Methamphetamine Use and Related Harms in NSW

Surveillance Report to December 2019

NSW GOVERNMENT

NSW Ministry of Health
1 Reserve Road
ST LEONARDS NSW 2065
Tel. (02) 9391 9000
Fax. (02) 9391 9101
TTY. (02) 9391 9900
www.health.nsw.gov.au

Produced by: NSW Ministry of Health

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SHPN (CAOD) 200656
ISBN 978-1-76081-505-9

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November 2020

This report replaces the Methamphetamine Use and Related Harms in NSW – Surveillance Report to December 2018. This version includes the previously reported historical data with updated longitudinal data trends.

Please note that there is the potential for minor revisions of data in this report. Please check the online version at: www.health.nsw.gov.au/aod/resources/Pages/publications.aspx#m

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Executive summary

The proportion of people in NSW who used methamphetamine remained low between 2010 and 2019. However, among people who used methamphetamine, an increased proportion of use was high risk. People who used methamphetamine reported more frequent use and use of a high purity crystal form ('ice').

Despite the continued low use of methamphetamine in the general community, there was a rapid increase from 2010 onwards in the number of people who experienced methamphetamine-related harm. These harms were seen through methamphetamine-related emergency department presentations, hospital admissions and deaths. The level of methamphetamine-related harm remained high in 2018-19. This suggests that a relatively small proportion of people in NSW with higher risk patterns of methamphetamine use have experienced rapidly increasing health and social harms from methamphetamine. People who experienced higher rates of harm included those aged 25-44 years, males and Aboriginal people.

Certain groups of people with high rates of use and harms from methamphetamine may not be well reflected in overall statewide data. The limitations of the data sources used to inform this report are described within the report. While there are many types of amphetamines, this report focuses on methamphetamine, with some information on 3,4-methylenedioxymethamphetamine (MDMA or 'ecstasy') and other drugs included for context.

This report focuses on data up until 31 December 2019. The major impacts that the COVID-19 pandemic has had on our society may have since influenced methamphetamine-related use and harms in NSW.

Methamphetamine use in NSW

1. Methamphetamine use in the general community remained low in NSW, at 1.1% in 2019.
2. In people who reported recent use of methamphetamine, an increasing proportion reported frequent use, and the high purity crystal form ('ice') was the form most commonly used.
3. The median purity of seized crystal methamphetamine remained stable at close to 80%. Although the median purity of seized MDMA capsule contents was much higher than the median purity of MDMA tablets, MDMA tablets had a higher median weight compared with capsule contents. As a result, the estimated median dose of MDMA per capsule or tablet was similar.
4. Methamphetamine use was not uniformly distributed across the NSW population. For example, between July 2017 and December 2019, 31% of people entering NSW correctional centres reported recent use of methamphetamine. Wastewater monitoring in 2019 indicated that estimated average methamphetamine consumption was higher in people living outside Sydney.
5. Survey data collected prior to the COVID-19 pandemic indicated that crystal methamphetamine became cheaper between 2016 and 2019, falling from $400 per gram in 2016 to $250 per gram in 2018 and remaining stable into 2019 (as reported by people who inject drugs). It is worth noting that the supply and cost of methamphetamine may have been affected by the COVID-19 pandemic.

Health harms from methamphetamine use in NSW

1. The rate of methamphetamine-related emergency department presentations in NSW increased from 2011-12 to 2015-16 and has since stabilised in 2018-19.
2. The rate of methamphetamine-related hospitalisations increased rapidly from 12.2 per 100,000 population in 2010-11 to 137.9 per 100,000 population in 2018-2019. The rate has stabilised slightly from 2015-16 onwards.
3. Methamphetamine-related hospitalisation rates were higher in: males, Aboriginal people, people aged 25-44 and people living outside of major cities.

4. The rate of psychostimulant-related deaths (which included amphetamines but excluded cocaine) in NSW has increased between 1999 (0.7 per 100,000 population) and 2018 (3.0 per 100,000 population).
5. The number of deaths where methamphetamine was detected in toxicological analyses has risen from 95 deaths in 2010 to 357 deaths in 2019. This remains far lower than the number of deaths where opioids were detected.
6. There were higher rates of psychostimulant-induced deaths in rural and remote areas of NSW compared with major cities from 2015 onwards. The rate of death per 100,000 population where methamphetamine was detected in forensic toxicological analyses was higher in regional areas of NSW compared with major cities from 2011 onwards.

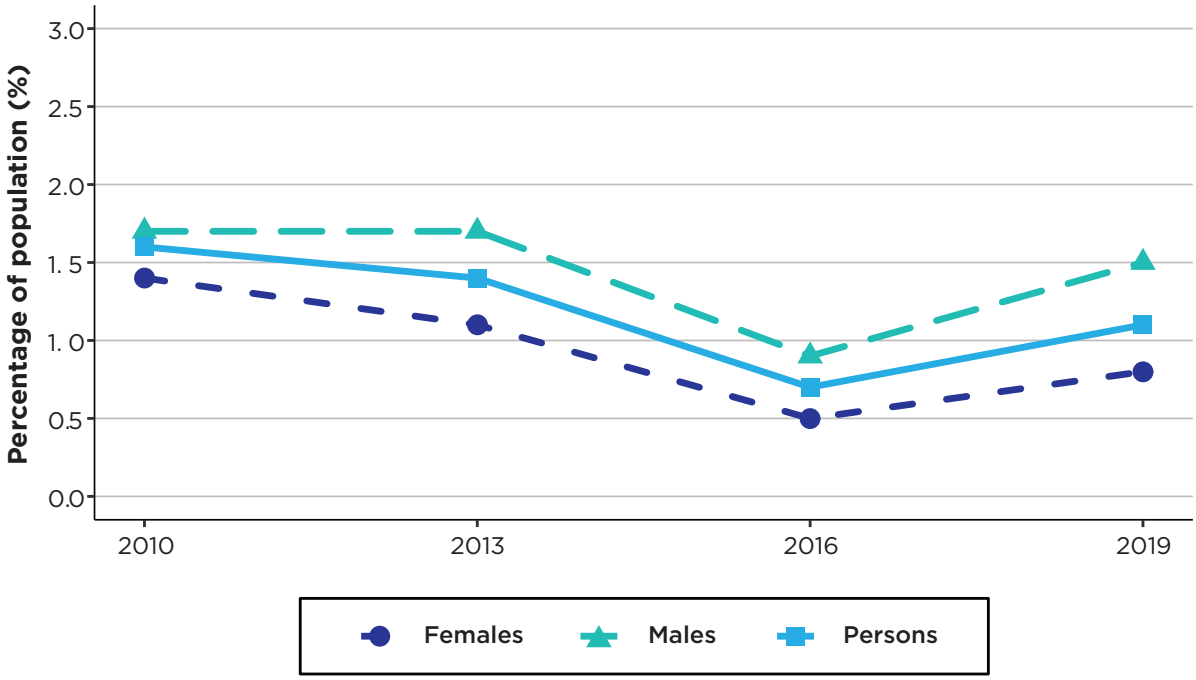
Social harms from methamphetamine use in NSW

1. Criminal proceedings relating to 'possession and/or use of amphetamines', and 'dealing and/or trafficking of amphetamines' has remained relatively stable from 2015 to 2019.
2. The number of drug driving incidents where methamphetamine was detected has declined after a peak in 2015.

1. Methamphetamine use

1.1 Recent use of methamphetamine

Figure 1: Self-reported recent use of methamphetamine or amphetamines by sex, NSW, 2010 to 2019



Source: National Drug Strategy Household Survey 2019, Australian Institute of Health and Welfare

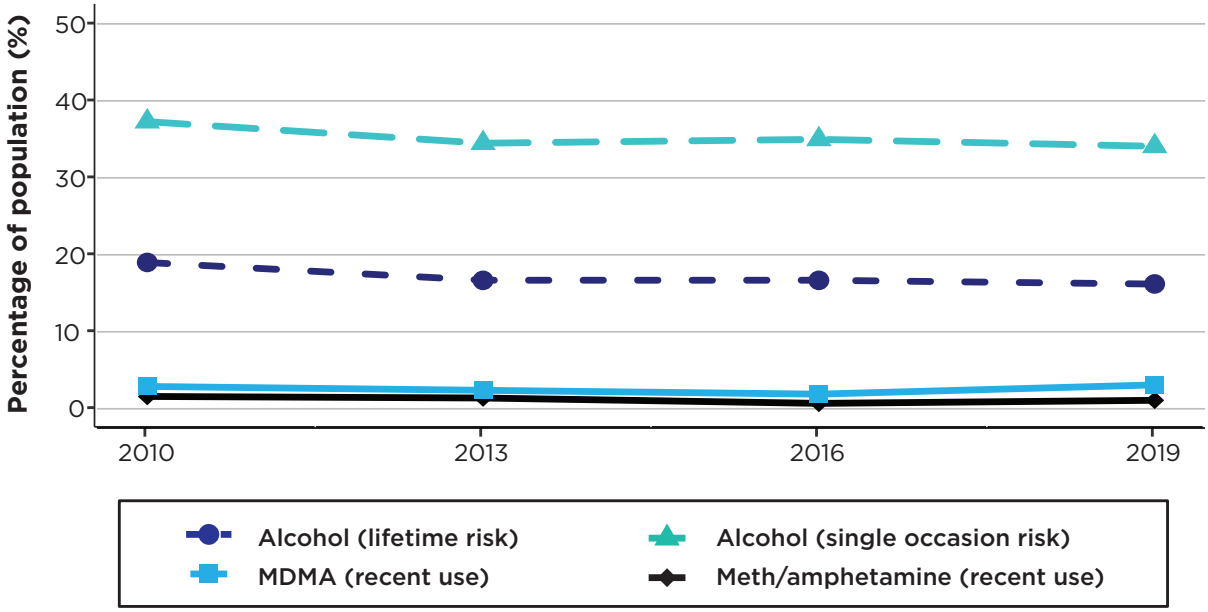
The percentage of the population reporting recent use of 'methamphetamine or amphetamines' in the preceding 12 months in NSW has remained low from 1.6% in 2010 to 1.1% in 2019. Despite a slight long-term downward trend, a statistically significant increase was noted from 0.7% in 2016 to 1.1% in 2019 **(Figure 1)**.

In Australia, some population groups report higher rates of recent methamphetamine use. From self-reported Australian national survey data in 2019, higher rates of recent methamphetamine use were noted in people who are unemployed, living in inner-regional areas, and lesbian, gay and bisexual people (AIHW, 2020). Similarly, a national survey of trans[1] people in 2014 identified that self-reported recent use (within the preceding 12 months) of methamphetamine was more than three times that of the general population (Hyde et al., 2014).

In NSW, there are a range of surveys undertaken that provide detail on methamphetamine use among lesbian, gay, bisexual, transgender, queer and intersex (LGBTQI) people in Sydney. A regular survey of gay and bisexual men in Sydney found that the proportion of the population who reported recent use (in the previous six months) of crystal methamphetamine or amphetamine ('speed') was 8.2% and 6.6% respectively in 2019 (Broady et al., 2019). Approximately 12% of lesbian, bisexual, queer (LBQ) and other non-heterosexual identifying women in Sydney who were surveyed in 2018 reported that they had used methamphetamine (speed and/or crystalline forms) in the previous six months (Mooney-Somers et al., 2018).

1 As per the source of this statistic, the authors use the word trans to describe a person who experiences an incongruence between the sex assigned to them at birth and the sex they feel they belong to, and/or a person who has a gender expression (e.g., masculine, feminine) that is inconsistent with societal expectations of their sex (Hyde et al., 2014).

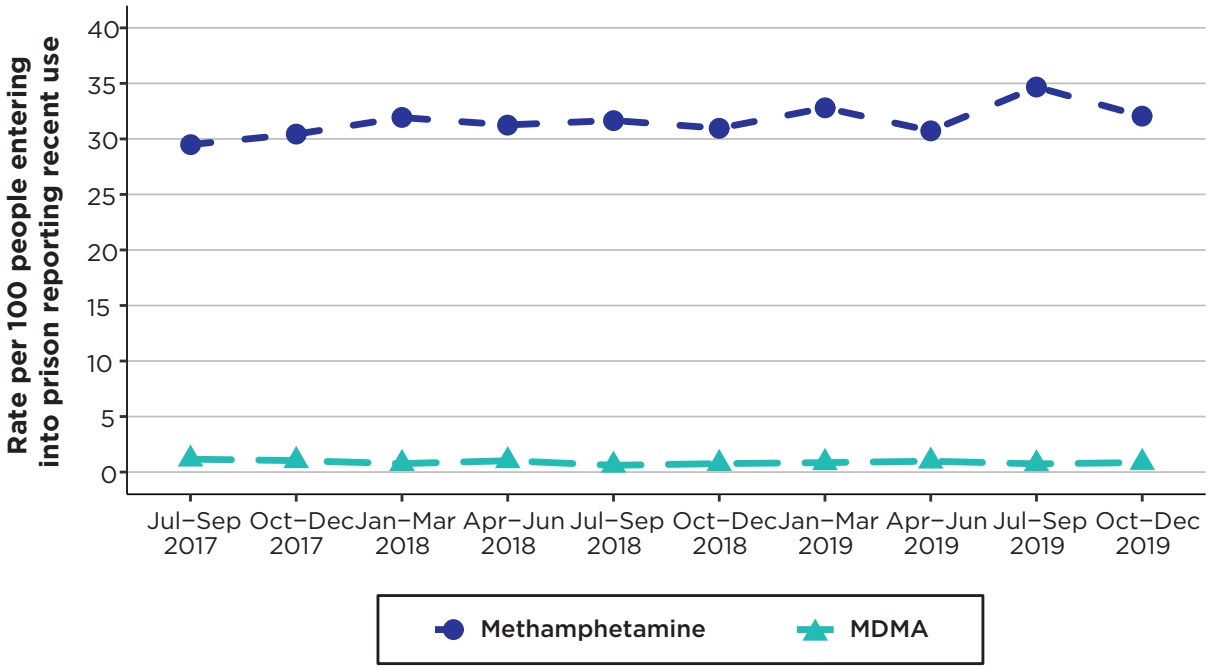
Figure 2: Self-reported high-risk alcohol consumption, use of methamphetamine or amphetamines, and MDMA use, NSW, 2010 to 2019



Source: National Drug Strategy Household Survey 2019, Australian Institute of Health and Welfare
Note: Single occasion risk = more than 4 standard drinks on one occasion in the last 12 months; Lifetime risk = more than 2 standard drinks per day in the last 12 months

High-risk alcohol consumption remains the most prevalent substance use issue at a population level, with 34% of people meeting the criteria for 'single occasion risk' of alcohol consumption in 2019 **(Figure 2)**. Data from 2019 for NSW shows that high-risk alcohol consumption is more prevalent at a population level than use of methamphetamine (3% reporting recent use) and 3,4-methylenedioxymethamphetamine (MDMA or 'ecstasy') (1% reporting recent use).

Figure 3: Self-reported recent use of methamphetamine among persons entering NSW correctional centres, NSW, July 2017 to December 2019



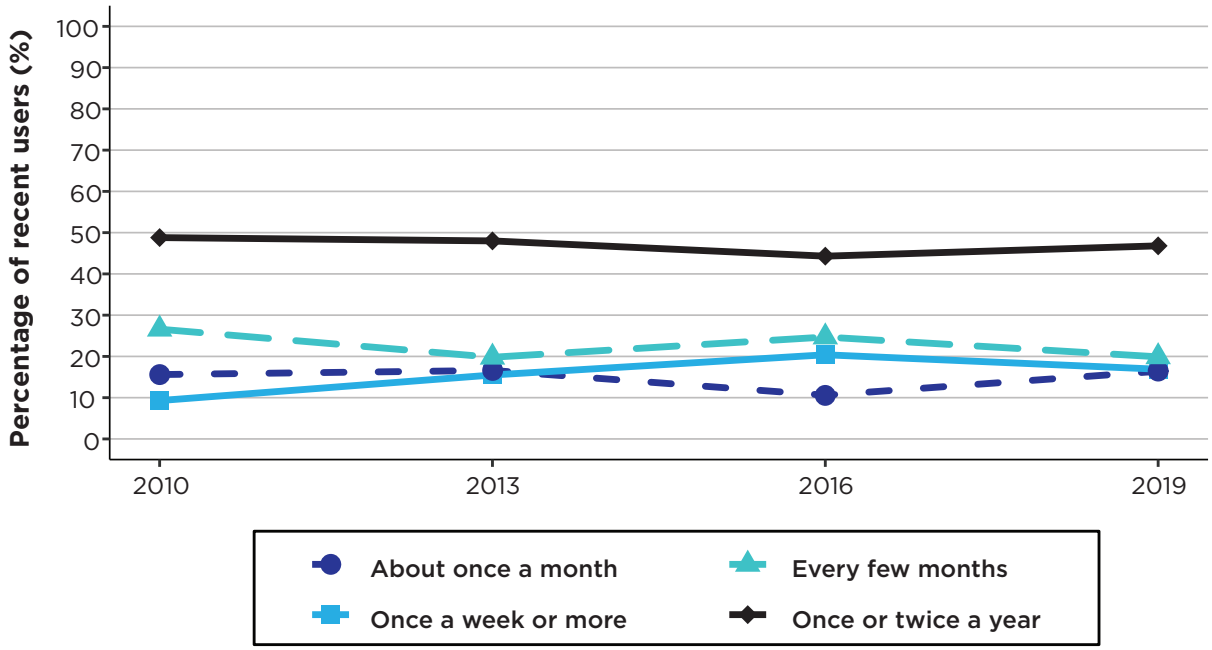
Source: Justice Health and Forensic Mental Health Network, NSW Health

Between July 2017 and December 2019, around 31 per 100 entrants to NSW Correctional Centres reported recent use of methamphetamine (in the four weeks prior to entering custody). By comparison, around 1 per 100 entrants reported recent use of MDMA **(Figure 3)**. Of those who reported recent use of methamphetamine, 57% reported daily or almost daily use of methamphetamine, and 78% reported methamphetamine use at least weekly.

