National Illicit Drug Indicators Project

METHODS FOR "Trends in Overdose and Other Drug-Induced Deaths in Australia, 2002-2021"

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Please note that as with all statistical reports, there is the potential for minor revisions to data in this report. Please refer to the online version at Drug Trends.

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Data source

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We acknowledge the traditional custodians of the land on which the work for this report was undertaken. We pay respect to Elders past, present, and emerging.

Related Links

- For interactive data visualisations accompanying this report, go to: https://drugtrends.shinyapps.io/Deaths_2021
- For full details of the methods underpinning this report, go to: https://ndarc.med.unsw.edu.au/resource-analytics/trends-drug-induced-deaths-australia-2002-2021
- For other Drug Trends publications on drug-related hospitalisations and drug-induced deaths in Australia, go to: https://ndarc.med.unsw.edu.au/project/national-illicit-drug-indicators-project-nidip
- For more information on NDARC research, go to: http://ndarc.med.unsw.edu.au/
- For more information about the ABS, go to: http://www.abs.gov.au
- For more information on ICD coding go to: http://www.who.int/classifications/icd/en/
- For more information on the Remoteness Areas Structure within the Australian Statistical Geography Standard (ASGS), go to: https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.005
- For more research from the Drug Trends program and to subscribe to our newsletter, go to: https://ndarc.med.unsw.edu.au/program/drug-trends
- For details on the collection, organisation and interpretation of NCIS data, go to: https://www.ncis.org.au/about-the-data/explanatory-notes/
- For statistics about case closure statistics in NCIS, go to: https://www.ncis.org.au/about-the-data/operational-statistics/

Data Source

This report and the corresponding online interactive visualisation contain statistics on drug related causes of death for Australia between 1997 and 2021. The data from the Australian Bureau of Statistics (ABS) were accessed from the Cause of Death Unit Record File (COD URF) datasets through the Australian Bureau of Statistics (ABS) before 2006 (1997 to 2005 dataset) and from the Queensland Registry of Births, Deaths and Marriages as the Australian Coordinating Registry (ACR) from 2006 onwards (2006 to 2021 dataset). The COD URF is a compilation of death records from each of the State and Territory Registries of Births, Deaths and Marriages (RBDMs) and from State and Chief Coroners through the National Coronial Information System (NCIS). Changes in data coding and collection have occurred over the time period reported.

Data Revision

To account for the length of time that it can take for the coronial process to be finalised and the coroner case closed, the ABS undertake a revision process for coroner-certified deaths over a 3-year period. Accordingly, Causes of Death data for 2021 are preliminary and subject to two further revisions; data for 2020 are revised and subject to another revision; data for 2019 and earlier years are final. These figures should be viewed in conjunction with the ABS Causes of Death Methodology document. For information on the proportion of closed cases each year see NCIS Operation Statistics. In 2020, 2,812 additional Victorian deaths registered in 2017, 2018 and 2019 were reported to the ABS. These registrations needed to be allocated to the appropriate reference years. Our data have been adjusted in line with the ABS Technical note and this could have some impact on the earlier trends in drug-induced deaths.

In addition to the revision process, the ABS undertook further processing improvements from 2008 onwards. For both open and closed cases, the ABS increasingly use additional information from the NCIS (e.g., autopsy, police and toxicology reports) where available to apply more specific cause of death codes. These processing improvements are likely to have an impact on the number of drug-induced deaths reported from 2008 onwards. It should also be noted that availability of additional information within the NCIS varies by jurisdiction; improvements to data collection are likely to be applied differentially across jurisdictions.

As indicated in the ABS Causes of Death Methodology document and the NCIS Operation Statistics, deaths that are referred to coroner for investigation take time to be closed. Drug-induced deaths are one of the causes of death with the highest proportion of coroners referred cases. On average, 97% of drug-induced deaths are certified by a coroner.

2021 Preliminary Revision

There were more open coroner cases at the time of preliminary coding of 2021 data than there were in prior years (67.2% versus a 5-year average of 56.2% for 2015-2019) (Table 1). For this reason, the observed preliminary estimates might be lower than expected if the completion rate was comparable to previous years. This prompted the ABS to schedule early revision of 2021 data, which was conducted during the revision cycle in 2023 and published on the 14th April 2023. The ABS focussed on deaths coded to ill-defined causes of death in this preliminary revision. This publication reports on findings from the revised COD URF datasets and now includes 2019 final data, 2020 revised data and 2021 preliminary revised data.

