Methodology for Opioid-, amphetamine-, and cocaine-induced deaths in Australia: August 2018

General notes

- These data are provided by the Australian Bureau of Statistics (ABS) using data from the National Coronial Information System. Changes in data coding and collection have occurred over the time period reported.
- The ABS undertakes a revision process for coroner certified deaths over a 3 year period; accordingly, data for 2015 and 2016 are not final. These figures should be viewed in conjunction with the ABS Explanatory Notes 50-58.
- In addition to the revisions process, the ABS undertook further processing improvements from 2008 onwards. For both open and closed cases, the ABS increasingly use additional information on 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.
- In 2014, the ABS implemented IRIS, an automatic system for coding multiple causes of death and selecting the underlying cause of death. Impacts on the data from 2013 onwards are described in more detail in the ABS Technical Note, Causes of Death Australia 2013.
- It should also be noted that availability of additional information on the NCIS varies by jurisdiction and means that improvements are likely to be applied differentially across jurisdictions.
- Small numbers of deaths have been randomly assigned to protect the confidentiality of individuals. Zero values have not been affected by confidentialisation.

Terminology

- Deaths are considered 'drug-induced deaths' if they are directly attributable to drug use (e.g. drug overdose is the underlying cause of death). They are considered 'drug-related deaths' where drugs played a contributory role and the death was attributable to another cause (e.g. motor vehicle accident).
- The opioid deaths presented here are 'opioid-induced deaths', i.e. they are attributable to overdose. The amphetamine deaths presented include 'amphetamine-induced deaths', i.e. attributable to amphetamine toxicity, and drug-induced deaths where amphetamines were considered to play a contributory role - 'drug-induced deaths with amphetamine contributing'. The cocaine deaths follow the same logic as the amphetamine deaths.

Intent

- As part of the coronial investigation of drug-related deaths, the coroner assigns the manner of intent to these deaths, where there is sufficient information. The ICD-10AM coding incorporates codes for the following categories of intent:
    - accidental intent, where the coroner determines that the manner/intent of the injury or poisoning which led to death was accidental;
    - intentional, where the coroner determines that the manner/intent of the injury or poisoning which led to death was purposeful; and
    - undetermined, where there was insufficient information for the coroner to make a determination on the intent.

Opioid-induced deaths are presented by these three categories of intent, where numbers permit, and by all intents. Amphetamine and cocaine deaths are presented by accidental intent and all intents, as there are very few of these deaths that are determined to be intentional.

Coding of deaths

Opioid induced-deaths

The following codes from the International Statistical Classifcation of Diseases and Related Health Problems, 10th Revision Australian Modification (ICD-10AM) have been used to extract and examine deaths where opioid overdose was considered to be the underlying cause of death - 'Opioid-induced deaths':

- F11 with X42, X44– Accidental deaths due to opioid use disorder (including opioid dependence);
- F19 with F11 – Accidental deaths due to multiple drug use disorder which included an opioid use disorder;
- X42, X44 with T40.0-T40.4, T40.6 – Accidental deaths due to poisoning which included opioid poisoning;
- F19 with X42, X44 and T40.0-T40.4, T40.6 – Accidental deaths due to multiple drug use disorder which included opioid poisoning.
- X62, X64 with T40.0-T40.4, T40.6– Intentional deaths due to poisoning which included opioid poisoning.
- Y12, Y14 with T40.0-T40.4, T40.6– Deaths where intent was undetermined, due to poisoning which included opioid poisoning.

Opioid-induced deaths - opium:

- X42, X44 with T40.0 Accidental deaths due to poisoning which included heroin poisoning;
- F19 with X42, X44 and T40.0 – Accidental deaths due to multiple drug use disorder which included opium poisoning.
- F19 with F11 and T40.0 –Accidental deaths due to multiple drug use disorder which included an opioid use disorder, and opium poisoning.
- X62, X64 with T40.0 Intentional deaths due to poisoning which included opium poisoning.
- Y12, Y14 with T40.0– Deaths where intent was undetermined, due to poisoning which included opium poisoning.