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 exaggerated, underestimated or denied.

1.2 Frequency of methamphetamine use

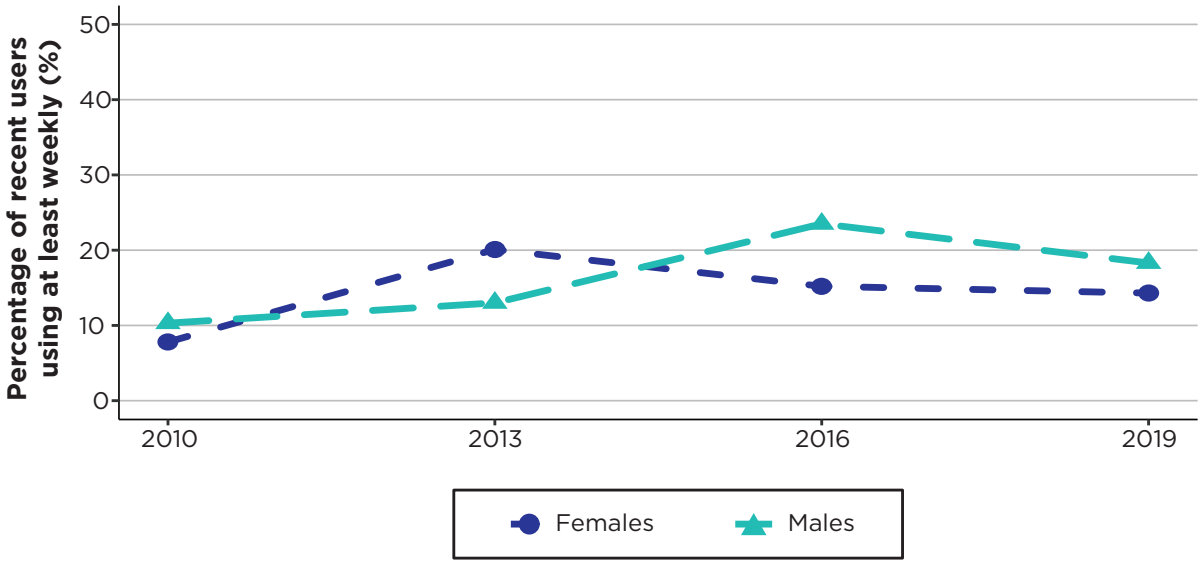
Figure 4: Self-reported frequency of use of methamphetamine or amphetamines among recent users, Australia, 2010 to 2019



Source: National Drug Strategy Household Survey 2019, Australian Institute of Health and Welfare
Note: Some of the estimates in this figure have a relative standard error of 25% to 50% and should be used with caution.

While the proportion of people in NSW using methamphetamine or amphetamines across the population remained relatively stable between 2010 and 2019 (from 1.6% in 2010 to 1.1% in 2019) **(Figure 1)**, national survey data indicates that the proportion of recent users across Australia reporting use 'once a week or more' increased from 9.3% in 2010 to 16.9% in 2019 **(Figure 4)**. Corresponding data from NSW is available up to 2016 and suggests a similar trend from 7.6% in 2010 to 22% in 2016 (AIHW, 2017).

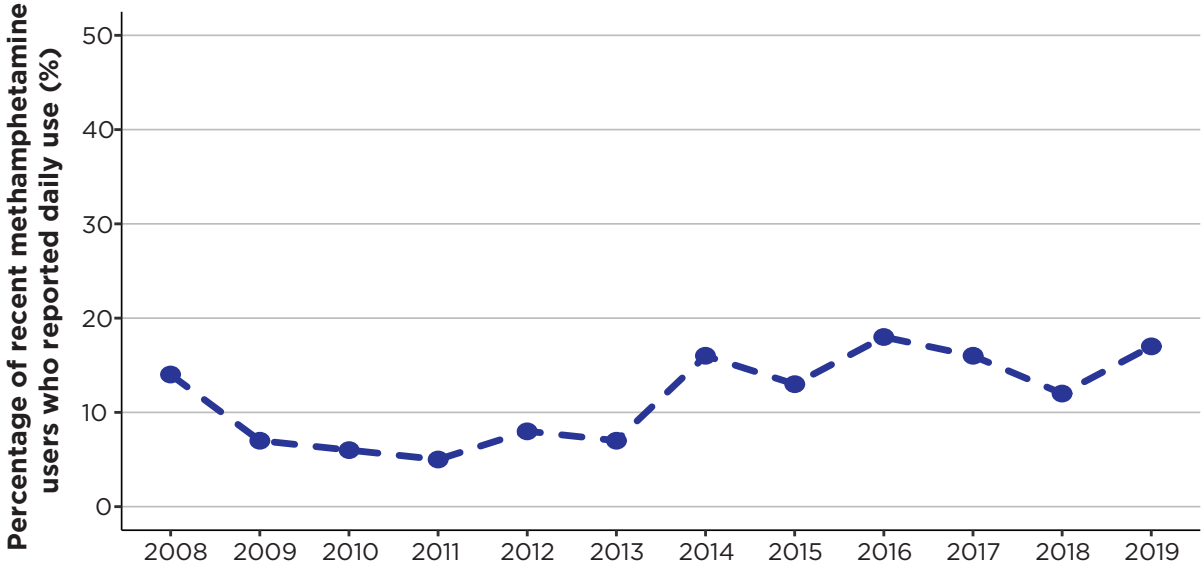
Figure 5: Self-reported use of methamphetamine or amphetamines at least weekly among recent users by sex, Australia, 2010 to 2019



Source: National Drug Strategy Household Survey 2019, Australian Institute of Health and Welfare
Note: Some of the estimates in this figure have a relative standard error of 25% to 50% and should be used with caution.

National survey data indicates that across Australia among people who use methamphetamine or amphetamine, the proportion of people reporting weekly use of methamphetamine or amphetamines is higher in males than females (for 2016 and 2019), and increased between 2010 and 2019 in both males and females (males 10.3% in 2010 and 18.3% in 2019; females 7.8% in 2010 and 14.3% in 2019) **(Figure 5)**. Corresponding data for NSW are available up to 2016 and suggest a similar trend in both males and females with a more marked increase among males (males 7.6% in 2010 and 26.7% in 2016; females 7.8% in 2010 and 13.5% in 2016) (AIHW, 2017).

Figure 6: Self-reported daily use of methamphetamine amongst people who recently used methamphetamine, NSW, 2008 to 2019

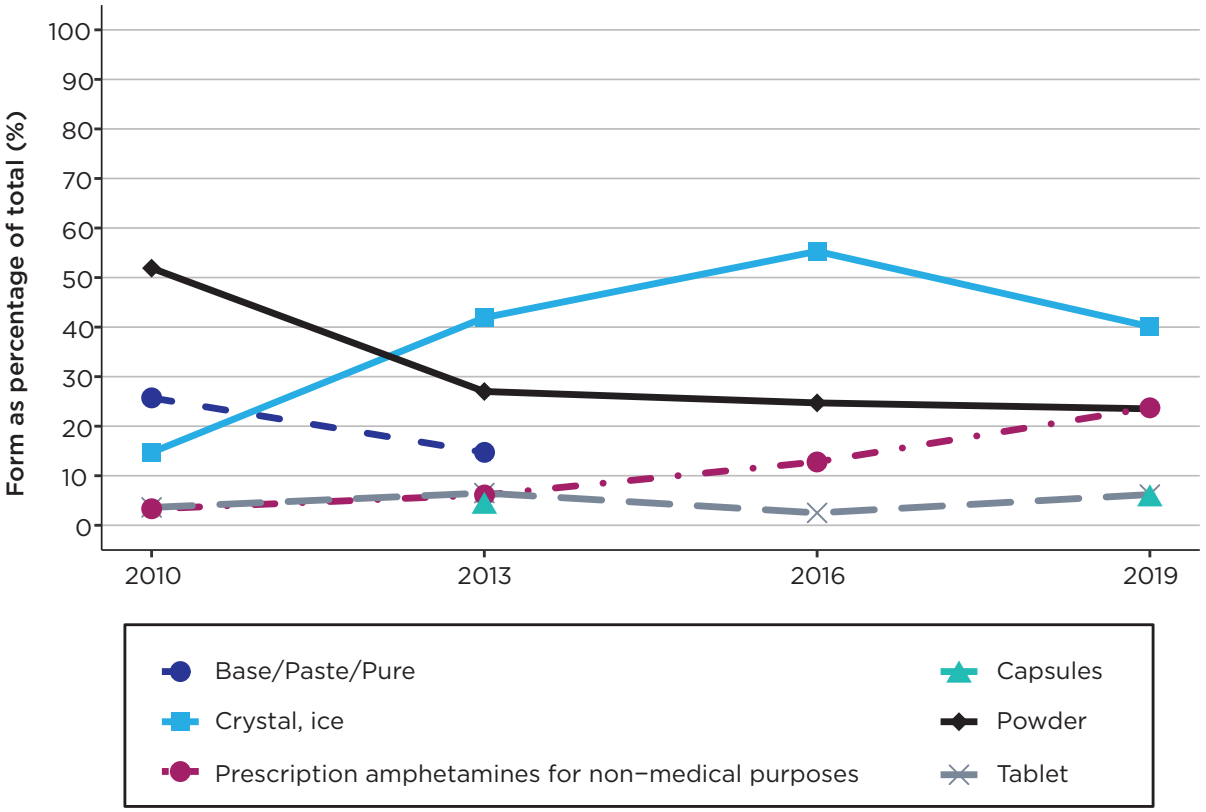


Source: Illicit Drug Reporting System NSW 2019, National Drug and Alcohol Research Centre

An annual survey in NSW (IDRS NSW, 2019) suggests that, among people who inject drugs and reported recent use of methamphetamine, daily use of methamphetamine fell in 2017 and 2018 after a peak in 2016, and has increased again in 2019 **(Figure 6)**. The Australian Needle and Syringe Program Survey 1995-2019 showed that a high proportion of surveyed clients attending a Needle and Syringe Program service reported injecting drugs at least daily in the past month in 2019 (46% of clients in NSW) (ANSPS, 1995-2019).

1.3 Form of methamphetamine used

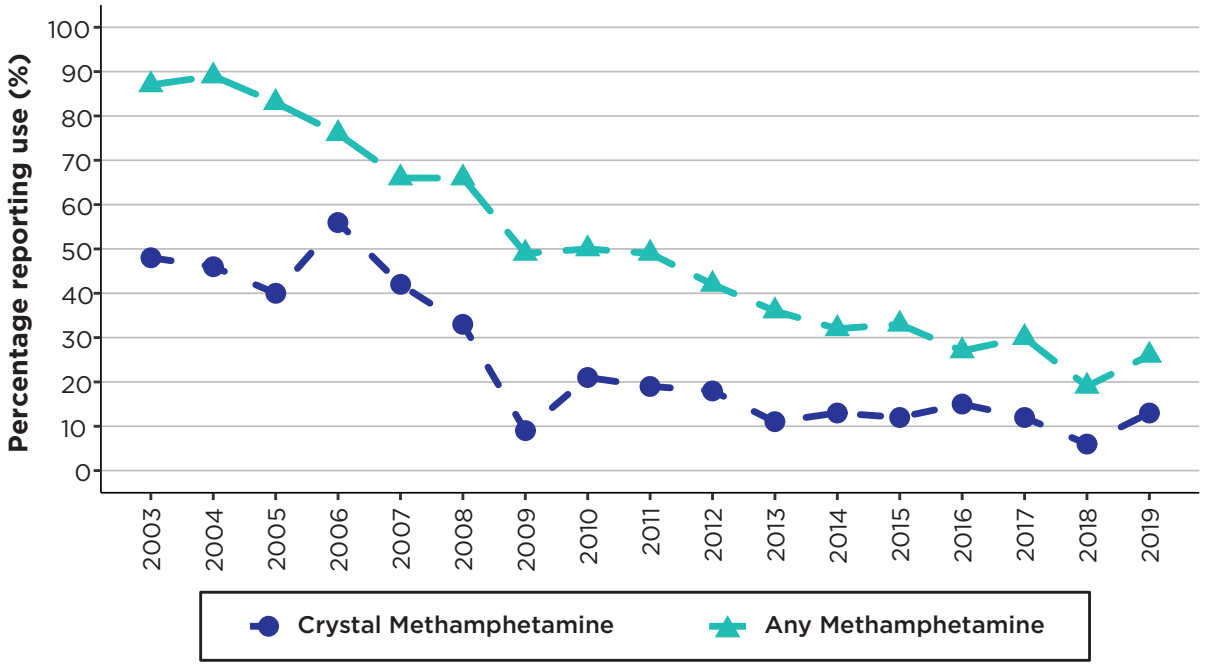
Figure 7: Self-reported recent use of methamphetamine or amphetamines among people aged 14 years and older, by form of methamphetamine or amphetamines used, NSW, 2010 to 2019



Source: National Drug Strategy Household Survey 2019, Australian Institute of Health and Welfare
Note: Some of the estimates in this figure have a relative standard error of 25% to 50% and should be used with caution. None of the changes from 2016 to 2019 are statistically significant. Source data on capsules prior to 2013 are not available. Data on capsules for 2016 and base/paste/pure for 2016 and 2019 were not published by AIHW because of small numbers, confidentiality or other concerns about data quality.

The proportion of the population reporting recent use of 'methamphetamine or amphetamines' in the preceding 12 months remains low at 1.1% **(Figure 1)**. Use of crystal methamphetamine ('ice') accounted for 40% of all methamphetamine or amphetamine use in NSW in 2019 **(Figure 7)**. The use of prescription amphetamines for non-medical purposes accounted for 24% of all methamphetamine or amphetamine use in NSW in 2019. The use of the powder form decreased from 52% in 2010 to 24% in 2019.

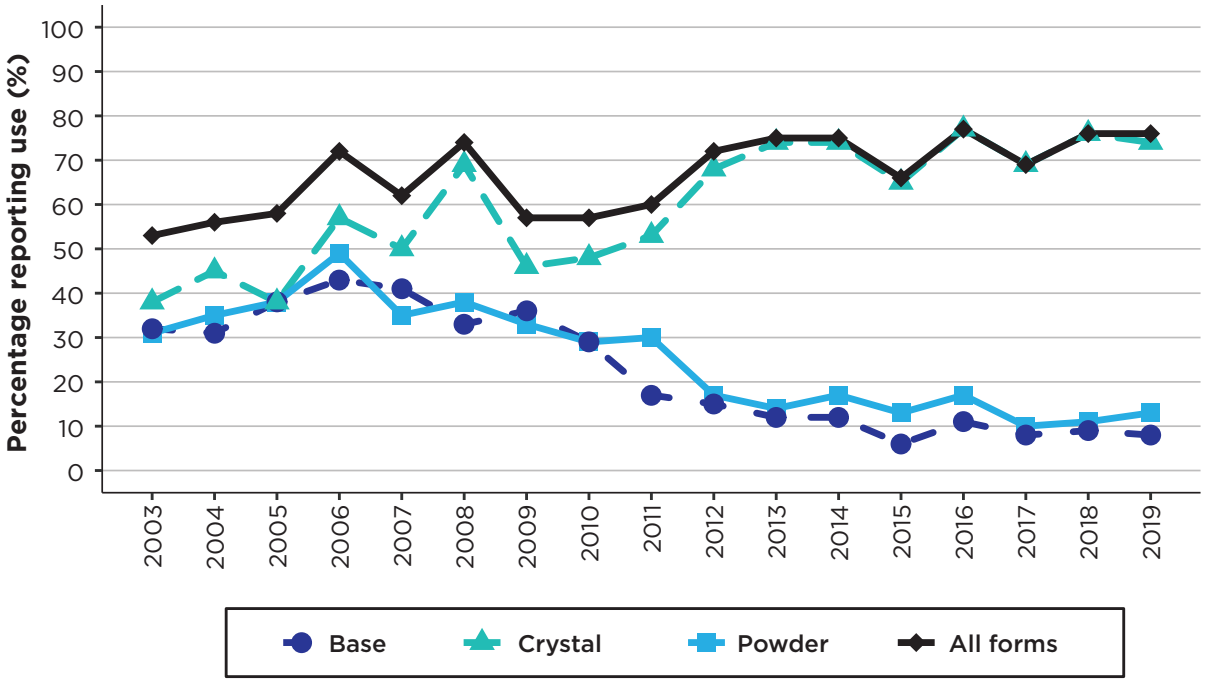
Figure 8: Self-reported recent use of methamphetamine in people who reported using ecstasy and other stimulants, by form of methamphetamine, NSW, 2003 to 2019



Source: Ecstasy and Related Drugs Reporting System NSW 2019, National Drug and Alcohol Research Centre

Between 2003 and 2019, there was a decrease in methamphetamine use among people who regularly use ecstasy and other stimulants (87% in 2003, 26% in 2019) **(Figure 8)**.