Table 1. The proportion of closed coroner cases at the time of coding the cause of deaths unit record files.

Reference year	Preliminary	Revised	Final
2017	n/a	81.40%	91.50%
2018	43.80%	86.90%	91.50%
2019	44.30%	84.10%	92.30%
2020	38.30%	87.30%	-
2021	32.80%	*35.6%**	-

[a] indicates preliminary revised data due to low proportion of closed cases when preliminary data was collected (see Technical note)

Classification

Causes of death are coded according to the International Classification of Diseases and Related Health Problems, 10th Revision (hereafter 'ICD-10'). In 2014, the ABS implemented Iris, an automatic system for coding multiple causes of death and selecting the underlying cause of death, and the Causes of Death data from 2013 onwards were coded using the new system. This enabled ABS to carry through changes in coding practices associated with substance use dependence syndromes as an underlying cause of death and other ICD-10 updates introduced by the World Health Organization. Impacts on the data from 2013 onwards are described in more detail in the ABS Technical Note 1, Causes of Death Australia 2013. At the time of publication of this document, latest statistics on causes of death for Australia, including drug-induced deaths, are presented in the annual ABS 3303.0 Causes of Death Publication. For further information relating to ICD-10 codes, refer to the World Health Organization website.

Presentation of Results

In line with ABS recommendations on presenting annual time series, we report the number of deaths by reference year. The reference year assigned to a death is determined by when the death was registered with jurisdictional RBDMs, as well as when it was received by the ABS. It is important to note that there can be lags in the registration of deaths with jurisdictional RBDMs (i.e., not all deaths are registered in the year that they occur), and there may also be delays in the ABS receiving notification of the death from the registries due to processing or data transfer lags. Thus, the reference year assigned to a death includes:

- deaths registered in Australia during the reference year and received by the ABS in the reference year;
- deaths registered in Australia during the reference year and received by the ABS in the first quarter of the subsequent year; and
- deaths registered in the years prior to the reference year but not received by ABS until the reference year or the first quarter of the subsequent year, provided that these records have not been included in any statistics from earlier periods.

For more information on scope and coverage of death statistics, see the ABS Causes of Death methodology document.

In this report, analyses are based on the reference year. The only exception is analysis of change in quarterly mortality numbers and rates where we use the year and month of death. Data for the fourth quarter of 2021 was not included in the analysis due to lack of robustness. When data is received each month by the ABS, the lag between the date of death and the date of registration means that approximately 40-50% of reported registrations are of deaths that occurred in the month being reported. The remainder are deaths that occurred in earlier months. For more information see the ABS Provisional Mortality Statistics methodology.

In the report, we report on number of deaths, percentage and age-standardised death rate per 100,000 population. The exception comprises where we report quarterly rates or by age group (e.g., in 10-year age groups); in these instances, we present quarterly rates or age-specific rates, respectively, calculated as population crude rates per 100,000 estimated resident population (ERP). Quarterly rates were calculated using quarterly ERP published in National, state and territory population, June 2022 released on 15 December 2021. Age-specific rates were calculated using ERP in the given age group at 30 June in each year. Our online data visualisation includes the three estimates where available: number of deaths, crude death rate and age-standardised death rate. Numbers and crude rates from small numbers of deaths less than or equal to five are not presented in the report or in the visualisation to protect the confidentiality of individuals. Zero values are still shown in the visualisation.

Age-standardised death rates enable the comparison of death rates over time and between populations of different age-structures and were calculated using the direct method and the Australian ERP as at 30 June 2011 from the 2011 Census as

the standard population. Rates may not be comparable to other sources where a different standard population may have been applied. In accordance with recommendations to ensure stability of age-standardised rates from sparse data, age-standardised rates were not calculated if the number of total deaths was ≤10. In this case, reader should refer to other measures such as number of deaths or crude rate of deaths.