Opioid-induced deaths - heroin:

- X42, X44 with T40.1 Accidental deaths due to poisoning which included heroin poisoning;
- F19 with X42, X44 and T40.1 – Accidental deaths due to multiple drug use disorder which included heroin poisoning.
- F19 with F11 and T40.1 –Accidental deaths due to multiple drug use disorder which included an opioid use disorder, and heroin poisoning.
- X62, X64 with T40.1 Intentional deaths due to poisoning which included heroin poisoning.
- Y12, Y14 with T40.1– Deaths where intent was undetermined, due to poisoning which included heroin poisoning.

Opioid-induced deaths - natural and semi-synthetic opioids (including morphine, codeine and oxycodone):

- X42, X44 with T40.2 Accidental deaths due to poisoning which included natural and semi-synthetic opioid poisoning;
- F19 with X42, X44 and T40.2 – Accidental deaths due to multiple drug use disorder which included natural and semi-synthetic opioid poisoning.
- F19 with F11 and T40.2 –Accidental deaths due to multiple drug use disorder which included an opioid use disorder, and natural and semi-synthetic poisoning.
- X62, X64 with T40.2 Intentional deaths due to poisoning which included natural and semi-synthetic opioid poisoning.
- Y12, Y14 with T40.2– Deaths where intent was undetermined, due to poisoning which included natural and semi-synthetic opioid poisoning.

Opioid-induced deaths - methadone:

- X42, X44 with T40.3 Accidental deaths due to poisoning which included methadone poisoning;
- F19 with X42, X44 and T40.3 – Accidental deaths due to multiple drug use disorder which included methadone poisoning.
- F19 with F11 and T40.2 –Accidental deaths due to multiple drug use disorder which included an opioid use disorder, and methadone poisoning.
- X62, X64 with T40.3 Intentional deaths due to poisoning which included methadone poisoning.
- Y12, Y14 with T40.3– Deaths where intent was undetermined, due to poisoning which included methadone poisoning.

Opioid-induced deaths - synthetic opioid analgesics (including fentanyl, tramadol, pethidine):

- X42, X44 with T40.4 Accidental deaths due to poisoning which included synthetic opioid poisoning;
- F19 with X42, X44 and T40.4 – Accidental deaths due to multiple drug use disorder which included synthetic opioid poisoning.
- F19 with F11 and T40.4 –Accidental deaths due to multiple drug use disorder which included an opioid use disorder, and synthetic opioid poisoning.
- X62, X64 with T40.4 Intentional deaths due to poisoning which included synthetic opioid poisoning.
- Y12, Y14 with T40.4– Deaths where intent was undetermined, due to poisoning which included synthetic opioid poisoning.

Opioid-induced deaths - other and unspecified opioids:

- X42, X44 with T40.6 Accidental deaths due to poisoning which included poisoning due to other and unspecified opioids;
- F19 with X42, X44 and T40.6 – Accidental deaths due to multiple drug use disorder which included poisoning due to other and unspecified opioids.
- F19 with F11 and T40.6 –Accidental deaths due to multiple drug use disorder which included an opioid use disorder, and poisoning due to other and unspecified opioids.
- X62, X64 with T406 Intentional deaths due to poisoning which included poisoning due to other and unspecified opioids.
- Y12, Y14 with T40.6– Deaths where intent was undetermined, due to poisoning which included poisoning due to other and unspecified opioids.

Amphetamine-induced deaths

ICD-10 uses the terminology "amphetamine" to refer to the drug class that includes "methamphetamine". We use consistent terminology when presenting the data.

The following ICD-10 codes have been used to examine deaths where amphetamines were considered to be the underlying cause of death – 'amphetamine-induced deaths':

- X41 with F15 - Accidental deaths due to poisoning cross-classified with amphetamine use disorder (including amphetamine dependence)
- X41 with T43.6 - Accidental deaths due to poisoning cross-classified with amphetamine poisoning (but excluding any other drug from the X41 category).
- X61 with F15 – Intentional deaths due to poisoning cross-classified with amphetamine use disorder (including amphetamine dependence)
- X61 with T43.6 - Intentional deaths due to poisoning cross-classified with amphetamine poisoning (but excluding any other drug from the X41 category)

- Y11 with F15 - Deaths of undetermined intent due to poisoning cross-classified with amphetamine use disorder (including amphetamine dependence).
- Y11 with T43.6 - Deaths of undetermined intent due to poisoning cross-classified with amphetamine poisoning (but excluding any other drug from the X41 category).