Figure 9: Self-reported recent use of methamphetamine among people who inject drugs, by form of methamphetamine used, NSW, 2003 to 2019



Source: Illicit Drug Reporting System NSW 2019, National Drug and Alcohol Research Centre
Note: Categories are not mutually exclusive, and the percentages by category will not add to 100%.

Despite the decrease in methamphetamine use among people who regularly use ecstasy and other stimulants **(Figure 8)**, methamphetamine use among people who inject drugs remains high (76% in 2019). Almost all survey respondents between 2016 and 2019 in NSW who reported recent use of methamphetamine reported recent use of the crystalline form **(Figure 9)**.

1.4 Purity of methamphetamine

Figure 10: Median purity of methamphetamine seized by NSW Police, by form of methamphetamine, NSW, 2010 to 2019

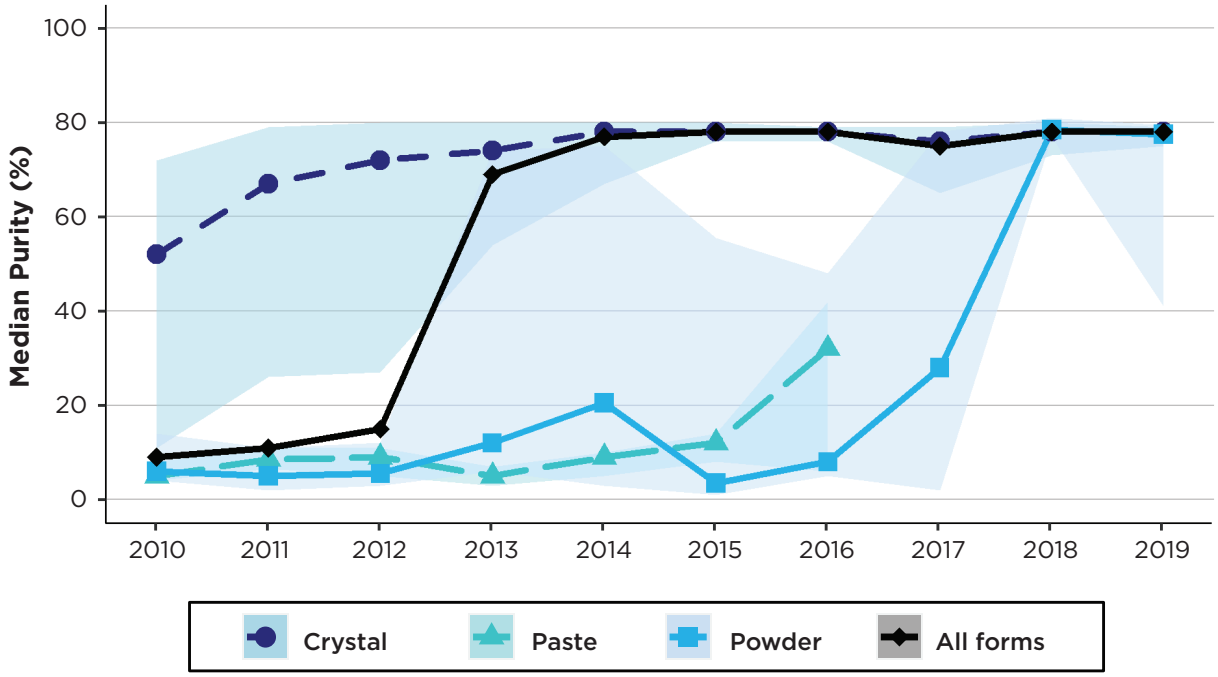


Table 1. Number of methamphetamine samples seized by NSW Police and tested for purity, by form of methamphetamine, NSW, January 2010 to December 2019

	Year									
Form	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Crystal	303	370	452	654	965	1,157	1,614	694	756	642
Paste	87	60	37	21	9	7	19	1	0	1
Powder	83	66	50	31	30	12	13	10	20	4
Other	179	166	99	51	88	44	155	33	48	18
Unspecified	123	131	109	59	85	54	77	22	32	8
Total	**775**	**793**	**747**	**816**	**1,177**	**1,274**	**1,878**	**760**	**856**	**673**

Source (Figure 10 and Table 1): NSW Health Pathology Forensic & Analytical Science Service
Notes: Changes to the Drug Misuse and Trafficking Regulation in 2017 in relation to the seized substances that required testing may affect trend analyses. The purity of NSW Police seizures for forms other than crystal should be interpreted with caution. Other forms (capsules, compressed, grains, liquid, and wax) and unspecified forms of methamphetamine samples represented 5.1% and 7.5% of seized samples respectively, and were not included in Figure 10. The shaded region represents the interquartile range (or middle 50% of values) and provides some indication of the variability in the estimated median purity of methamphetamine across seizures.

The median purity of all methamphetamine seizures has increased from 9% in 2010 to 78% in 2019, and has remained stable at around 75-78% purity since 2014 **(Figure 10)**. The median purity of methamphetamine is driven by the predominant form tested. Crystal methamphetamine represented 76% of all methamphetamine samples tested across this period (range 39% in 2010 to 95% in 2019). The purity of the powder form of methamphetamine reached the same purity level as the crystal form in 2018 and remained stable through to 2019, however, this form represented less than 5% of all samples tested over the two years **(Table 1)**.

A survey of people who inject drugs reported that around 70% of respondents perceived the purity of crystal methamphetamine ('ice') to be 'medium' or 'high' (IDRS NSW, 2019).

Figure 11: Median purity of MDMA seized by NSW Police, by form of MDMA, NSW, 2010 to 2019

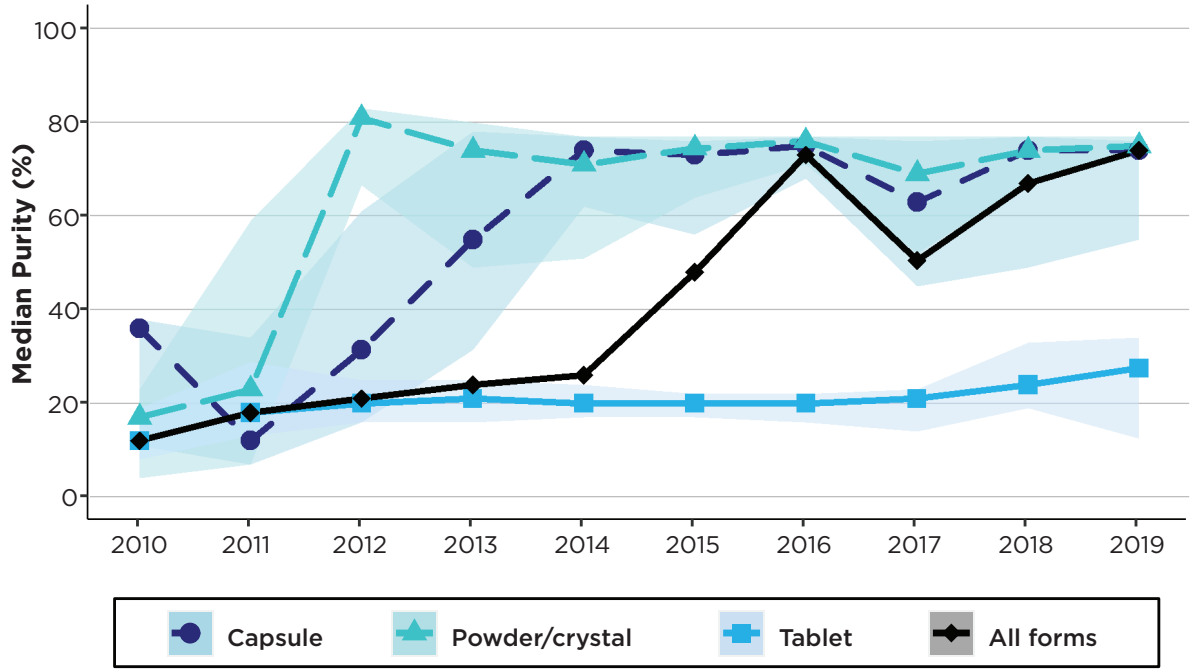


Table 2. The number of MDMA samples seized by NSW Police and tested for purity, by form of MDMA, NSW, January 2010 to December 2019

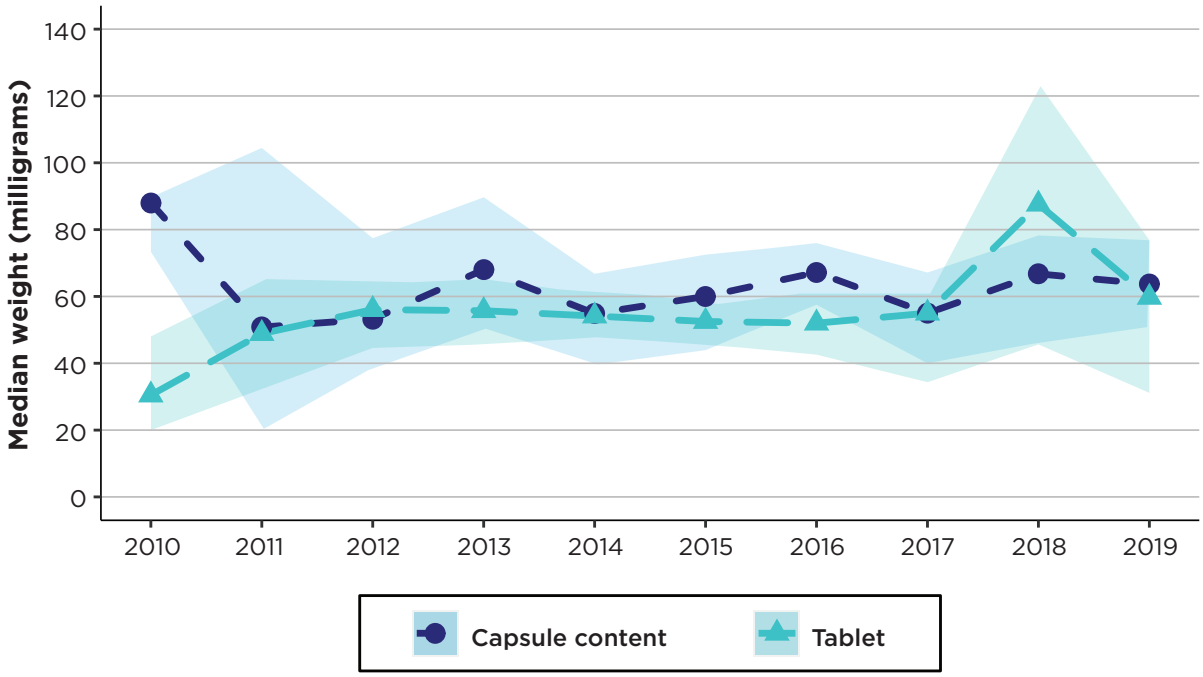
	Year									
Form	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Capsule	9	10	30	36	101	189	322	115	102	71
Powder/crystal	13	11	20	41	87	122	257	67	59	161
Tablet	149	95	246	202	237	227	192	89	53	36
Other	0	2	2	2	7	10	9	18	14	22
Unspecified	1	3	4	12	21	23	51	29	83	49
Total	**172**	**121**	**302**	**293**	**453**	**571**	**831**	**318**	**311**	**339**

Source (Figure 11 and Table 2): NSW Health Pathology Forensic & Analytical Science Service
Notes: Changes to the Drug Misuse and Trafficking Regulation in 2017 in relation to the seized substances that required testing may affect trend analyses. Other forms (compressed, grains, liquid, and wax) and unspecified forms of MDMA represented 1.9% and 7.0% of seized samples respectively, and were not displayed in Figure 11. The shaded region represents the interquartile range (or middle 50% of values) and provides some indication of the variability in the estimated median purity of MDMA across seizures.

The median purity of MDMA is driven by the predominant form tested. The median purity for all MDMA forms increased from 12% in 2010 to 74% in 2019. The median purity for MDMA capsules was 36% in 2010 and 74% in 2019, and the median purity for MDMA tablets was 12% in 2010 and 28% in 2019 **(Figure 11)**.

The proportional representation of tablets amongst the samples tested has decreased consistently between 2010 and 2019. In 2010, tablets represented 87% of MDMA samples tested, however, tablets represented only 10% of all MDMA samples tested in 2019. In 2019, MDMA capsules and MDMA powder/crystal samples represented 72% of MDMA samples tested **(Table 2)**.

Figure 12: Estimated median weight of pure MDMA (per capsule contents or tablet) seized by NSW Police, 2010 to 2019



Source: NSW Health Pathology Forensic & Analytical Science Service
Notes: Changes to the Drug Misuse and Trafficking Regulation in 2017 for seized substances requiring testing may affect trend analyses. The purity of NSW Police seizures should be interpreted with caution. The shaded region represents the interquartile range (or middle 50% of values) and provides some indication of the variability in the estimated median weight of MDMA across seizures.

Although MDMA capsule contents have had a much higher purity of MDMA than tablets since 2013 **(Figure 11)**, due to the higher median weight of tablets compared to capsule contents, the estimated median dose of MDMA (weight of pure MDMA) per capsule or tablet was similar for MDMA capsules and tablets from 2011 to 2019 **(Figure 12)**.

A survey conducted in NSW among people who regularly used ecstasy and other stimulants reported that in 2019, 82% of the cohort had recently used MDMA capsules and 40% had recently used MDMA tablets (EDRS NSW, 2019).

1.5 Availability and cost of methamphetamine

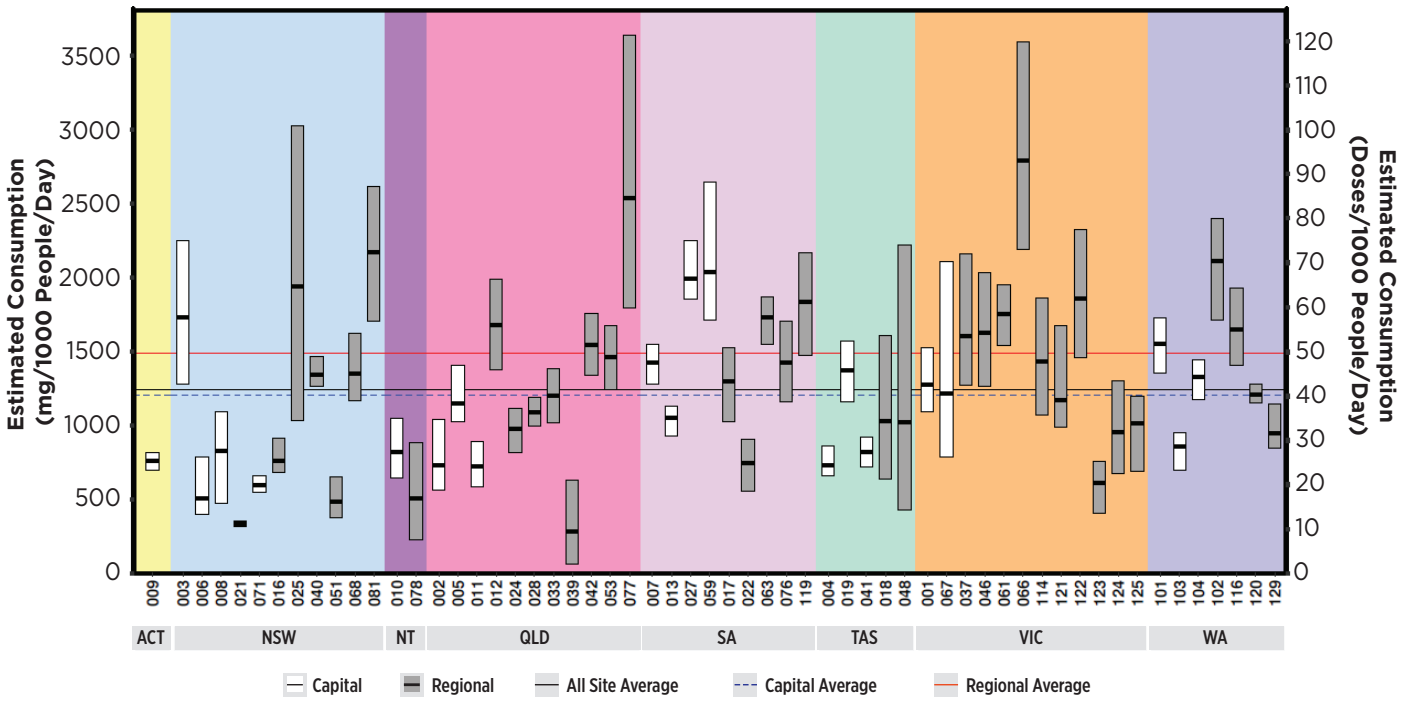
Among people surveyed who inject drugs, 94% reported the perceived availability of crystal methamphetamine as 'easy' or 'very easy' in 2019 (IDRS NSW, 2019). In NSW, the median price per gram of crystal methamphetamine decreased from $400 per gram in 2016 to $250 per gram in 2018, and remained stable at $250 per gram in 2019, as reported by people who inject drugs (IDRS NSW, 2019). Of note, the impact of COVID-19 on drug supply and cost is yet to be apparent in survey data.

1.6 Injecting use of methamphetamine

Methamphetamine is the drug most commonly reported as last injected by people attending needle and syringe programs in NSW. The proportion of people attending needle and syringe programs in NSW who report that methamphetamine was the drug that they last injected, has remained around 36-39% between 2016 and 2019 (ANSPS, 1995-2019). A NSW-based survey of people who injected drugs, showed that the group reporting methamphetamine as the drug they injected most often in the past month has remained stable from 32% in 2016 to 37% in 2019 (IDRS NSW, 2019).