In the report, we present the profile (percentage and number) of age, sex, intent, remoteness area, psychosocial risk factors, place of occurrence and drug involvement in 2021, description of change in the profile over time, trend in population rates over time for the final estimates (2002-2019), and description of difference in estimated rates between the two most recent years of data (2021 compared to 2020). All comparisons are descriptive with the exception of the two latter.

Percent change (PC) was calculated to compare the number and rate for the year 2021 (E_{2021}) with the corresponding number and rate for the year 2020 (E_{2020}) as follows:

$$PC = \frac{(E_{2021} - E_{2020})}{E_{2020}} \times 100$$

The 95% confidence interval of percent change is calculated using the -poisson- command in Stata version 17.0.

Rate ratio (crude or age-standardised; RR) was calculated to compare the rate for the year 2021 ($rate_{2021}$) with the corresponding rate for the year 2020 ($rate_{2020}$) as follows:

$$RR = \frac{rate_{2021}}{rate_{2020}}$$

The 95% confidence interval of the rate ratio is calculated using the -ir- command in Stata version 17.0 which uses the exact binomial method described by Rothman (1986). The weights used for age-standardisation of the rates were used in the ir command to obtain the 95% confidence interval of the age-standardised rate ratio.

Percent change and its corresponding 95% confidence interval are then calculated as:

$$Percent\ change = (RR - 1) \times 100\%$$

The percent change is considered statistically significant when 0 lies outside of the 95% confidence interval of the percent change.

The Joinpoint software was used to analyse trend in rates expressed as an average annual percent change (AAPC) and statistical significance of the change from 2002 (or from 2009 for remoteness area data) to 2019. Joinpoint regression model with the dependent variable log-transformed and autocorrelated errors was fitted. allowing for maximum of three (or two for remoteness area data) joinpoints and minimum two observations between two joinpoints. Weighted BIC method was used to determine best model from models fitted with 0 to the maximum number of joinpoints. Estimated AAPC in rates was determined for each trend as a weighted average of the annual percentage changes (APC) from the fitted model.

Terminology

Reference year assigned to a death is determined by the scope of the collection and incorporates both the registration date (i.e., the date the death was registered with the relevant jurisdictional Births, Deaths and Marriages registry) and the date when a record is received by the ABS. Deaths assigned any given reference year will include:

- all deaths registered in Australia during the reference year and received by the ABS by the end of the March quarter of the subsequent year; and
- deaths registered prior to the reference year but not previously received from the Registry nor included in any statistics reported for an earlier period.

Underlying cause of death (UCOD) is the disease or condition which initiated the sequence of events resulting in death. There can be only one underlying cause of death.

Associated causes of death (ACOD) are any other diseases or conditions that contributed to the death but were not the underlying cause and are listed on the death certificate.

Multiple causes of death (MCOD) include all causes (both underlying and associated causes), diseases and conditions reported on the death certificate. For deaths where the underlying cause was identified as an external cause (for example, injury or poisoning, etc.), multiple causes include circumstances of injury and the nature of injury as well as any other conditions reported on the death certificate.

Deaths are considered **'drug-induced deaths'** if they are directly attributable to drug use (e.g., drug toxicity/overdose is the underlying cause of death). They are considered **'drug-related deaths'** where drugs played a contributory role (i.e., listed as an associated cause of death) and the death was attributable to another cause (e.g., motor vehicle accident); these deaths are not reported here.

A Tabulation list of ICD-codes to identify causes of death attributable to drug-induced mortality was developed by the ABS based on a drug-induced death tabulation created by the United States Centre for Disease Control and Prevention (CDC). We have adopted these codes for our definition of all drug-induced deaths. This list excluded causes of deaths attributed to tobacco or alcohol (see below).

