levorphanol
  - Loperamide
  - Mersyndol
  - Methadone
  - Methadone metabolite
  - Morphine
  - Morphine (free)
  - Morphine (total)
  - Morphine-3-glucuronide
  - Morphine-6-glucuronide
  - Morphine sulfate
  - Norbuprenorphine
  - Norbuprenorphine (free)
  - Norbuprenorphine (total)
  - Norpethidine
Notes

• Deaths from all internal FASS classifications are included in this analysis and are not limited to ‘drug related’. Other classifications include but are not limited to: ‘drowning’ and ‘obscure’.
• All sample types available are included in this analysis including ‘blood post-mortem’. Other sample types include but are not limited to: ‘urine’ and ‘liver’, although data remains presented per person, rather than by test.
• ‘Opioids’ in this report refer to synthetic opioids and those naturally derived from opium (which may otherwise be known as ‘opiates’).

The substance names captured to identify selected drug groups are provided below:

<table>
<thead>
<tr>
<th>Drug group</th>
<th>Substance names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphetamines</td>
<td>1-Phenyl-1-chloro-2 methylamino propane hydrochloride; 1-Phenyl-2-nitropropene; 2,5-Dimethoxy-4-ethylamphetamine; 2,5-Dimethoxy-4-iodoamphetamine; 2,5-Dimethoxy-4-methylamphetamine; 4-bromo-2,5-dimethoxyamphetamine; 4-Bromo-3,5-dimethoxyamphetamine; 4-CMA; 4-FA; 4-lodo-2,5-dimethoxyphenethylamine; 4-Methoxymethylamphetamine; 4-MMA; 5-APDB; Amfepramone; Amphetamine; Dexamphetamine; Dexamphetamine Sulfate; Dextroamphetamine; Dibutyline; Dimethylamphetamine; DMAA; EAPB; Ethylamphetamine; Ethylene; Fluoroamphetamine; Fluoromethylamphetamine; Lisdexamphetamine; M-CPP; MCPPPCPP; MDA; MDMA; Mephedrone; Methoxy substituted amphetamine; Methylamphetamine; Methylenedioxy substituted amphetamine; Methylephedrine; MPA; N-ethyl-3,4-methylenedioxy-amphetamine; N-Ethylamphetamine; N-Formyl-3,4-methylenedioxyamphetamine; N-formylamphetamine; Nmethylfluoroamphetamine; P2P; Phentermine; PMA; PMMA; Pseudoephedrine; Pseudoephedrine, Ephedrine; Pyrovalerone; Sudafed; TFMPP</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>Agomelatine; Amitriptyline; Amitriptyline metabolites; Bupropion; Buproprion metabolite; Citalopram, Escitalopram; Clomipramine; Dapoxetine; Desipramine; Desmethylvenlafaxine; Desvenlafaxine; Dothiepin; Doxepin; Duloxetine; Fluoxetine; Fluvoxamine; Imipramine; Mianserin; Mirtazapine; Moclobemide; Nortriptyline; Norvenlafaxine; Paroxetine; Reboxetine; Selegiline; Sertraline; Sertraline metabolite; Sibutramine; Tranylcypromine; Trimipramine; Venlafaxine; Venlafaxine metabolite; Vortioxetine</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>1-Hydroxymidazolam; 7-aminoclonazepam; 7-aminoflunitrazepam; 7-aminonitrazepam; Adinazolam; Alpha-hydroxyalprazolam; Alpha Hydroxymidazolam; Alprazolam; Benzodiazepines; Bromazepam; Bromazolam; Clobazam; Clobazam metabolite; Clonazepam; Clonazolam; D5-Prazepam; Diazepam; Diclazepam; Estazolam; Etizolam; Flualprazolam; Flubromazepam; Flubromazepan; Flunitrazepam; Flurazepam; Flutoprazepam; Hydroxyalprazolam; Hydroxymidazolam; Lorazepam; Midazolam; Moxidazol metabolite; N-desmethylclobazam; Nimetazepam; Nitrazepam; Nordiazepam; Norflexepam; Phenazepam; Temazepam; Triazolam</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>Buprenorphine; Buprenorphine (free); Buprenorphine (total); Norbuprenorphine; Norbuprenorphine (free); Norbuprenorphine (total); Suboxone; Subutex</td>
</tr>
<tr>
<td>Codeine</td>
<td>Cadapane; Codeine; Codeine-6-Glucuronide; Codeine (free); Codeine (total); Mersyndol</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>4-ANPP; Acetylfentanyl; Alfentani; Carfentani; Fentanyl; Furanylfentanyl; Parafluorofentanyl</td>
</tr>
<tr>
<td>Heroin (6-MAM)</td>
<td>6-acetylcodeine; 6MAM; Acetylcodeine; Heroin</td>
</tr>
<tr>
<td>Methadone</td>
<td>Methadone; Methadone metabolite</td>
</tr>
<tr>
<td>Morphine (chemical only)</td>
<td>Morphine; Morphine-3-glucuronide; Morphine-6-glucuronide; Morphine (free); Morphine (total); Morphine sulfate</td>
</tr>
<tr>
<td>Morphine/heroin/codeine</td>
<td>6-acetylcodeine; 6MAM; Acetylcodeine; Codeine; Codeine-6-Glucuronide; Codeine (free); Codeine (total); Diacetylmorphine; Morphine; Morphine-3-glucuronide; Morphine-6-glucuronide; Morphine (free); Morphine (total); Morphine sulfate</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>Paracetamol</td>
</tr>
<tr>
<td>Tapentadol</td>
<td>Tapentadol</td>
</tr>
</tbody>
</table>
Calls to Poisons Information Centre (PIC)