1.7 Use estimated using wastewater analyses

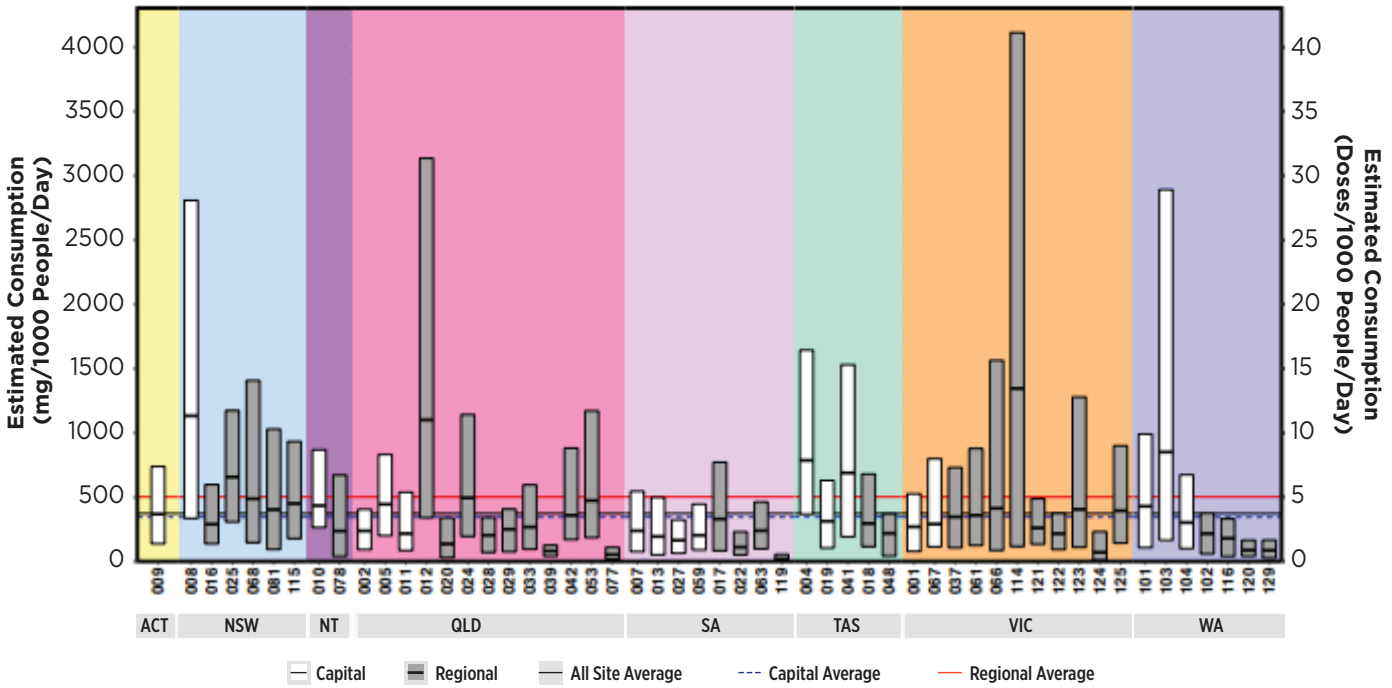
Figure 13: Estimated methamphetamine consumption in mass consumed per day (left axis) and doses per day (right axis) per thousand people by region and jurisdiction, Australia, December 2019



Source: National Wastewater Drug Monitoring Program – 10th Report, June 2020, Australian Criminal Intelligence Commission
Note: The number of collection days varied from 5 to 7. The x-axis shows the unique numbers which are allocated to each wastewater treatment plant (WWTP) to maintain confidentiality; names/locations of wastewater treatment plants are not disclosed publicly. The upper limit of each WWTP box represents the maximum day's consumption over the collection period; the lower limit represents the minimum day's consumption over the collection period, and the middle line represents the average (mean) over the collection period. Uncertainties in population estimates may be particularly evident in smaller regional communities or sites with short term population fluctuations. Further detail on the population estimates used is available in the National Wastewater Drug Monitoring Program report, from the Australian Criminal Intelligence Commission (ACIC, 2020).

Based on data collected from wastewater analysis in December 2019, estimated methamphetamine consumption varied across NSW but was generally higher in regional areas than in the capital city site of NSW **(Figure 13)**. One of the NSW regional sites included in the December 2019 data had the second highest average methamphetamine consumption nationally; it is worth noting that high levels of other drugs such as fentanyl were also detected at this site.

Figure 14: Estimated MDMA consumption in mass consumed per day (left axis) and doses per day (right axis) per thousand people by region and jurisdiction, Australia, December 2019



Source: National Wastewater Drug Monitoring Program – 10th Report, June 2020, Australian Criminal Intelligence Commission
Note: The number of collection days varied from 5 to 7. The x-axis shows the unique numbers which are allocated to each wastewater treatment plant (WWTP) to maintain confidentiality; names/locations of wastewater treatment plants are not disclosed publicly. The upper limit of each WWTP box represents the maximum day's consumption over the collection period; the lower limit represents the minimum day's consumption over the collection period, and the middle line represents the average (mean) over the collection period. Uncertainties in population estimates may be particularly evident in smaller regional communities or sites with short term population fluctuations. Further detail on the population estimates used is available in the National Wastewater Drug Monitoring Program report, from the Australian Criminal Intelligence Commission (ACIC, 2020).

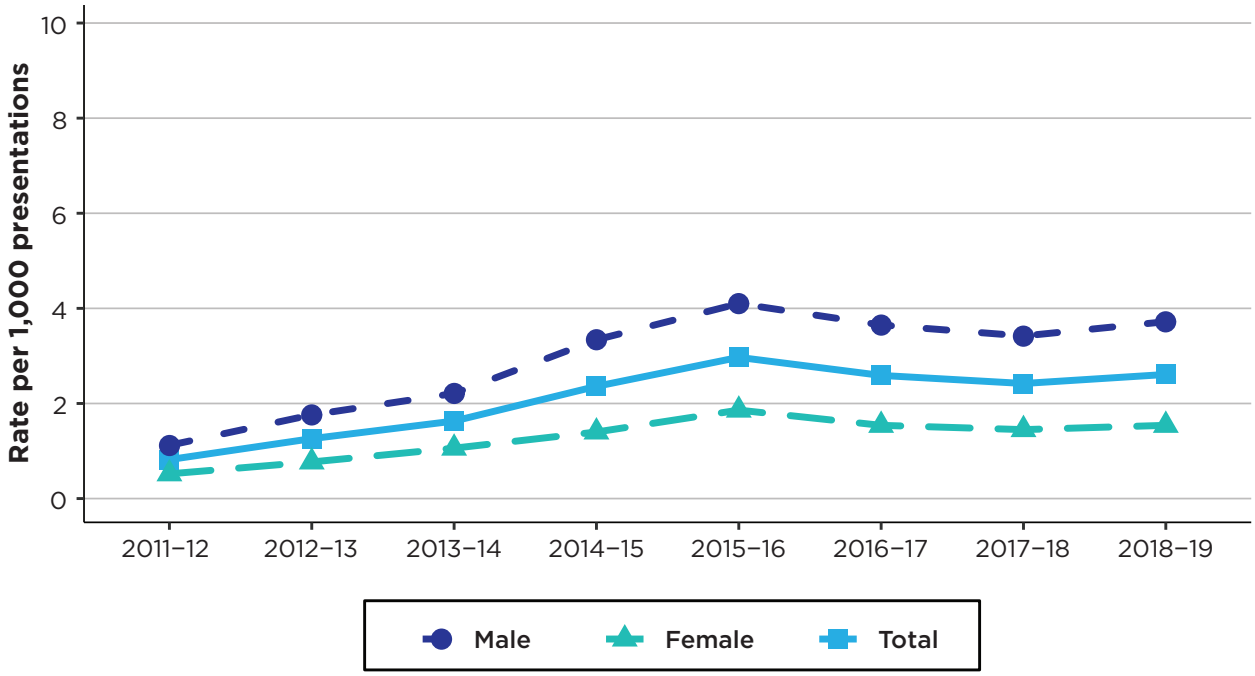
Based on data collected from wastewater analysis in December 2019, estimated MDMA use was lower in regional areas of NSW than in the capital city site in NSW **(Figure 14)**.

As with most data sources, wastewater analysis should be viewed in the context of other information.

2. Health harms from methamphetamine use

2.1 Methamphetamine-related emergency department presentations

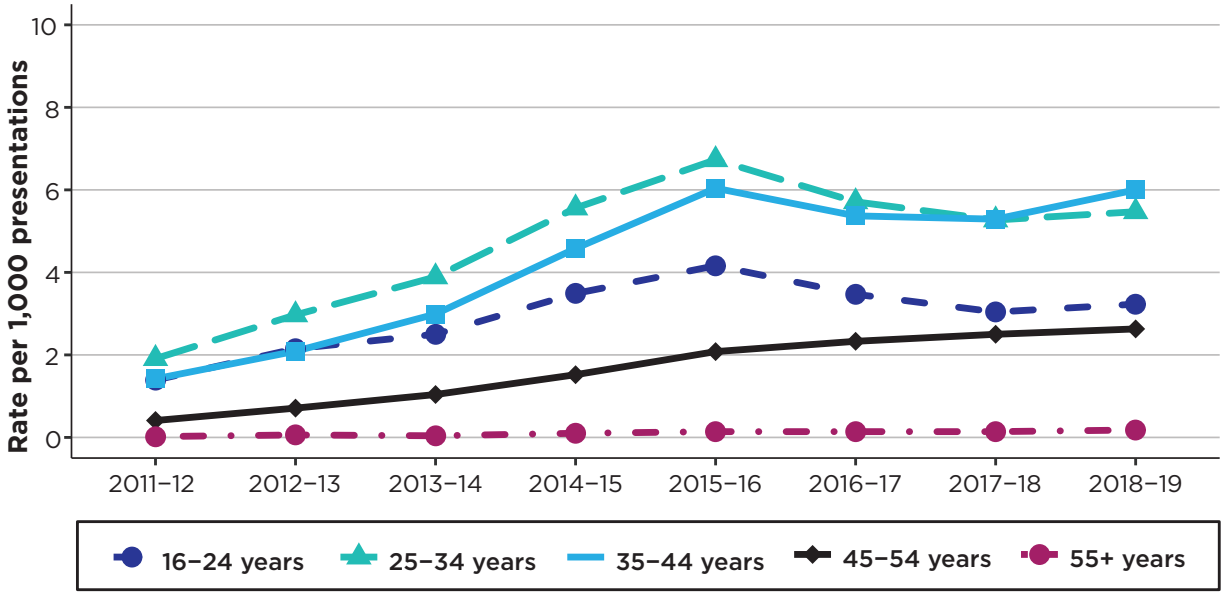
Figure 15: Rate of methamphetamine-related emergency department presentations per 1,000 presentations in people aged 16 years and over, by sex, NSW, 2011-12 to 2018-19



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

The rate of methamphetamine-related emergency department presentations in NSW increased between 2011-12 and 2015-16, and has remained relatively stable between 2016-2017 and 2018-2019 **(Figure 15)**. This pattern is evident among both males and females.

Figure 16: Rate of methamphetamine-related emergency department presentations per 1,000 presentations in people aged 16 years and over, by age group, NSW, 2011-12 to 2018-19



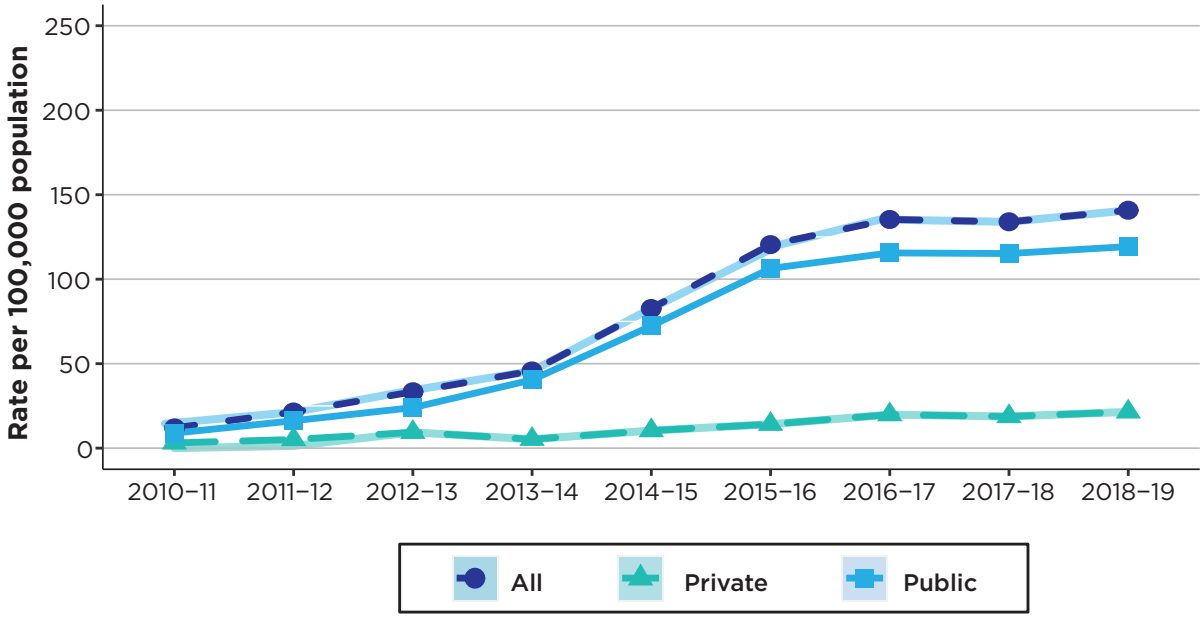
Source: NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system (PHREDSS)

Between 2011-12 and 2018-19, the 25-34 and 35-44 age groups experienced the highest rates of methamphetamine-related emergency department presentations **(Figure 16)**.

Drug-related data from the NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system (PHREDSS) are likely to be an undercount of actual drug-related emergency department presentations. 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 an exact measure of burden for drug-related harm.

2.2 Methamphetamine-related hospital admissions

Figure 17: Rate of methamphetamine-related hospitalisations, per 100,000 population by public and private hospitals, NSW, 2010-11 to 2018-19



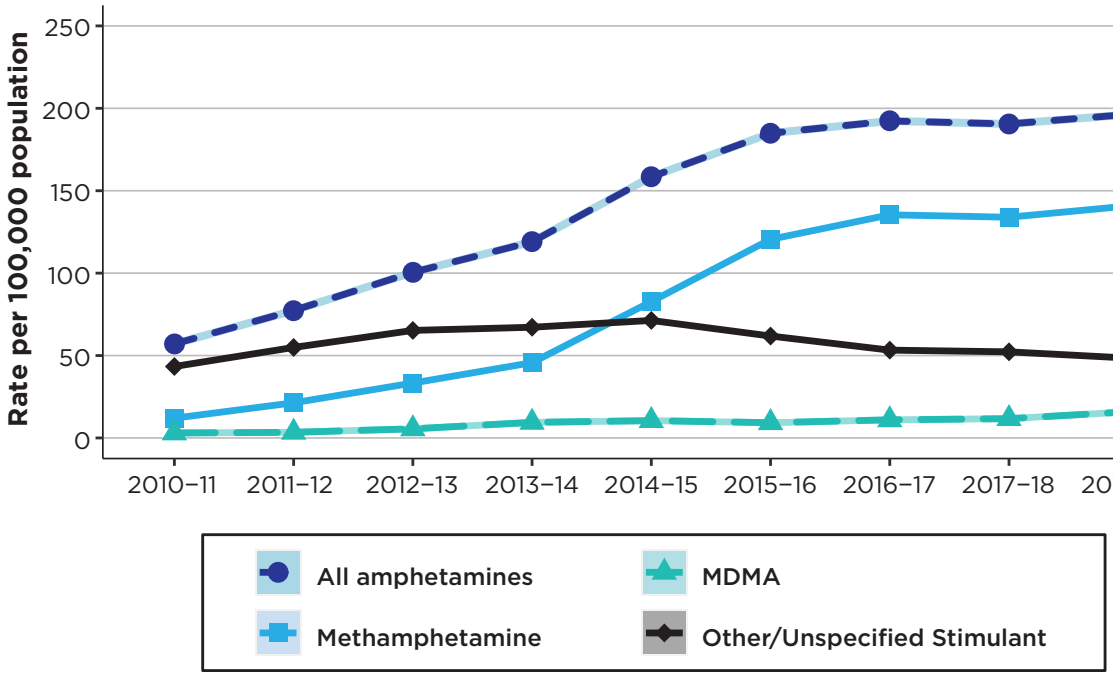
Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health.
Note: The shaded area represents the 95% confidence interval for each data point.

The rate of methamphetamine-related hospital admissions for all hospitals in NSW has increased from 12.2 in 2010-11 to 137.9 per 100,000 population in 2018-19, with the rate flattening slightly from 2015-16 onwards. The majority of methamphetamine-related admissions were to public hospitals **(Figure 17).**

Many people who experienced harm from methamphetamine use in 2018-19 also had a reported diagnosis of a mental health condition related to methamphetamine use and/or had comorbidities related to mental health and/or harm from other substances. For example, among people admitted to hospital with a primary diagnosis related to methamphetamine in 2018-19 (3,243 admissions), 3,153 admissions (97%) were coded within the 'Mental and behavioural disorders due to use of other stimulants, including caffeine'[2] group. Psychosis due to methamphetamine[3] was the primary diagnosis in 1,437 admissions, representing 44% of primary methamphetamine-related admissions in 2018-19.