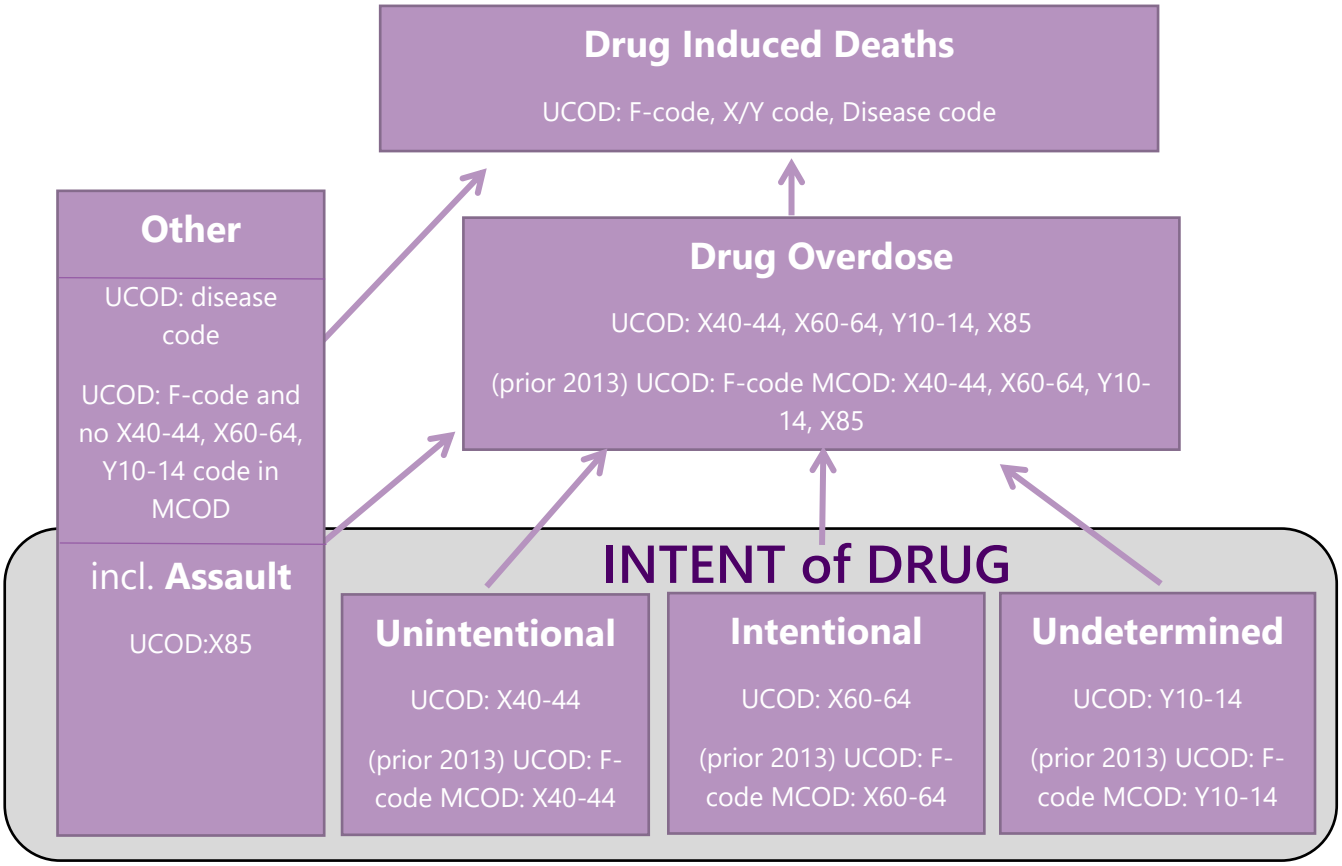
Underlying Cause of Death

'Drug overdose deaths' are all deaths where the acute toxic effect of a drug was determined by the coroner, forensic pathologist or forensic toxicologist to be the UCOD (i.e., accidental poisoning X40-X44, intentional poisoning X60-X64, undetermined intent of poisoning Y10-Y14 and assault by drugs X85). The remaining drug-induced deaths are those where the UCOD was related to mental and behavioural disorders due to psychoactive substance use or drug-induced diseases.

Intent

As part of the coronial investigation of drug-related deaths, the coroner assigns the manner or intent to these deaths where there is sufficient information. The ICD-10 coding incorporates codes for the following categories of intent:

1. **Unintentional**, where the coroner determines the manner/intent of the injury or poisoning which led to death was accidental (X40, X41, X42, X43, X44);
2. **Intentional**, where the coroner determines that the manner/intent of the injury or poisoning which led to death was purposeful (X60, X61, X62, X63, X64);
3. **Undetermined**, where there was insufficient information for the coroner to make a determination on the intent (Y10, Y11, Y12, Y13, Y14); and
4. **Assault**, where the coroner determines that the manner/intent of the injury or poisoning which led to death was purposeful assault (X85). Numbers in this category are too small to be presented. On the visualisation they are included in the "other" category for drug-induced deaths for all ages only (see the diagram below).