NSW Poisons Information Centre database. Extracted: 31 August 2021

Case selection and analysis

- Data were analysed:
  - By counts of calls and substance name per calendar year
- Inclusion criteria:
  - calls from 1 Jan 2015 to 31 December 2020
  - all NSW callers
  - all age groups
  - all exposure types
- The following substances were captured to identify opioids:
  - Alfentanil
  - Apomorphine
  - Aspirin/Narcotic
  - Buprenorphine
  - Buprenorphine + naloxone
  - Carfentanil
  - Codeine
  - Codeine, combinations
  - Dextromoramide
  - Dextropropoxyphene
  - Dextropropoxyphene, combinations
  - Dihydrocodeine
  - Fentanyl
  - Heroin
  - Hydromorphone
  - Ibuprofen, combinations
  - Methadone
  - Morphine
  - Opioid: other/unknown
  - Opium
  - Oxycodone
  - Oxycodone + naloxone
  - Papaverine
  - Paracetamol + codeine + doxylamine
  - Paracetamol + narcotic (includes codeine)
  - Pentazocine
  - Pethidine
  - Tapentadol
  - Tramadol
  - Tramadol + paracetamol
- The following substances were captured to identify Codeine combination analgesics:
  - Aspirin/Narcotic
  - Codeine, combinations
  - Ibuprofen, combinations (systemic)
  - Paracetamol & codeine & doxylamine
  - Paracetamol/Narcotic

Notes:

- The majority of ‘ibuprofen, combination’ calls involve an opioid. A manual review was undertaken to exclude non-opioid ibuprofen combinations.
- Total calls are presented as unique episodes. All call backs regarding the same patient are excluded.
- There are more substances than total calls, as an episode could involve more than one opioid.
- A small proportion of calls from NSW are handled by interstate PICs and are not included in this dataset.
Main service provided, NSW Minimum Data Set for Drug and Alcohol Treatment Services

The following detail has been taken from the Data Dictionary and Collection Requirements for the NSW Minimum Data Set for Drug and Alcohol Treatment Services (PD2015_014; publication date 27 April 2015)

The main service provided is a data element collected in the NSW Minimum Data Set for Drug and Alcohol Treatment Services.

The main service provided is defined as “The main activity determined at assessment by the service provider to treat the client’s alcohol and/or drug problem for the Principal Drug of Concern/Gambling. A service provided to the client that requires regular contact with staff throughout the service episode.”

For the purposes of the NSW Minimum Data Set for Drug and Alcohol Treatment Services, services are delivered by specialised staff from Drug and Alcohol Services.

The options available for main service provided and their definitions are provided below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code 10</td>
<td>Counselling</td>
<td>Includes any method of individual or group counselling directed towards any therapeutic goals of Drug and Alcohol treatment. This code excludes counselling activity that is part of a rehabilitation program.</td>
</tr>
<tr>
<td>Code 20</td>
<td>Withdrawal management (detoxification)</td>
<td>Any form of withdrawal management, including medicated and non-medicated, in any delivery setting.</td>
</tr>
<tr>
<td>Code 30</td>
<td>Rehabilitation activities</td>
<td>An intensive treatment program that integrates a range of services and therapeutic activities that may include behaviourial treatment approaches, recreational activities, social and community living skills, group work and relapse prevention. Rehabilitation treatment can provide a high level of support (i.e. up to 24 hours a day) and tends towards a medium to longer-term duration.</td>
</tr>
<tr>
<td>Code 40</td>
<td>Pharmacotherapy (opioid)</td>
<td>Includes Methadone, Buprenorphine, Buprenorphine/Naloxone and Slow release oral Morphine.</td>
</tr>
<tr>
<td>Code 48</td>
<td>Pharmacotherapy (non-opioid)</td>
<td>Pharmacotherapy using drugs other than opioid substitutes. Includes Naltrexone, Acamprosate, and Disulfiram. Includes those used as maintenance therapies and those used as relapse prevention.</td>
</tr>
<tr>
<td>Code 50</td>
<td>Consultation activities</td>
<td>Activities undertaken with a client under the care of a clinician or service other than the drug and alcohol clinician performing the consultation or the Drug and Alcohol Service. Activities performed must be specifically for Drug and Alcohol issues and include a clinical assessment, but not involve prescribing maintenance pharmacotherapy. Services that may be included in this category include dual diagnosis and pain management activities.</td>
</tr>
<tr>
<td>Code 60</td>
<td>Support and case management</td>
<td>Used when the other service type descriptions are inadequate and ‘support and case management only’ best describes the service being provided. It is noted that service contacts would generally include a component of support and case management.</td>
</tr>
<tr>
<td>Code 70</td>
<td>Involuntary Drug and Alcohol Treatment (IDAT)</td>
<td>A structured drug and alcohol treatment program that provides medically supervised withdrawal, rehabilitation and supportive interventions to identified patients through involuntary detention.</td>
</tr>
<tr>
<td>Code 91</td>
<td>Assessment only</td>
<td>Where there is no service provided to the client other than a clinical assessment, involving the comprehensive gathering of information to determine the severity of the person’s alcohol and/or other drug use, resulting in the determination of the most appropriate form of service. It is noted that service contacts would generally include an assessment component.</td>
</tr>
<tr>
<td>Code 92</td>
<td>Information and education only</td>
<td>Where there is no service provided to the client other than providing information and education. It is noted that, in general, service contacts would include a component of information and education.</td>
</tr>
<tr>
<td>Code 98</td>
<td>Other</td>
<td>Refers to other treatment types not further defined, such as nicotine replacement therapy or outdoor therapy.</td>
</tr>
</tbody>
</table>