The rate of methamphetamine-related psychosis hospital admissions (per 100,000 population) has increased between 2010-11 and 2018-19 for both males (from 2.5 per 100,000 in 2010-11 to 47.2 per 100,000 in 2018-19) and females (from 1.0 per 100,000 in 2010-11 to 21.8 per 100,000 in 2018-19).

Figure 18: Rate of amphetamine-type stimulant related hospitalisations per 100,000 population to all hospitals by substance, NSW, 2010-11 to 2018-19



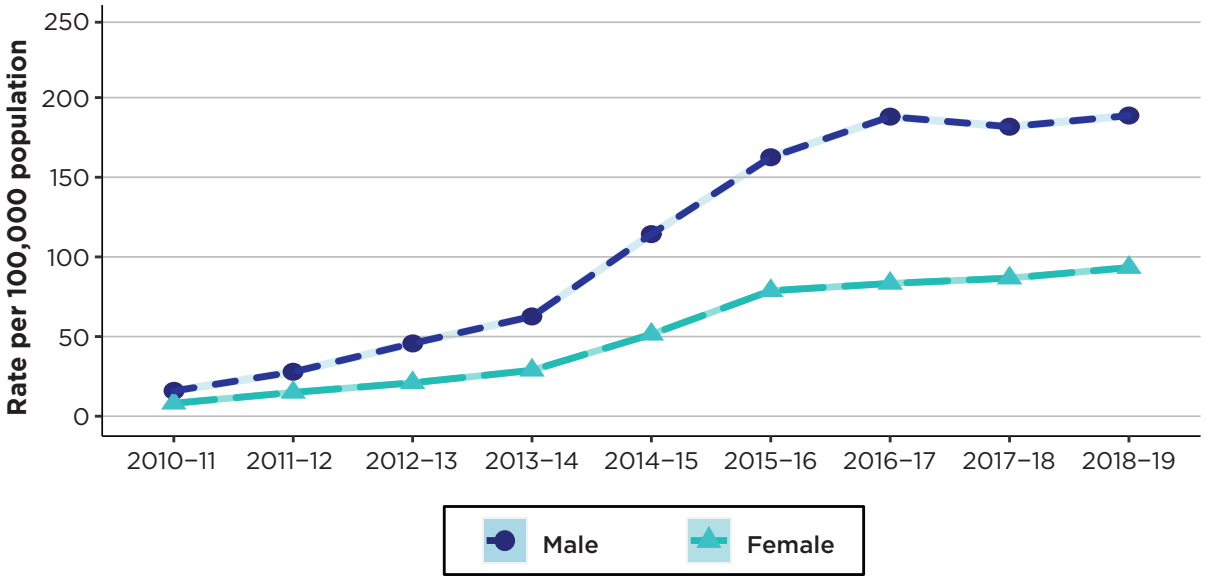
Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health.
Notes: The shaded area represents the 95% confidence interval for each data point. Amphetamine-type stimulants (ATS) are a group of drugs which have similar chemical structure and effects to amphetamine. This group includes amphetamine, methamphetamine and MDMA among other substances.

Amphetamine-type stimulant (ATS) related hospitalisations accounted for 0.4% of total hospitalisations in NSW in 2018-19 (NSW Combined Admitted Patients Epidemiology Data, CAPED). Methamphetamine-related hospitalisations accounted for 71.9% of ATS hospitalisations (0.3% of total hospitalisations) in 2018-19**.** The rate of hospitalisations (per 100,000 population) for methamphetamines has been far higher than for MDMA across the analysis period (methamphetamine: 12.0 in 2010-11 and 140.8 in 2018-19; MDMA: 3.0 in 2010-11 and 15.9 in 2018-19) **(Figure 18)**.

The rate of hospitalisations for 'other/unspecified amphetamine-type stimulants' has decreased slightly between 2014-15 and 2018-19, probably reflecting improved specificity of hospital coding **(Figure 18)**.

2 The ICD-10 AM codes included in this group for this analysis are: F15.01, F15.11, F15.21, F15.31, F15.41, F15.51, F15.61, F15.71, F15.81 & F15.91.
3 The ICD-10 AM codes included in the 'psychosis due to methamphetamine' group for this analysis are: F15.51 & F15.71.

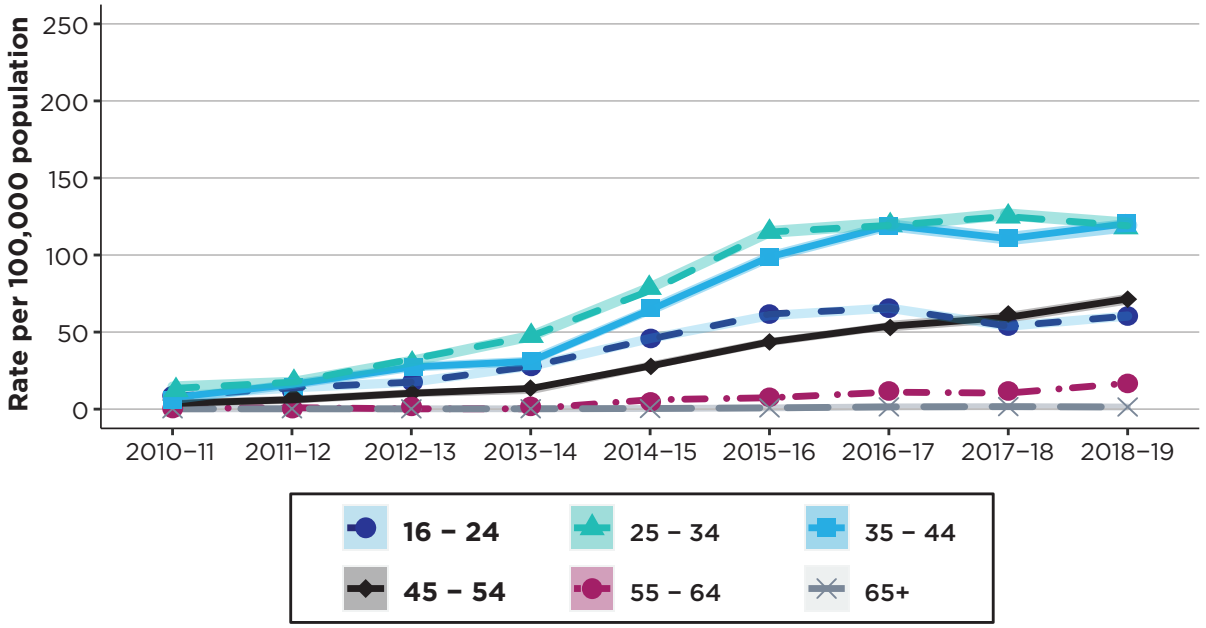
Figure 19: Rate of methamphetamine-related hospitalisations per 100,000 population to all hospitals, by sex, NSW, 2010-11 to 2018-19



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

The rate of methamphetamine-related hospital admissions has remained higher for males than females between 2010-11 and 2018-19 **(Figure 19)**. There has also been a greater increase in the rate of methamphetamine-related hospital admissions (per 100,000 population) for males than females from 2010-11 to 2018-19 (males: 15.9 in 2010-11 and 188.7 in 2018-19; females: 8.1 in 2010-11 and 93.3 in 2018-19).

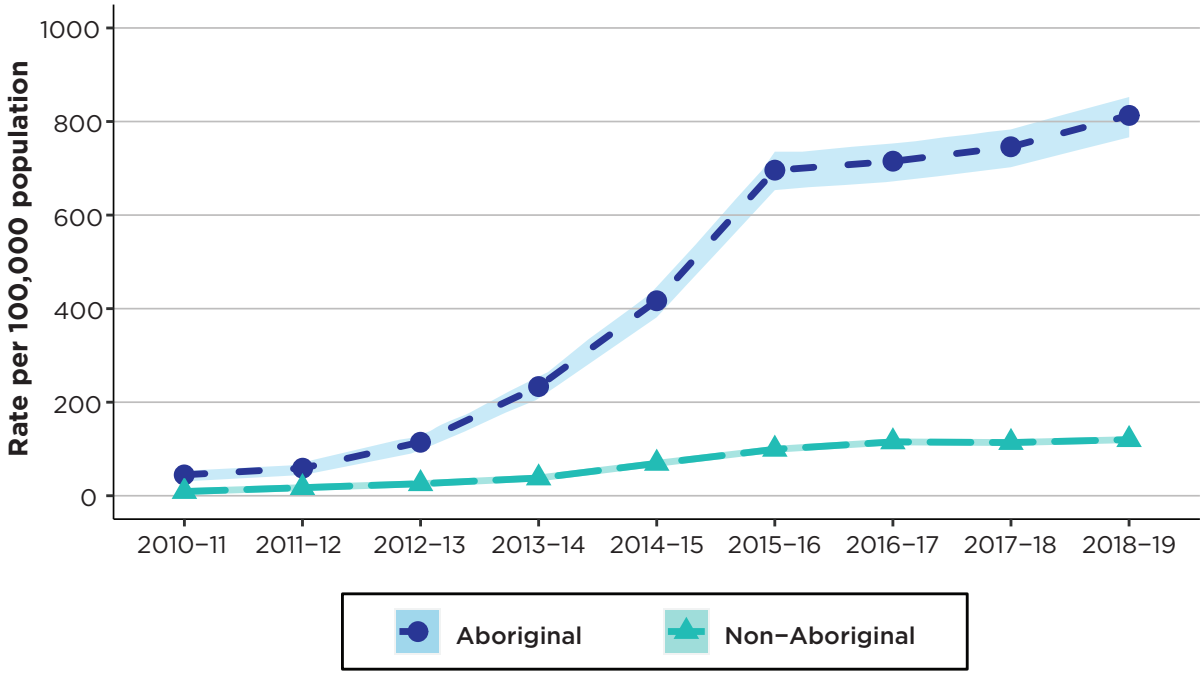
Figure 20: Rate of methamphetamine-related hospitalisations to all hospitals per 100,000 population, by age group, NSW, 2010-11 to 2018-19



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

The rates of methamphetamine-related hospitalisations have consistently been highest in those aged 25-34 and 35-44 since 2014-15 There has also been an increase in the rate of methamphetamine-related hospitalisations (per 100,000 population) across most age groups since 2010-11, particularly in the 25-34 and 35-44 age groups (25-34 age group: 27.4 in 2010-11 and 237.3 in 2018-19; 35-44 age group: 16.7 in 2010-11 and 240.7 in 2018-19) **(Figure 20)**.

Figure 21: Rate of methamphetamine-related hospitalisations per 100,000 population to all hospitals by Aboriginal status, NSW, 2010-11 to 2018-19



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. 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 2018-19, the estimated percentage of NSW admitted patient records correctly reported for Aboriginal people rose from 72.5% to 84.5%. 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 www.healthstats.nsw.gov.au/Indicator/dqi_era_apd. 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

Rates of methamphetamine-related hospital admissions are higher among Aboriginal people when compared with non-Aboriginal people. Between 2010-11 and 2018-19 the rate of methamphetamine-related hospital admissions has increased for Aboriginal people (from 44.8 per 100,000 population in 2010-11 to 813.2 per 100,000 population in 2018-19). In comparison, the methamphetamine-related hospital admissions rate for non-Aboriginal people was 119.9 per 100,000 population in 2018-19 **(Figure 21)**.

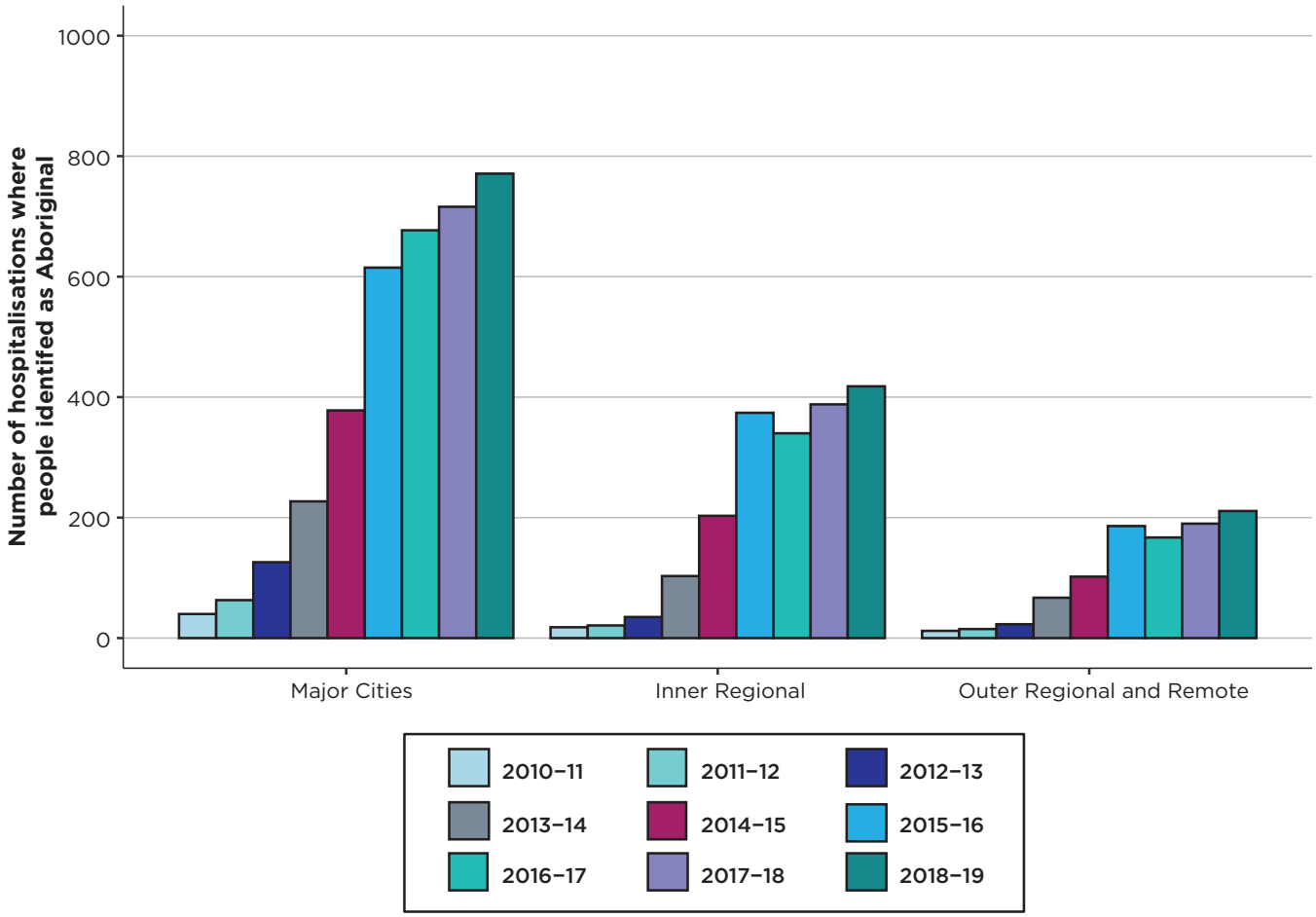
Table 3: Counts of methamphetamine-related hospitalisations to all hospitals, by Aboriginality, NSW, 2010-11 to 2018-19

Year	Aboriginal	Non-Aboriginal
2010-11	74	474
2011-12	103	923
2012-13	201	1,377
2013-14	411	2,064
2014-15	736	3,825
2015-16	1,277	5,585
2016-17	1,325	6,546
2017-18	1,417	6,547
2018-19	1,537	6,954
TOTAL	7,081	34,295

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 2018-19, the estimated percentage of NSW admitted patient records correctly reported for Aboriginal people rose from 72.5% to 84.5%. 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 http://www.healthstats.nsw.gov.au/Indicator/dqi_era_apd. 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 22: Number of methamphetamine-related hospitalisations per 100,000 population to all hospitals, where people were reported as Aboriginal, NSW, 2010-11 to 2018-19