Coding of Deaths

Drug-Induced Deaths

The following list of codes for UCOD defines drug-induced deaths in our reporting. This list of ICD-10 codes to identify causes of death attributable to drug-induced mortality was developed by the ABS based on a drug-induced death tabulation created by United States Centre for Disease Control and Prevention (CDC). In accordance with ABS reporting, causes of drug-induced death presented in this report exclude accidents, homicides, and other causes indirectly related to drug use. We have also excluded newborn deaths associated with mother's drug use, and deaths related to tobacco (e.g., F17) or alcohol (e.g., F10).

Underlying Cause of Death (UCOD):

- D52.1 – Drug-induced folate deficiency anaemia;
- D59.0 – Drug-induced haemolytic anaemia;
- D59.2 – Drug-induced nonautoimmune haemolytic anaemia;
- D61.1 – Drug-induced aplastic anaemia;
- D64.2 – Secondary sideroblastic anaemia due to drugs and toxins;
- E06.4 – Drug-induced thyroiditis;
- E16.0 – Drug-induced hypoglycaemia without coma;
- E23.1 – Drug-induced hypopituitarism;
- E24.2 – Drug-induced Cushing's syndrome;
- E27.3 – Drug-induced adrenocortical insufficiency;
- E66.1 – Drug-induced obesity;
- F11.0-F11.5 – Use of opioids causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis

- F11.7-F11.9 – Use of opioid causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F12.0-F12.5 – Use of cannabis causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F12.7-F12.9 – Use of cannabis causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F13.0-F13.5 – Use of sedative or hypnotics causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F13.7-F13.9 – Use of sedative or hypnotics causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F14.0-F14.5 – Use of cocaine causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F14.7-F14.9 – Use of cocaine causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F15.0-F15.5 – Use of amphetamine-related substances causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F15.7-F15.9 – Use of amphetamine-related substances causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F16.0-F16.5 – Use of hallucinogens causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F16.7-F16.9 – Use of hallucinogens causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F18.0-F18.5 – Use of volatile solvents causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F18.7-F18.9 – Use of volatile solvents causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- F19.0-F19.5 – Use of multiple drugs and other psychoactive substances causing intoxication, harmful use (abuse), dependence, withdrawal or psychosis
- F19.7-F19.9 – Use of multiple drugs and other psychoactive substances causing late onset psychosis, other mental and behavioural disorders and unspecified behavioural disorders.
- G21.1 – Other drug-induced secondary Parkinsonism;
- G24.0 – Drug-induced dystonia;
- G25.1 – Drug-induced tremor;
- G25.4 – Drug-induced chorea;
- G25.6 – Drug-induced tics and other tics of organic origin;
- G44.4 – Drug-induced headache, not elsewhere classified;
- G62.0 – Drug-induced polyneuropathy;
- G72.0 – Drug-induced myopathy;
- I95.2 – Hypotension due to drugs;
- J70.2 – Acute drug-induced interstitial lung disorders;
- J70.3 – Chronic drug-induced interstitial lung disorders;
- J70.4 – Drug-induced interstitial lung disorder, unspecified;
- L10.5 – Drug-induced pemphigus;
- L27.0 – Generalized skin eruption due to drugs and medicaments;
- L27.1 – Localized skin eruption due to drugs and medicaments;
- M10.2 – Drug-induced gout;
- M32.0 – Drug-induced systemic lupus erythematosus;
- M80.4 – Drug-induced osteoporosis with pathological fracture;
- M81.4 – Drug-induced osteoporosis;
- M83.5 – Other drug-induced osteomalacia in adults;
- M87.1 – Osteonecrosis due to drugs;
- R78.1 – Finding of opiate drug in blood;
- R78.2 – Finding of cocaine in blood;
- R78.3 – Finding of hallucinogen in blood;
- R78.4 – Finding of other drugs of addictive potential in blood;

- R78.5 – Finding of psychotropic drug in blood;
- X40-X44 – Accidental poisoning by and exposure to drugs, medicaments and biological substances;
- X60-X64 – Intentional self-poisoning (suicide) by and exposure to drugs, medicaments and biological substances;
- X85 – Assault (homicide) by drugs, medicaments and biological substances; and
- Y10-Y14 – Poisoning by and exposure to drugs, medicaments and biological substances, undetermined intent.