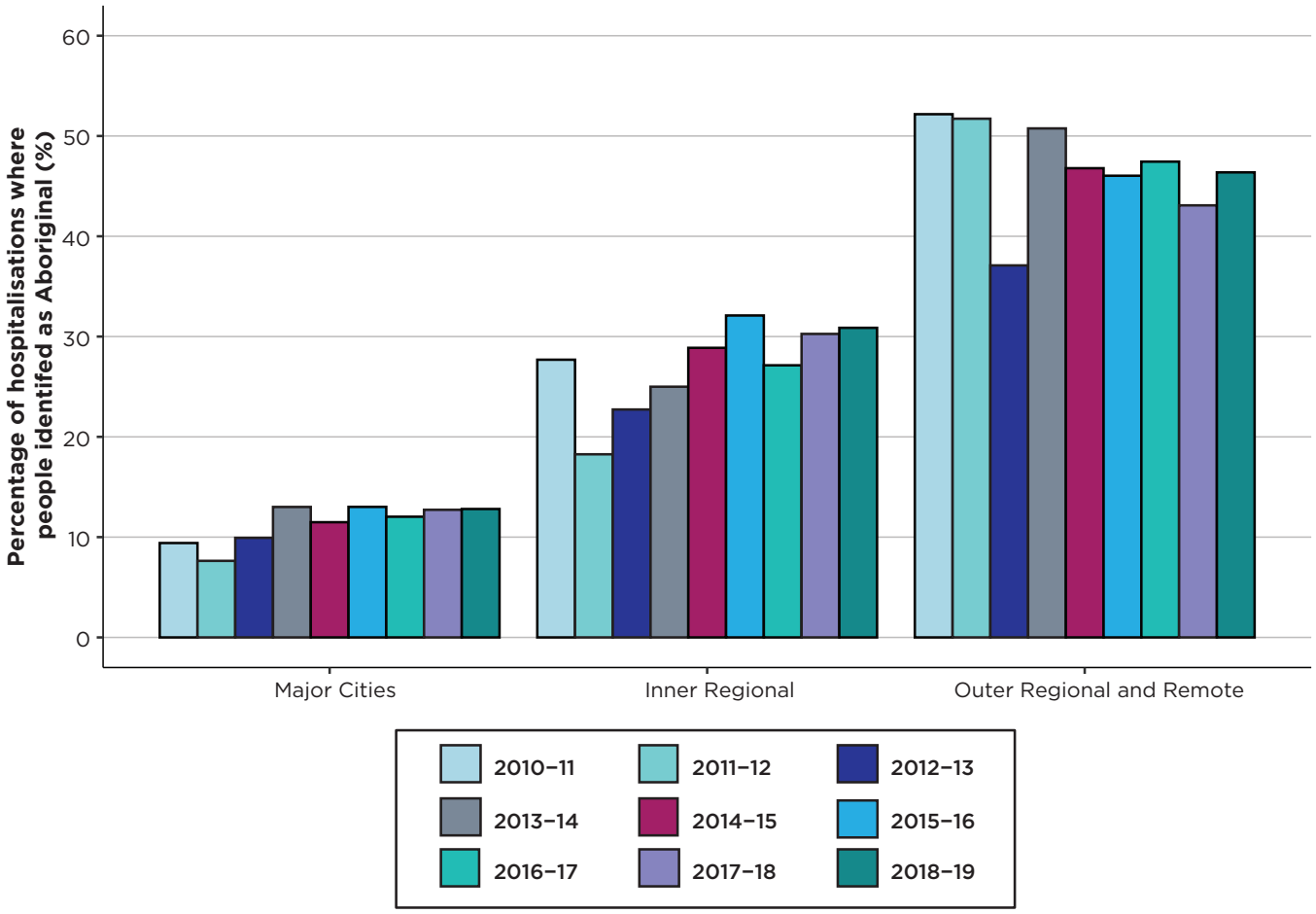


Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health.
Notes: Based on data from the NSW 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 2018-19, the estimated percentage of NSW admitted patient records correctly reported for Aboriginal people rose from 72.5% to 84.5%. 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 http://www.healthstats.nsw.gov.au/Indicator/dqi_era_apd. 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

The number of methamphetamine-related hospitalisations in people who were reported as Aboriginal was highest in major cities compared with inner regional, and outer regional and remote areas. In 2019, there were 771 methamphetamine-related hospitalisations in major cities, 418 in inner regional areas, and 211 in outer regional and remote areas, where people were reported as Aboriginal **(Figure 22)**.

In contrast, as a percentage of methamphetamine-related hospitalisations where Aboriginality was known, outer regional and remote areas had the highest percentage of hospitalisations where people were reported as Aboriginal. In 2019, 13% of methamphetamine-related hospitalisations in major cities, 31% in inner regional areas, and 46% in outer regional and remote areas were hospitalisations where people were reported as Aboriginal **(Figure 23)**.

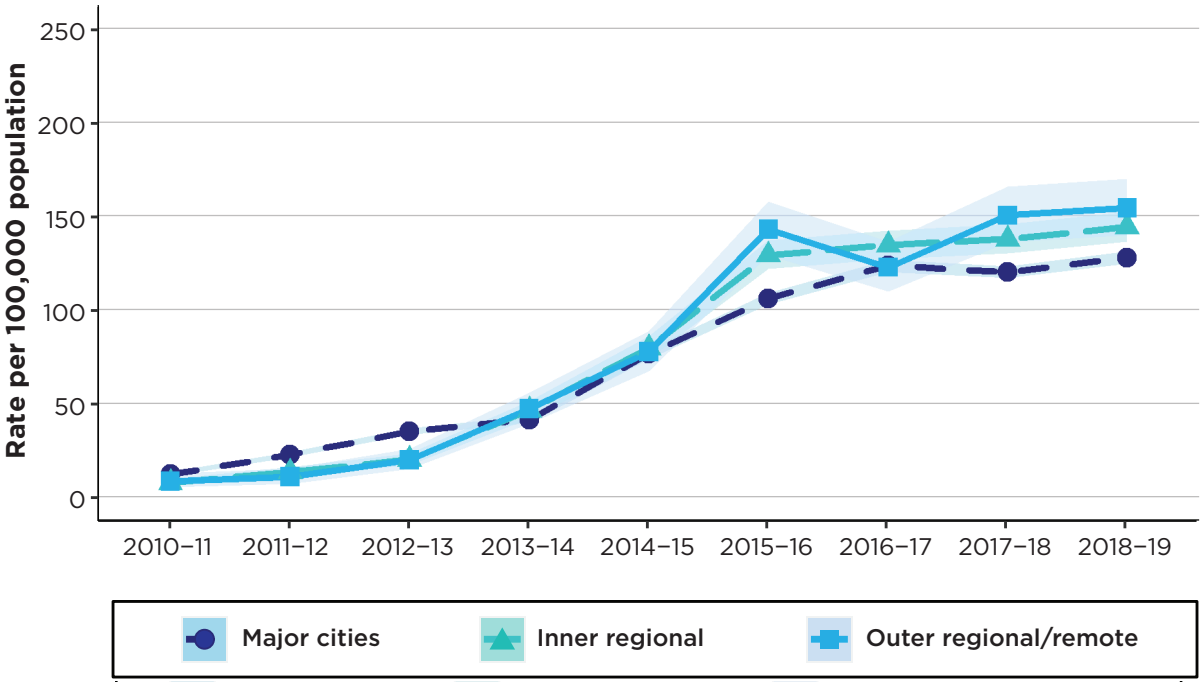
Figure 23: Proportion of methamphetamine-related hospitalisations per 100,000 population to all hospitals, where people were reported as Aboriginal, NSW, 2010-11 to 2018-19



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 2018-19, the estimated percentage of NSW admitted patient records correctly reported for Aboriginal people rose from 72.5% to 84.5%. 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 http://www.healthstats.nsw.gov.au/Indicator/dqi_era_apd. 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. This analysis excludes records where Aboriginal status was missing or unstated.

Figure 24: Rate of methamphetamine-related hospitalisations per 100,000 population to all hospitals by remoteness, NSW, 2010-11 to 2018-19

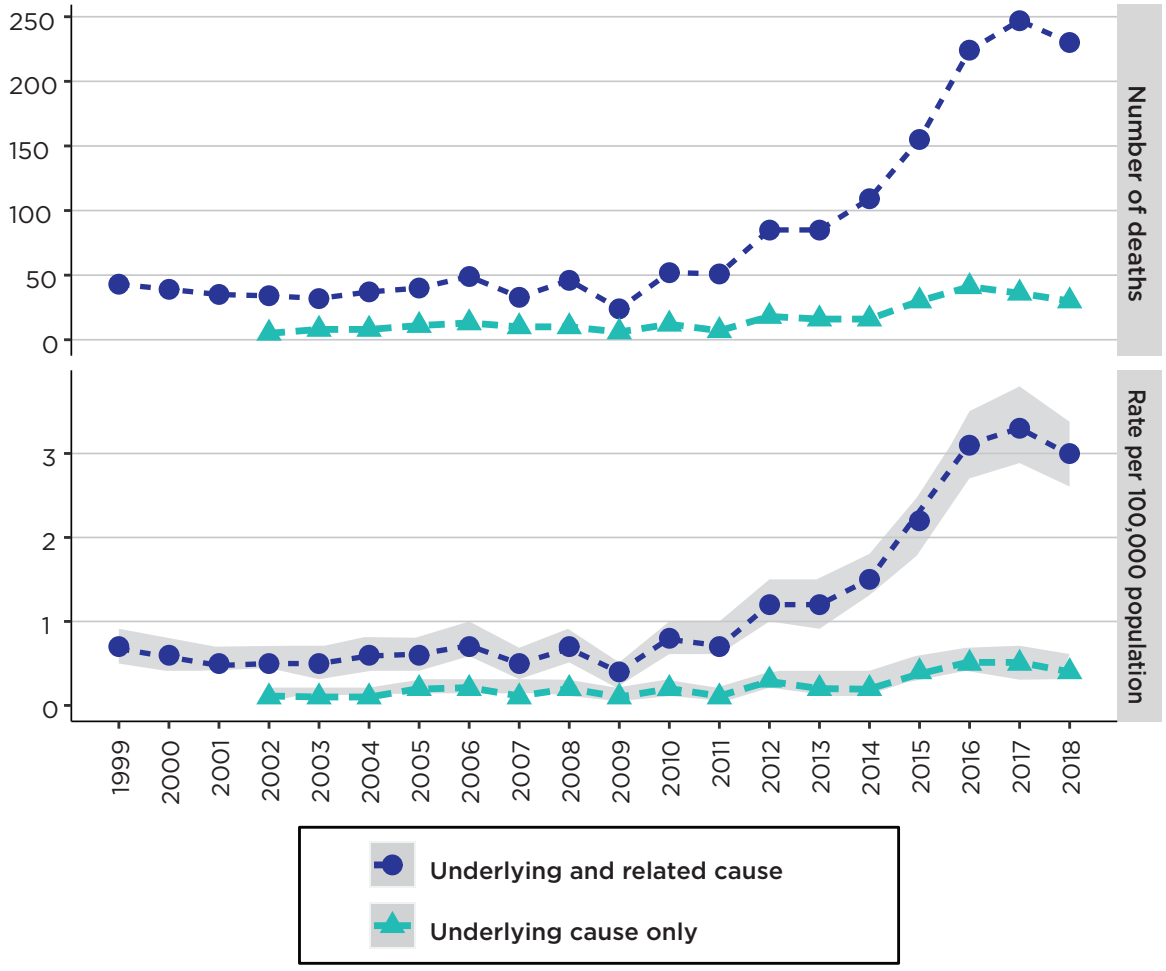


Source: NSW Combined Admitted Patient Epidemiology Data (CAPED), and Australian Bureau of Statistics (ABS) population estimates, Secure Analytics for Population Health Research and Intelligence (SAPHaRI); Centre for Epidemiology and Evidence, NSW Ministry of Health.
Note: The shaded area represents the 95% confidence interval for each data point.

There has been a significant increase in rates of methamphetamine-related hospital admissions across NSW from 2010-11 to 2018-19, which were slightly higher among people living in inner regional areas compared with major cities from 2015-16 to 2018-19 **(Figure 24)**. In major cities, the rate of methamphetamine-related hospital admissions increased from 12.3 to 127.8 per 100,000 population between 2010-11 and 2018-19. This increase was even greater in inner regional (from 7.7 to 144.1 hospital admissions per 100,000 population between 2010-11 and 2018-19) and outer regional-remote areas (from 8.4 to 154.4 hospital admissions per 100,000 population between 2010-11 and 2018-19).

2.3 Psychostimulant deaths

Figure 25: Psychostimulants (excluding cocaine) as underlying or associated cause of death, and as underlying cause of death only, by number of deaths and rate of deaths per 100,000 population, NSW 1999 to 2018



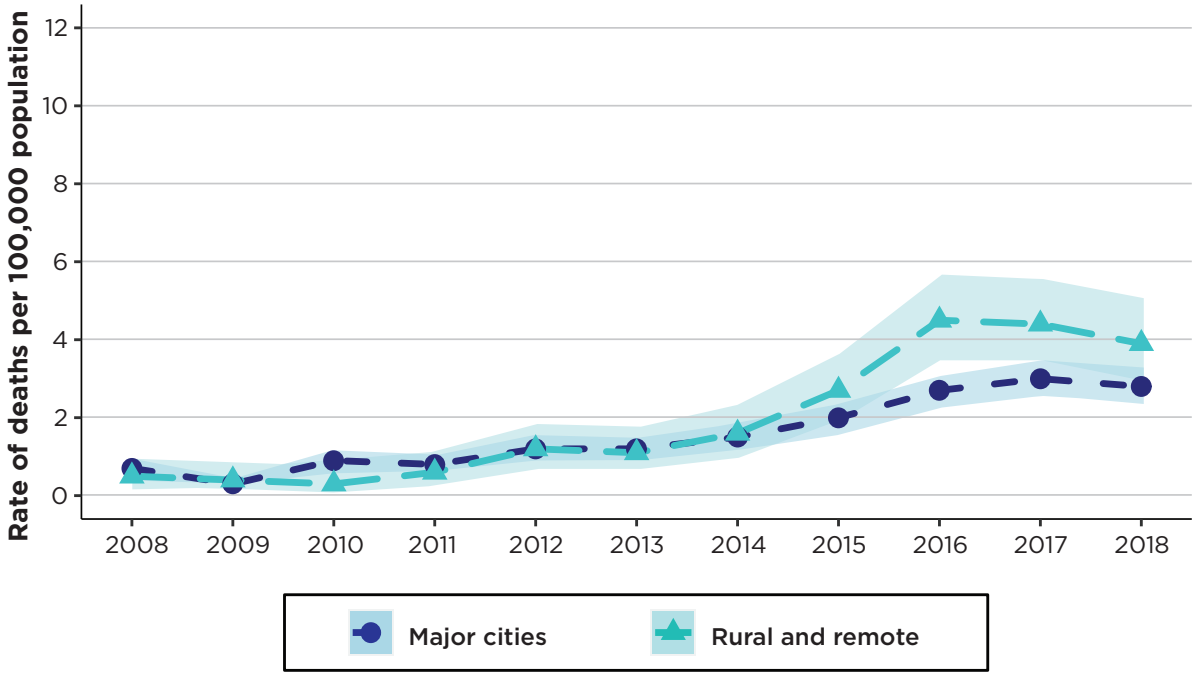
Source: Mortality estimates for years up to 2005 are based on Australian Bureau of Statistics death registration data. Data from 2006 onwards were provided by the Australian Coordinating Registry, Cause of Death Unit Record File; the data for the most 2 recent years are preliminary (Secure Analytics 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. Psychostimulants are a group of central nervous system stimulants. Common psychostimulants include methamphetamine, MDMA, amphetamine, cocaine, caffeine, dextroamphetamine and methylphenidate. The data presented above excluded cocaine.

Psychostimulant deaths (which included amphetamine type substances but excluded cocaine) increased in NSW between 1999 and 2018; using data for both underlying and associated causes of death (psychostimulant-*related* deaths), the number of deaths increased from 43 (1999) to 230 (2018); and for underlying cause of death only (psychostimulant-*induced* deaths), the number of deaths increased from 5 (2002) to 30 (2018) **(Figure 25)**.

Correspondingly, the population rates of psychostimulant deaths (which included amphetamine type substances but excluded cocaine) in NSW, between 1999 and 2018, for underlying and associated cause of death (psychostimulant-*related* deaths) grew from 0.7 per 100,000 population (1999) to 3.0 per 100,000 population (2018); and for underlying cause of death only (psychostimulant-*induced* deaths), increased from 0.1 per 100,000 population (2002) to 0.4 per 100,000 population (2018) **(Figure 25)**.

Figure 25 highlights that although there has been in an increase in psychostimulant-related deaths, many of these had another underlying cause, such as poisoning from another drug class.

Figure 26: Psychostimulants (excluding cocaine) as underlying or associated cause of death, by remoteness, NSW 2008 to 2018



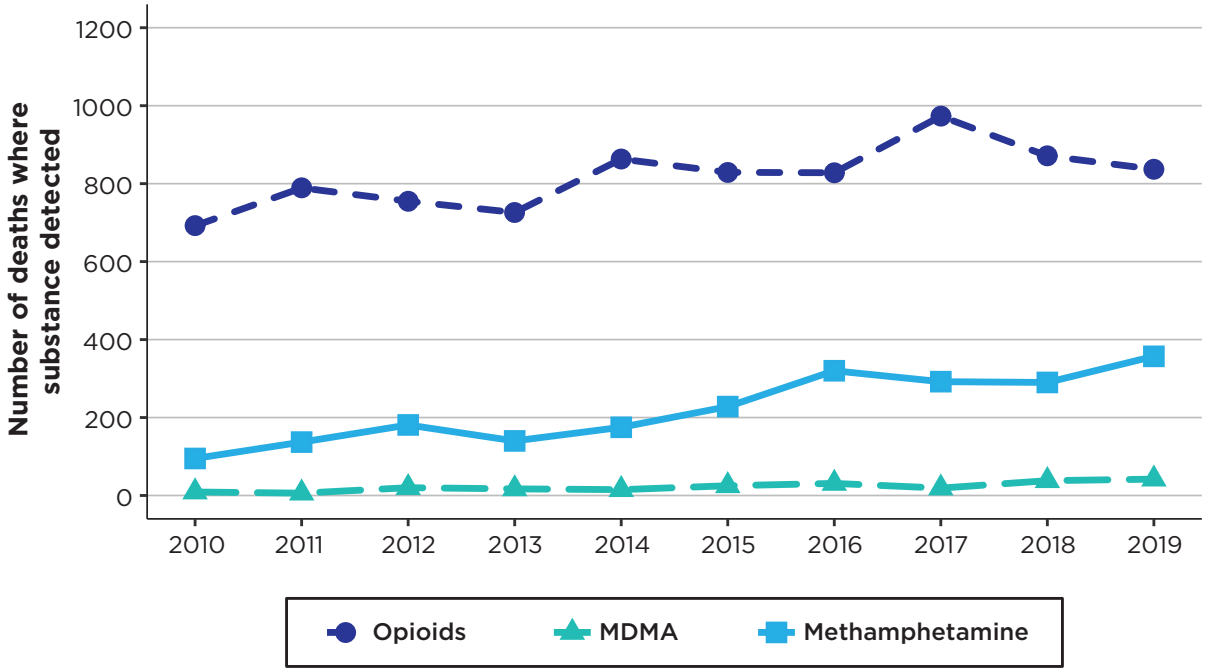
Source: Mortality estimates for years up to 2005 are based on Australian Bureau of Statistics death registration data. Data from 2006 onwards were provided by the Australian Coordinating Registry, Cause of Death Unit Record File; the data for the most 2 recent years are preliminary (Secure Analytics 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. Psychostimulants are a group of central nervous system stimulants. Common psychostimulants include methamphetamine, MDMA, amphetamine, cocaine, caffeine, dextroamphetamine and methylphenidate. The data presented above excluded cocaine.
'Rural and remote' refers to the ARIA designations of: 'inner regional', 'outer regional', 'remote' and 'very remote'. This analysis includes psychostimulant-related deaths identified in both underlying and associated cause of death.

There was an increase in the rate of psychostimulant-related deaths across NSW from 2008 to 2018, with similar rates in major cities and rural and remote areas from 2008 to 2014. In the period 2015 to 2018, rural and remote areas of NSW appeared to have a slightly higher rate of psychostimulant-related deaths than major cities. In 2018, major cities had a rate of 2.8 deaths per 100,000 population, while rural and remote areas had a rate of 3.9 deaths per 100,000 population **(Figure 26)**. However, these results should be interpreted with caution due to the small numbers reported.

Although the rate of psychostimulant-related deaths was higher in rural and remote areas, the actual number of deaths was higher in major cities than rural and remote areas, reflecting the distribution of the NSW population.

2.4 Deaths where methamphetamine was detected

Figure 27: Deaths where methamphetamine, MDMA or opioids were detected in forensic toxicology, by substance, NSW, 2010 to 2019



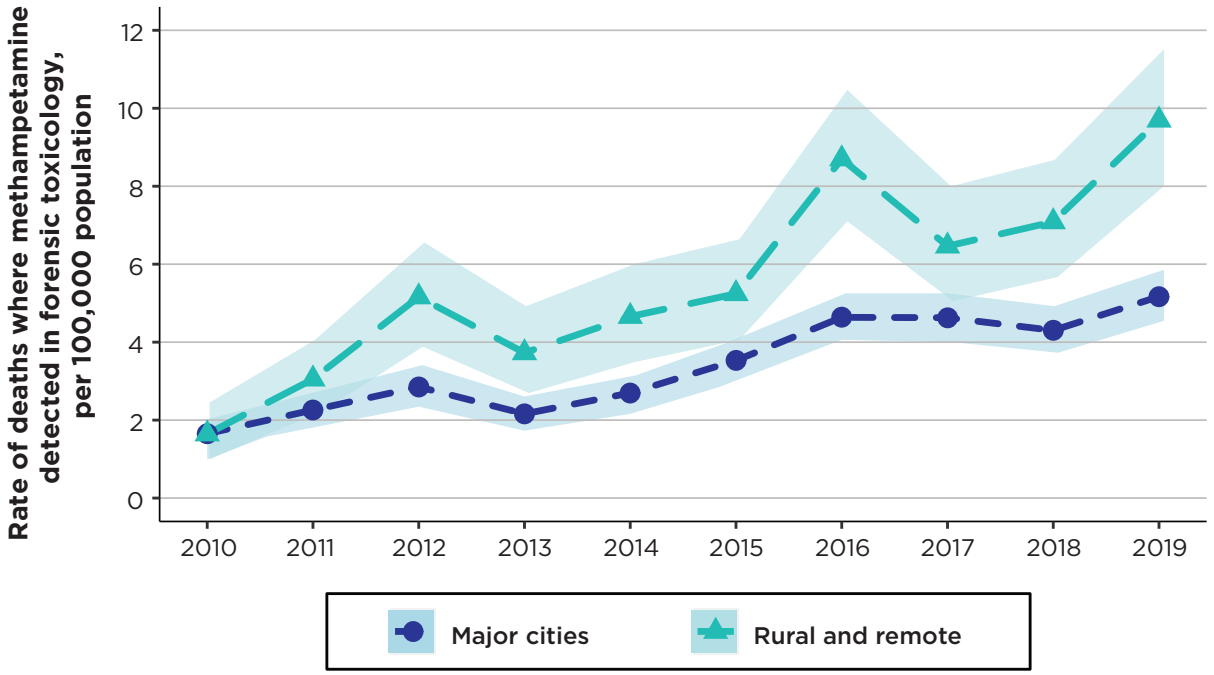
Source: NSW Health Pathology Forensic & Analytical Science Service

The number of deaths where methamphetamine was detected in toxicological analyses has risen from 95 deaths in 2010 to 357 deaths in 2019. This remains far lower than the number of deaths where opioids were detected (692 deaths in 2010 and 837 deaths in 2019) **(Figure 27)**. For the period 2010 to 2019, the total number of deaths where MDMA was detected remained low (9 deaths in 2010 and 42 deaths in 2019) and was far lower than the number of deaths where methamphetamine was detected **(Figure 27)**.

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, several 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 **Figure 25**).

Figure 28: Deaths where methamphetamine was detected in forensic toxicology, by remoteness, NSW, 2010 to 2019



Source: NSW Health Pathology Forensic & Analytical Science Service, and Australian Bureau of Statistics population estimates, Secure Analytics for Population Health Research and Intelligence, 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.' The most recent population estimates by remoteness on Secure Analytics for Population Health Research and Intelligence (SAPHaRI) are for 2016. In this analysis, the 2016 population estimates 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.

The rate of death per 100,000 population where methamphetamine was detected in toxicological analyses was higher in people living outside major cities from 2011 to 2019 **(Figure 28)**. The rate increased across the analysis period in all areas, and in 2019 is the highest it has been both for major cities (from 1.7 in 2010 to 5.2 in 2019 per 100,000 population), and rural and remote regions (from 1.6 in 2010 to 9.7 in 2019 per 100,000 population).

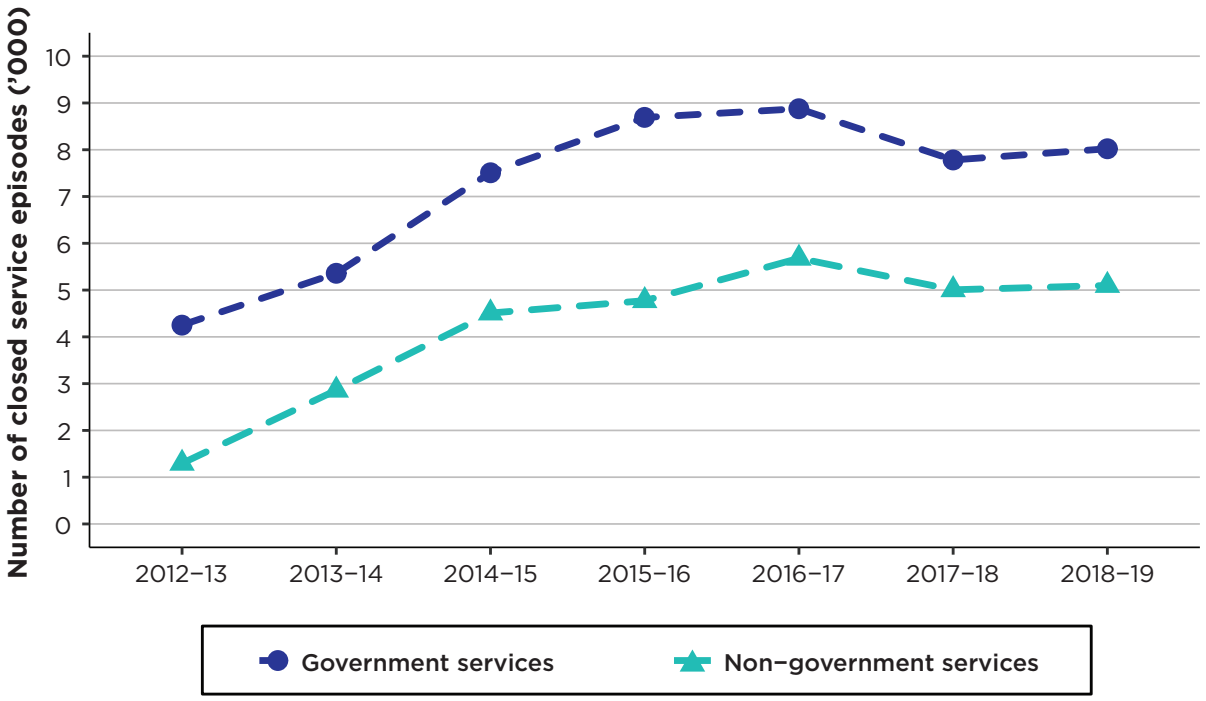
Although the rate of death where methamphetamine was detected was higher in rural and remote areas, the actual number of deaths in 2019 was higher in major cities in comparison with rural and remote areas (approximately 2:1). This is because the majority of the NSW population (75% in 2016) lives in major cities.

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, several 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, by remoteness, is presented separately above (see **Figure 26**).

2.5 Treatment episodes for methamphetamine use

Figure 29: Amphetamine-related treatment episodes provided by government and non-government services, NSW, 2012-13 to 2018-19



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

The number of amphetamine-related treatment episodes recorded by drug and alcohol treatment services in NSW increased overall from 2012-13 to 2018-19, and was higher for government services than non-government services over this time period. In 2012-13 there were approximately 4,200 closed service episodes recorded by government services, and approximately 1,300 closed service episodes recorded by non-government services. A peak in number of amphetamine-related treatment episodes is noted in both government services and non-government services in 2016-17 (approximately 8,800 episodes and 4,700 respectively). Between 2017-18 and 2018-19 the number of treatment episodes remained relatively stable (approximately 8,000 episodes in government services and approximately 5,000 episodes in non-government services) **(Figure 29)**.

Table 4. Count of closed episodes where principle drug of concern was amphetamine-type substance, by main service provided, NSW, 2018-19

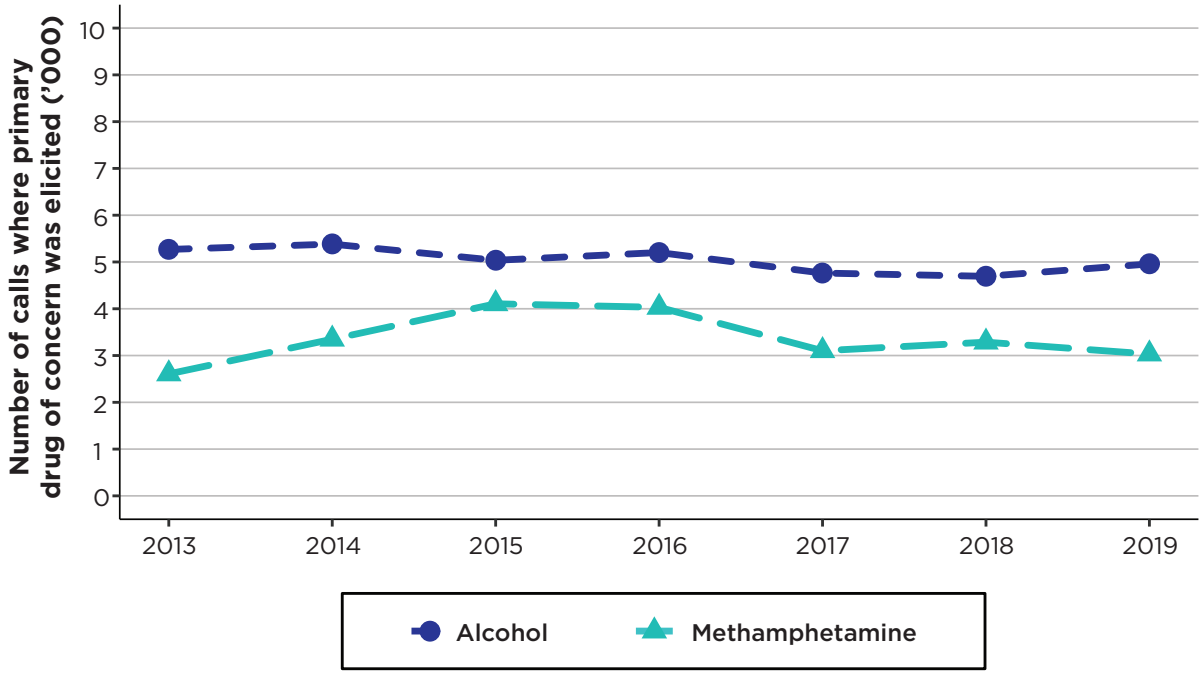
Main service provided	Count of closed episodes	%
Counselling	4,247	*31%*
Assessment only	2,576	*19%*
Rehabilitation activities	2,105	*16%*
Support and case management only	1,662	*12%*
Withdrawal management (detoxification)	1,500	*11%*
Consultation activities	1,277	*9%*
Maintenance pharmacotherapy (opioid)	124	*1%*
Information and education only	38	*<1%*
Involuntary drug and alcohol treatment program (IDAT)	10	*<1%*
Other	10	*<1%*
Maintenance pharmacotherapy (non - opioid)	<5	*<1%*
Total	**13,552**	

Source: NSW Alcohol and Other Drugs Treatment Services Minimum Data Set
Note: Table 3 includes data from government and non-government services. Administrative closed service episodes and Commonwealth funded agencies are excluded. 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

In 2018-19, counselling accounted for approximately 31% of all closed treatment episodes where the principal drug of concern was an amphetamine-type substance **(Table 4)**. In contrast, withdrawal management (detoxification) accounted for approximately 11% of all closed episodes where the principal drug of concern was an amphetamine-type substance.

2.6 Methamphetamine-related calls to drug information services

Figure 30: Phone calls to NSW Alcohol and Drug Information Service, NSW, for alcohol and methamphetamine, 2013 to 2019



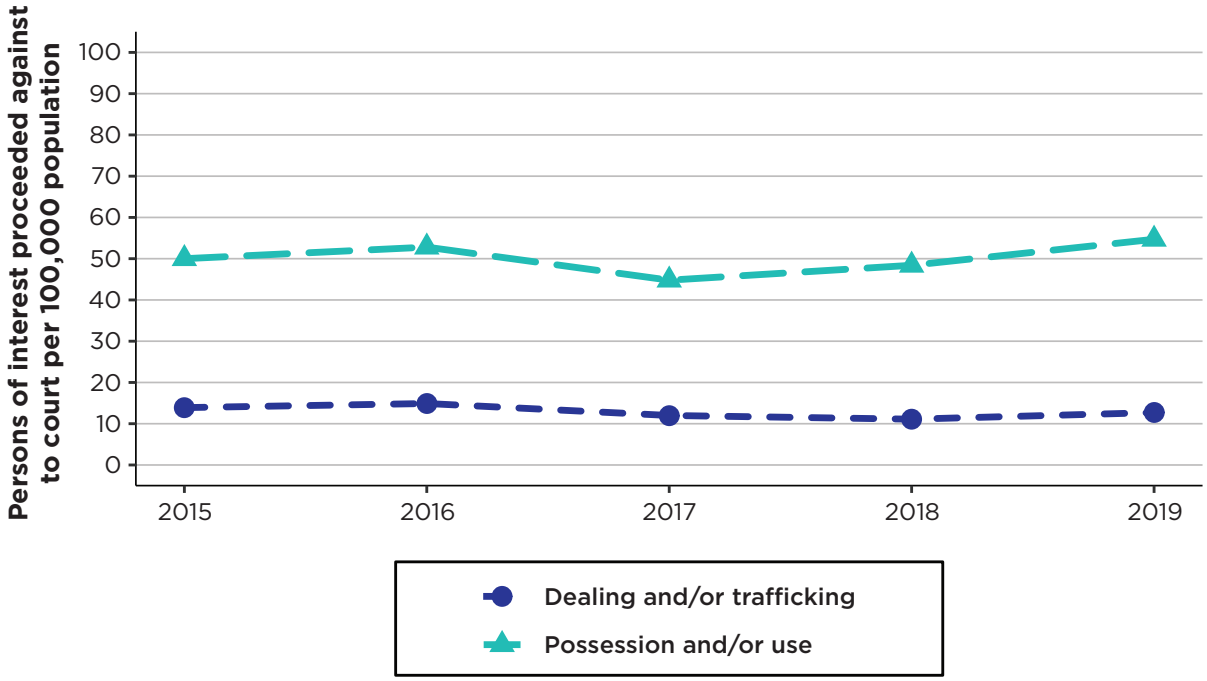
Source: Alcohol and Drug Information Service (ADIS), NSW Health. Includes calls to ADIS, Opioid Treatment Line, Stimulant Treatment Line, Cannabis Caution and the Drug & Alcohol Specialist Advisory Service
Notes: Alcohol and Drug Information Service (ADIS) is a NSW statewide telephone service providing 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 are the number calls related to alcohol and/or methamphetamine. 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.

Alcohol remains the main drug of concern for people contacting the NSW Alcohol and Drug Information Service (ADIS). The number of calls to ADIS regarding alcohol remained relatively stable between 2013 and 2019 (range approximately 4,700 to 5,400 calls) while calls regarding methamphetamine peaked in 2015 (approximately 4,100 calls) and remained stable at lower levels between 2017 and 2019 (approximately 3,100 calls) **(Figure 30)**.