Alcohol-Induced Deaths

Causes of death attributable to alcohol-induced mortality include ICD-10 codes:

- E24.4, Alcohol-induced pseudo-Cushing's syndrome;
- F10, Mental and behavioural disorders due to alcohol use;
- G31.2, Degeneration of nervous system due to alcohol;
- G62.1, Alcoholic polyneuropathy;
- G72.1, Alcoholic myopathy;
- I42.6, Alcoholic cardiomyopathy;
- K29.2, Alcoholic gastritis;
- K70, Alcoholic liver disease;
- K85.2 Alcohol-induced acute pancreatitis;
- K86.0, Alcohol-induced chronic pancreatitis;
- R78.0, Finding of alcohol in blood;
- X45, Accidental poisoning by and exposure to alcohol;
- X65, Intentional self-poisoning by and exposure to alcohol; and
- Y15, Poisoning by and exposure to alcohol, undetermined intent.

Alcohol-induced causes exclude accidents, homicides, and other causes indirectly related to alcohol use. This category also excludes newborn deaths associated with maternal alcohol use.

Drug Overdose Deaths by Drug Class and Drug Type

Vast majority of drug-induced deaths are due to drug overdose. If a specific drug is identified in toxicology reports as being present in the person's system and deemed to be contributory to that death, then this case will be identified as drug overdose death. This report includes a particular focus on deaths involving opioids, amphetamine and cocaine.

The following ICD-10 codes were used to identify any drug overdose death where each drug type listed in the first column was considered a contributory cause of death (e.g., drug overdose death involving benzodiazepines, drug overdose death involving antidepressants). Note here that in some cases we have looked at the broader drug class (e.g., drug overdose deaths involving opioids) and then the specific types of substances within that class (e.g., drug overdose deaths involving methadone, drug overdose deaths involving heroin). Numbers do not add up to the total number of drug overdose deaths as there could be more than one drug class involved in a death.

Drug class and type	Examples of drugs commonly assigned to ICD-10 category	UCOD	MCOD
Antiepileptic, sedative-hypnotic and antiparkinsonism drugs		Drug-induced deaths*	T42.0-T42.8
Barbiturates	Pentobarbital, phenobarbital	Drug-induced deaths*	T42.3
Benzodiazepines	Alprazolam, diazepam, oxazepam, clonazepam, clozapine, temazepam, oxazepam	Drug-induced deaths*	T42.4
Antiepileptic and sedative-hypnotic drugs, unspecified	Pregabalin	Drug-induced deaths*	T42.7
Opioids		Drug-induced deaths*	T40.0-T40.4, T40.6
Heroin		Drug-induced deaths*	T40.1
Natural and semi-synthetic opioids	Oxycodone, morphine, codeine	Drug-induced deaths*	T40.2
Methadone		Drug-induced deaths*	T40.3
Synthetic opioids	Fentanyl, tramadol, pethidine	Drug-induced deaths*	T40.4
Amphetamines	Amphetamine, methamphetamine, 3,4-methylenedioxy-methamphetamine (MDMA)	Drug-induced deaths*	T43.6
Antidepressants		Drug-induced deaths*	T43.0-T43.2
Tricyclic and tetracyclic antidepressants	Imipramine, amitriptyline, mianserin	Drug-induced deaths*	T43.0

Other and unspecified antidepressants	Sertraline, citalopram, venlafaxine, fluoxetine, mirtazepine, fluvoxamine, paroxetine, duloxetine	Drug-induced deaths*	T43.2
Antipsychotics and neuroleptics		Drug-induced deaths*	T43.3-T43.5
Other and unspecified antipsychotics	Quetiapine, olanzapine, risperidone	Drug-induced deaths*	T43.5
Non-opioid analgesics, antipyretics and antirheumatics		Drug-induced deaths*	T39.0-T39.9
4-Aminophenol derivatives	Paracetamol	Drug-induced deaths*	T39.1
Other nonsteroidal anti-inflammatory drugs	Ibuprofen, aspirin	Drug-induced deaths*	T39.3
Alcohol		Drug-induced deaths*	T51.0, T51.9
Cannabis derivatives		Drug-induced deaths*	T40.7
Cocaine		Drug-induced deaths*	T40.5

*Appendix 2 in Causes of Death, Australia, 2017 (cat. no. 3303.0). Deaths related to tobacco (ICD-10 – F17) or alcohol (ICD-10 – F10) have been excluded from the analysis.

Opioid-overdose deaths – exclusive involvement

Cause of death	MCOD
Opioid-overdose deaths involving heroin only	T40.1 and no T40.0, T40.2-T40.4, T40.6
Opioid-overdose deaths involving other opioids (excluding heroin, opium and unspecified opioids)	T40.2-T40.4 and no T40.0, T40.1, T40.6
Opioid-induced deaths involving heroin and other opioids	T40.1 and (T40.2, T40.3 or T40.4)
Opioid-induced deaths involving opium and unspecified opioids	T40.0 or T40.6

Age and sex

Age at death is provided by the ABS in the COD URF. In the report and in the online data visualisation we report on findings for Australians of all ages and by 10-year age groups (15-24 to 74-84 and 85+), where data allows for such disaggregation. Where numbers are too small and data cannot be shown, age groups can be suppressed to protect confidentiality. Sex is reported as male and female, as provided by the ABS in the COD URF, or as people for data related to total population (both sexes combined).

Jurisdiction and Remoteness Area of Usual Residence

Data on state and territory is defined by the place of usual residence of the deceased person regardless of where in Australia the death occurred. Deaths occurring outside of Australia (even where usual residence is within Australia) are generally excluded. Deaths registered in Australia of persons usually residing overseas have been classified according to the state or territory in which the death was registered. Proportion of closed cases and document types attached to each death record can vary between jurisdictions. For more information jurisdictional differences see NCIS Operational Statistics and Explanatory Notes.

In the COD URF from 2011 onwards, data on the geographic location of usual residence of a deceased person is available at the Statistical Area 2 (SA2) level from the Australian Statistical Geography Standard (ASGS) (cat. no. 1270.0.55.001). Data from 2009 and 2010 were originally coded using the Australian Standard Geographic Classification (ASGC) (cat no 1216.0), while data from 2011 to 2015 were coded using ASGS 2011 and from 2016 onwards, ASGS 2016 was used. Correspondence was applied to the 2009 and 2010 ASGC codes by ABS to obtain corresponding ASGS 2011 codes, which could have introduced some inaccuracies and should be considered when interpreting the data.

To reassign data from ASGS to Remoteness Areas (RA), we applied appropriate correspondences (SA2 2011 to RA 2016 for data between 2009 and 2015, and SA2 2016 to RA 2016 for data from 2016 onwards). Five classes of remoteness area are defined nationally for Australia – Major cities, Inner regional, Outer regional, Remote and Very remote. We have disaggregated by Major cities versus Regional and Remote for reporting by jurisdiction for New South Wales, Victoria, Queensland, South Australia and Western Australia. There are no Major cities in Tasmania and Northern Territory, and numbers in Regional and Remote areas are too small for reporting in Australian Capital Territory.

Please refer to the Australian Statistical Geography Standard (ASGS): Remoteness Structure, 2016 for further information on remoteness areas including details of the nature of the changes between the ASGS 2011 and ASGS 2016.

Socio-Economic Advantage and Disadvantage

Socio-Economic Indexes for Areas (SEIFA) is a product developed by the ABS that ranks areas in Australia according to relative socio-economic advantage and disadvantage. SEIFA index used in this report is based on the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) which summarises information about the economic and social conditions of people and households within an area, including both relative advantage and disadvantage measures. For this report, SEIFA deciles provided in the COD URF were grouped into SEIFA quintiles ranging from 1 to 5 where:

- A **lower** score indicates relatively greater disadvantage and a lack of advantage in general. For example, an area could have a low score if there are:
    - many households with low incomes, or many people in unskilled occupations, AND

  - few households with high incomes, or few people in skilled occupations.
- A **higher** score indicates a relative lack of disadvantage and greater advantage in general. For example, an area may have a high score if there are:
  - many households with high incomes, or many people in skilled occupations, AND
  - few households with low incomes, or few people in unskilled occupations.