3. Social harms from methamphetamine use

3.1 Criminal proceedings relating to amphetamines

Figure 31: Rate of persons of interest proceeded against to court by NSW Police for a) 'Possession and/or use of amphetamines', and b) 'Dealing and/or trafficking of amphetamines', NSW 2015 to 2019.

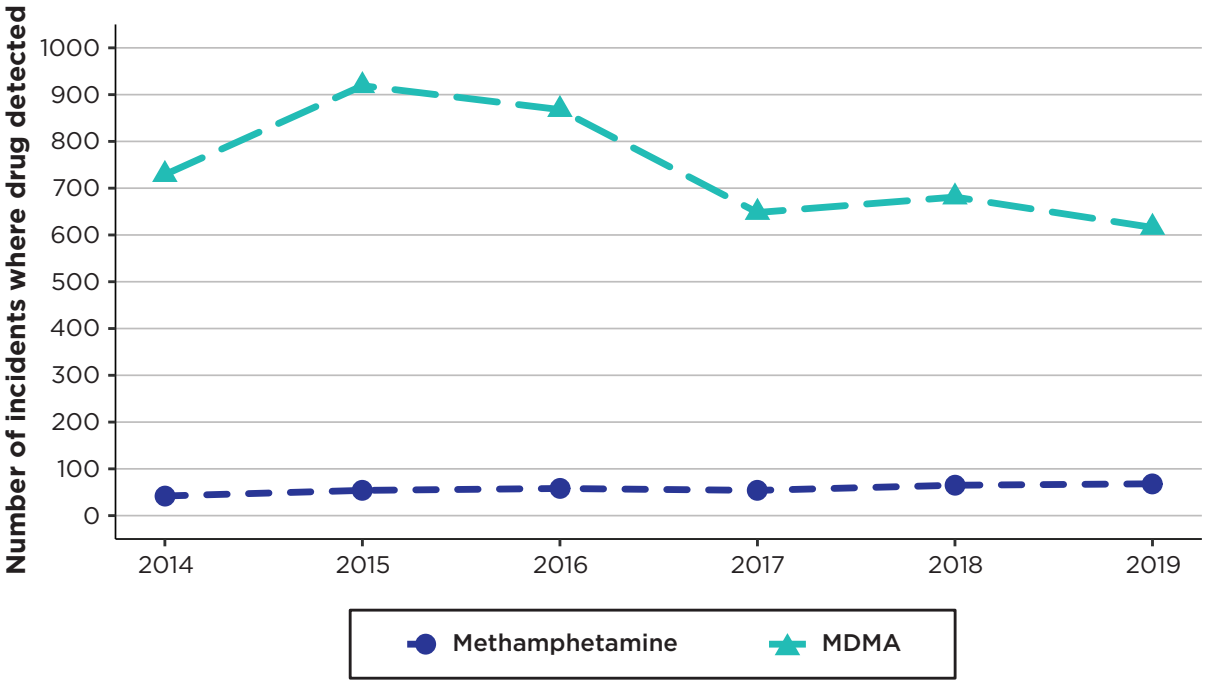


Source: NSW Bureau of Crime Statistics and Research
Notes:: A Person of Interest (POI) is an alleged offender who has had legal action commenced against them by NSW Police Force, in connection with a criminal incident. The data shown in Figure 31 includes all POIs that are 'proceeded against to court', meaning that they are issued a court attendance notice; not all POIs are formally proceeded against to court. POIs are not a count of unique offenders. This is because while a POI is counted only once per incident, the same POI may be associated with more than one criminal incident over the time period shown. When a POI is proceeded against to court for both possession/use of amphetamines and trafficking of amphetamines in association with the same criminal incident, the POI is only counted for the more serious charge, i.e. trafficking.

Criminal proceedings relating to 'possession and/or use of amphetamines' as well as 'dealing and/or trafficking of amphetamines' have remained relatively stable in the period 2015 to 2019. In 2019, the rate of 'persons of interest proceeded against to court' was 54.7 per 100,000 population for possession and/or use, and 12.7 per 100,000 population for dealing and/or trafficking **(Figure 31)**.

3.2 Drug driving incidents where methamphetamine was detected

Figure 32: Drug driving incidents where methamphetamine or MDMA were detected, NSW, 2014 to 2019



Source: NSW Forensic & Analytical Science Service, NSW Health Pathology
Notes: This data relates only to driving incidents where methamphetamine was subsequently detected in clinical samples. This data does not include roadside drug testing data.

The number of drug driving incidents where methamphetamine was detected stabilised between 2017 (648 incidents) and 2019 (616 incidents) after a peak in 2015 (919 incidents). The number of driving incidents where MDMA was detected was far below the number where methamphetamine was detected and has also remained relatively stable between 2014 (42 incidents) and 2019 (68 incidents) **(Figure 32)**.

4. 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 methamphetamine use and harms in NSW (see **Appendix A** for further detail on data sources). 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.

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 or homeless people, 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 descriptions

Data source	Data description	Data custodian
National Drug Strategy Household Survey	Survey conducted every two to three years since 1985. Household survey of non-institutionalised persons aged 14 years and over.	Australian Institute of Health and Welfare
Australian Needle and Syringe Program Survey	Conducted annually over a one to two-week period, all clients attending participating needle and syringe program services are invited to complete a survey and provide a blood sample.	Kirby Institute
Illicit Drug Reporting System	Annual interview of a sentinel group of people who regularly inject drugs, conducted in Australian capital cities.	National Drug and Alcohol Research Centre
Ecstasy and Related Drugs Reporting System	Annual interview of a sentinel group of people who regularly use ecstasy and other stimulants, conducted in Australian capital cities.	National Drug and Alcohol Research Centre
NSW Health Pathology Forensic & Analytical Science Service	The NSW Health Pathology Forensic & 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 Coronial Jurisdiction, NSW Road and Maritime Services, NSW Health, Local Government Bodies and private industry.	NSW Health Pathology
National Wastewater Drug Monitoring Program	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 December 2019, 53 wastewater sites were monitored nationally, covering approximately 43% of the Australian population.	Australian Criminal Intelligence Commission
NSW Public Health Rapid, Emergency, Disease and Syndromic Surveillance system	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 and all emergency Triple Zero (000) calls to NSW Ambulance.	Centre for Epidemiology and Evidence, NSW Ministry of Health
NSW Admitted Patient Data Collection and Combined Admitted Patient Epidemiology Data	This collection records all admitted patient services provided by New South Wales public hospitals, public psychiatric hospitals, public multi-purpose services, private hospitals, and private day procedures centres.	Centre for Epidemiology and Evidence, NSW Ministry of Health
Alcohol and Other Drugs Treatment Services National Minimum Data Set	The Alcohol and Other Drugs Treatment Services National Minimum Data Set (AODTS NMDS) 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. There was under-reporting for the 2015-2016 financial year owing to changes in the Community Health and Outpatient Care program data collection system.	Australian Institute of Health and Welfare

Data source	Data description	Data custodian
Alcohol and Drug Information Service	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.	St Vincent's Hospital Network
Justice Health and Forensic Mental Health Network	Justice Health & Forensic Mental Health Network (JH&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.	Justice Health & Forensic Mental Health Network
Cause of death unit record file (NSW)	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 were correct as at a point in time.	Centre for Epidemiology and Evidence, NSW Ministry of Health
NSW Bureau of Crime Statistics and Research	The NSW Bureau of Crime Statistics and Research (BOCSAR) datasets contain information on all criminal incidents recorded by NSW Police since January 1995 by offence type. This data reflects policing priorities and activity, and not necessarily use in the community.	NSW Bureau of Crime Statistics and Research

Appendix B: Reference list

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Appendix C: Case selection for NSW Health data

Hospitalisations

Source

NSW Combined Admitted Patient Epidemiology Data and Australian Bureau of Statistics population estimates (sourced via Secure Analytics for Population Health Research and Intelligence, SAPHaRI). Centre for Epidemiology and Evidence, NSW Ministry of Health.

Data extracted 28 July 2020

Case selection and analysis

- Data were analysed:
  - as age-standardised rates per 100,000 population.
  - by age, sex, remoteness area, socioeconomic index, Aboriginal status and private or public hospital
  - for total amphetamine-type stimulants (ATS), and for methamphetamine, MDMA, and other/ unspecified ATS
- Inclusion criteria:
  - episode end dates from 1 July 2010 to 30 June 2019
  - in NSW residents aged 16 years and over
  - 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 amphetamine-type stimulants: T43.6X or F15.XX
    - methylamphetamine: T43.61, F15.01, F15.11, F15.21, F15.31, F15.41, F15.51, F15.61, F15.71, F15.81 or F15.91
    - methylamphetamine-related psychotic disorder: any of the above codes in any diagnosis, and F15.51, F15.71 in any diagnosis
    - methylenedioxymethamphetamine (ecstasy/MDMA): T43.62, F15.02, F15.12, F15.22, F15.32, F15.42, F15.52, F15.62, F15.72, F15.82 or F15.92
    - unspecified stimulants: T43.60, F15.00, F15.10, F15.20, F15.30, F15.40, F15.50, F15.60, F15.70, F15.80 or F15.90
    - other unspecified stimulants (amphetamine, caffeine):T43.69, F15.09, F15.19, F15.29, F15.39, F15.49, F15.59, F15.69, F15.79, F15.89 or F15.99
  - 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.
- 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 30 January 2020

Case selection and analysis

- Data were analysed:
  - as rates per 1,000 unplanned Emergency Department (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 2019
  - assigned a provisional diagnosis within one of four PHREDSS alcohol and other drugs surveillance syndromes (overdose/poisoning, alcohol problems, illicit drugs, mental health problems)
  - where the nursing assessment text, presenting problem or diagnosis description fields contained the terms:
    - " ice ", " meth " or "metham"

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

- Methamphetamine ED presentations are restricted to drug, alcohol and mental health surveillance syndromes to minimise the large number of false detections associated with the term 'ice', particularly concerning injuries.
- The current selection criteria underestimate methamphetamine-related ED presentations by at least 40%; however this method reduces the rate of false positives from 70% to 7% due to 'ice' being a commonly used term.
- The methamphetamine keyword search may undercount 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 includes 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 84% of total NSW public emergency department activity in 2017-18.
- The number of PHREDSS reporting hospitals has increased over time, although coverage remains lower in rural locations. Coverage was higher in metropolitan Sydney areas (94%) compared with the rest of NSW (71%) and can be reported from January 2011. The PHREDSS system includes continuously updating data and improvements to the keyword search strategy may result in updates to previously reported numbers of methamphetamine-related ED presentations.
- ED data are captured at the presentation level (not unique persons).
- Even with the same number of hospitals, ED presentations increase over time due to increased service use and population growth.
- The Local Health District (LHD) reported relates to the hospital location.

Deaths (Cause of Death Unit Record File)

Source

Mortality estimates for years preceding 2006 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 (Secure Analytics for Population Health Research and Intelligence, SAPHaRI, Centre for Epidemiology and Evidence, NSW Ministry of Health). Extracted June 2020.

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 includes 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 T43.6 (Psychostimulants with abuse potential, excluding cocaine) and F15.X (Mental and behavioural disorders due to use of other stimulants, including caffeine, excluding cocaine).
- Deaths registered between 1999 and 2018.
- 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 2017-2018 are preliminary, data for 2016 are revised, and data for 1999 to 2015 are final.

Deaths – Forensic toxicology, Forensic & Analytical Science Service

Source

Forensic toxicology laboratory, NSW Health Pathology Forensic & Analytical Science Service (FASS). Extracted 17 August 2020.

Case selection and analysis

- Dates are based on 'approved date' where the results of testing have completed an internal approval. Other analysis of this data may instead be based on the date of the post-mortem examination.
- 'Approved dates' included were between 1 January 2010 and 31 December 2019.
- 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 substance names are captured to identify MDMA:
  - "3,4-Methylenedioxyamphetamine"
  - "3,4-Methylenedioxymethylamphet"
  - "3,4-Methylenedioxymethylamphetamine"
  - "MDMA"
- The following substance names are captured to identify methamphetamine:
- The following substances names are captured to identify MDMA:
  - "3,4-Methylenedioxyamphetamine"
  - "3,4-Methylenedioxymethylamphet"
  - "3,4-Methylenedioxymethylamphetamine"
  - "MDMA"

- The following substances names are captured to identify methamphetamine:
  - “Methylamphetamine”
  - “Methylampheta”
  - “Methylamphetami”
  - “Methylamphetamin”
  - “Methylamphetamine”
- The following substances names are captured to identify opioids:
  - “6-Monoacetylmorphine”
  - “Acetylcodeine”
  - “Buprenorphine (free”)
  - “Buprenorphine (free)”
  - “Buprenorphine (total)”
  - “Codeine”
  - “Codeine (free)”
  - “Codeine (Total)”
  - “Codeine-6-glu”
  - “Codeine-6-glucoronide”
  - “Codeine-6-glucu”
  - “Codeine-6-glucur”
  - “Codeine-6-glucuron”
  - “Codeine-6-glucuronide”
  - “ Codeine-6-glucuronide”
  - “Dihydrocodeine”
  - “Fentanyl”
  - “Hydrocodone”
  - “Hydromorphone”
  - “Methadone”
  - “Morphine”
  - “Morphine (Fre”
  - “Morphine (Free)”
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  - “Morphine (Total)”
  - “ Morphine (Total)”
  - “Morphine-3-gl”
  - “Morphine-3-gluc”
  - “Morphine-3-glucoro”
  - “Morphine-3-glucu”
  - “Morphine-3-glucuro”
  - “Morphine-3-glucuronide”
  - “Morphine-6 glucuro”
  - “Morphine-6-gl”
  - “Morphine-6-gluc”
  - “Morphine-6-glucoro”
  - “Morphine-6-glucoronide”
  - “Morphine-6-glucu”
  - “Morphine-6-glucuro”
  - “Morphine-6-glucuronide”
  - “Norbuprenorph”
  - “Norbuprenorphin”
  - “Norbuprenorphine”
  - “Norbuprenorphine (“
  - “Norbuprenorphine (free)”
  - “Norbuprenorphine (total)”
  - “Oxycodone”
  - “Oxymorphone”
  - “Pethidine”
  - “Pholcodine”
  - “Propoxyphene”
  - “Tramadol”
  - “U-47700”

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 but not limited to: ‘blood post mortem’. Others include but are not limited to: ‘urine’ and ‘liver’, though 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’).

Purity and dose – Criminalistics, Forensic & Analytical Science Service

Source

Criminalistics, NSW Health Pathology Forensic & Analytical Science Service (FASS). Extracted 3 March 2020.

Case selection and analysis

- Dates were based on 'reported date' where the results of testing have completed an internal approval.
- Reported dates included were between 1 January 2010 and 31 Dec 2019
- All records where sample purity was recorded were used.
- The following substance names were captured to identify methamphetamine:
  - "Methylamphetamine"
  - "Methylamphtamine"
- The following substance names were captured to identify MDMA:
  - "34methylenedioxymethylamphetamine"
  - "34methylenedioymethylamphetamine"
  - "34methylendioxymethylamphetamine"
- The following keywords were used to identify sample forms from free text fields (descending hierarchy):
  - Tablet: tablet
  - Capsule: capsule
  - Crystal: crystalline
  - Powder: powder
  - Paste: paste, pasty, moist

Notes

- Purity testing by FASS is currently only required for commercial seizures and all drugs purchased during controlled (undercover) operations. In 2017 there were changes to the *Drug Misuse and Trafficking Regulation 2011* (NSW) that have decreased the number of drug seizures tested at FASS.
- MDMA is reported by FASS as MDMA base, which is pure MDMA. Pure MDMA is an oily liquid that is insoluble in water and decomposes on exposure to air. In this form it is difficult to prepare for street sale in the form of tablets or capsules. It is for this reason MDMA is usually encountered after it has been converted into a solid salt, typically the hydrochloride salt. 84% MDMA base is equivalent to 100% MDMA Hydrochloride.
- Methylamphetamine (MA) is reported by FASS as MA base, which is pure MA. Pure MA is an oily liquid that is insoluble in water and decomposes on exposure to air. It is for this reason Methylamphetamine is usually encountered after it has been converted into a solid salt, typically the hydrochloride salt. 80% MA base is equivalent to 100% MA Hydrochloride.

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:

Code	Descriptor	Definition
Code 10	Counselling	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.
Code 20	Withdrawal management (detoxification)	Any form of withdrawal management, including medicated and non-medicated, in any delivery setting.
Code 30	Rehabilitation activities	An intensive treatment program that integrates a range of services and therapeutic activities that may include behavioural 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.
Code 40	Maintenance pharmacotherapy (opioid)	Includes Methadone, Buprenorphine, Buprenorphine/Naloxone and Slow release oral Morphine.
Code 48	Maintenance pharmacotherapy (non-opioid)	Pharmacotherapy using drugs other than opioid substitutes. Includes Naltrexone, Acamprosate, and Disulfiram. Includes those used as maintenance therapies and those used as relapse prevention.
Code 50	Consultation activities	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.
Code 60	Support and case management	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.
Code 70	Involuntary Drug and Alcohol Treatment (IDAT)	A structured drug and alcohol treatment program that provides medically supervised withdrawal, rehabilitation and supportive interventions to identified patients through involuntary detention.
Code 91	Assessment only	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.
Code 92	Information and education only	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.
Code 98	Other	Refers to other treatment types not further defined, such as nicotine replacement therapy or outdoor therapy.

NSW GOVERNMENT