SEIFA deciles	SEIFA quintiles
1 (most relatively disadvantaged and least relatively advantaged decile)	**1**
2	
3	**2**
4	
5	**3**
6	
7	**4**
8	
9	**5**
10 (least relatively disadvantaged and most relatively advantaged decile)	

Psychosocial Risk Factors

In 2020, a pilot study was undertaken by the ABS coding team to capture information on psychosocial risk factors for deaths referred to a coroner (i.e., including all drug-induced deaths) in the 2017 reference year to extend the utility of the national mortality dataset by presenting information on risk factors in a nationally consistent way. Psychosocial risk factors identified in coronial, police and pathology reports were coded to the International Classification of Diseases 10th (ICD-10) and added to the 2017 Causes of Death data. Psychosocial factors were defined as "social processes and social structures which can have an interaction with individual thought or behaviour and health outcomes" and captured only those factors which were identified to have a negative effect on the death. Protective factors were not in the scope of this study. Following on from the pilot study, psychosocial factors were further identified and added to 2018, 2019 and 2020 datasets. It is important to note that there is no national standard for the collection of data on psychosocial factors and that information relating to coroner-certified deaths can differ by jurisdiction. In particular, there might be under-reporting of psychosocial factors that were not recorded during the course of investigation. Further, coronial investigations are an iterative process undertaken by a multitude of agencies and coding of risk factors is thus an ongoing process. More on the pilot study can be found in the ABS research paper.

In this report, we present data on the psychosocial risk factors as a percentage of the total drug-induced deaths in a selected intent, sex and age group, noting that all drug-induced deaths are referred to a coroner in Australia, and thus would have been recorded in NCIS and reviewed for psychosocial risk factors in 2017-2020.

ICD-10 Z-codes for the most common psychosocial risk factors identified in the drug-induced deaths are presented in the table below:

Z-code	Description
Z55-Z56	Persons with potential health hazards related to socioeconomic and psychosocial circumstances

Z80-Z99	Persons with potential health hazards related to family and personal history and certain conditions influencing health status
Z56.0	Unemployment, unspecified
Z56.2	Threat of job loss
Z56.6	Other physical and mental strain related to work
Z59.0	Homelessness
Z59.8	Other problems related to housing and economic circumstances
Z61.4	Problems related to alleged sexual abuse of child by person within primary support group
Z63.0	Problems in relationship with spouse or partner
Z63.3	Absence of family member
Z63.4	Disappearance and death of a person in the primary support group
Z63.5	Disruption of family by separation and divorce
Z63.8	Other specified problems related to primary support group
Z65.2	Problems related to release from prison
Z65.3	Problems related to other legal circumstances
Z73.6	Limitation of activities due to disability
Z81.8	Family history of other mental and behavioural disorders
Z91.5	Personal history of self-harm

Place of Occurrence

Place of occurrence refers to a physical location where the event leading to death (External Cause of Death), such as injury, poisoning or adverse effect, occurred (Cause of Death Unit Record File User Guide Updated December 2021_ #4040295). For data from 2007 to 2012, Place of Occurrence of External Cause of Death was derived from the 4th digit of the ICD-10 code assigned to deaths due to external causes, for matched coroner records. For 2013 data onwards, Place of Occurrence of External Cause of Death was coded directly from comments in the reports relating to the coroners' investigation.

For this report, place of occurrence was categorised into following categories:

Place of occurrence	Code in COD URF
Home	0
Residential Institution	1
School, other institution and public administrative area	2
Street and highway	4
Trade and services	5
Other specified places (including sports and athletics area, industrial and construction area, farm)	3, 6, 7, 8
Unspecified place	9

Comprehensive explanatory notes and technical information relating to Causes of Death data can be found in the Causes of Death, Australia (cat. no 3303.0) on the ABS website.