Drug-induced deaths with amphetamines contributing

The following ICD-10 codes have been used to examine deaths in which amphetamines were mentioned as a contributing cause of a drug-induced death, but in which they may not have been the primary cause of death – 'drug-induced deaths with amphetamines contributing'. It should be noted that figures presented for 'drug-induced deaths with amphetamines contributing' also include the deaths where amphetamines were the underlying cause of ('amphetamine-induced') death:

- F15 with (F11-F16, F19, X40-X44) - Accidental deaths due to multiple and other drug use disorder cross-classified with amphetamine use disorder (including amphetamine dependence).
- T43.6 with (F11-F16, F19, X40-X44) – Accidental deaths due to multiple and other drug use disorder cross-classified with amphetamine poisoning.
- F15 with (F11-F16, F19, X60-X64) - Intentional deaths due to multiple and other drug use disorder cross-classified with amphetamine use disorder (including amphetamine dependence).
- T43.6 with (F11-F16, F19, X60-X64) – Intentional deaths due to multiple and other drug use disorder cross-classified with amphetamine poisoning.
- F15 with (F11-F16, F19, Y10-Y14) – Deaths of undetermined intent due to multiple and other drug use disorder cross-classified with amphetamine use disorder (including amphetamine dependence).
- T43.6 with (F11-F16, F19, Y10-Y14) – Deaths of undetermined intent due to multiple and other drug use disorder cross-classified with amphetamine poisoning.

Cocaine-induced deaths

The following ICD-10 codes have been used to examine deaths where cocaine was considered to be the underlying cause of death – 'cocaine-induced deaths':

- F14 - Accidental deaths due to cocaine use disorder (including cocaine dependence).
- X42 with T40.5 - Accidental deaths due to poisoning cross-classified with cocaine poisoning (but excluding any other drug from the X42 category).
- X42 with F14 - Accidental deaths due to poisoning cross-classified with cocaine use disorder (including cocaine dependence).
- X61 with F14 – Intentional deaths due to poisoning cross-classified with cocaine use disorder (including cocaine dependence)
- X61 with T40.5 - Intentional deaths due to poisoning cross-classified with cocaine poisoning (but excluding any other drug from the X42 category)
- Y11 with F14 - Deaths of undetermined intent due to poisoning cross-classified with cocaine use disorder (including cocaine dependence)
- Y11 with T40.5- Deaths of undetermined intent due to poisoning cross-classified with cocaine poisoning (but excluding any other drug from the X42 category)

Drug-induced deaths with cocaine contributing

The following ICD-10 codes have been used to examine deaths in which cocaine was mentioned as a contributing cause of a drug-induced death, but in which it may not have been the primary cause of death – 'drug-induced deaths with cocaine contributing'. It should be noted that figures presented for 'drug-indcued deaths with cocaine contributing' also include the deaths where cocaine was the underlying cause of ('cocaine-induced') death:

- F14 with (F11-F16, F19, X40-X44) - Accidental deaths due to multiple and other drug use disorder cross-classified with cocaine use disorder (including cocaine dependence).
- T40.5 with (F11-F16, F19, X40-X44) – Accidental deaths due to multiple and other drug use disorder cross-classified with cocaine poisoning.
- F14 with (F11-F16, F19, X60-X64) - Intentional deaths due to multiple and other drug use disorder cross-classified with cocaine use disorder (including cocaine dependence).
- T40.5 with (F11-F16, F19, X60-X64) – Intentional deaths due to multiple and other drug use disorder cross-classified with cocaine poisoning.
- F14 with (F11-F16, F19, Y10-Y14) – Deaths of undetermined intent due to multiple and other drug use disorder cross-classified with cocaine use disorder (including cocaine dependence).
- T40.5 with (F11-F16, F19, Y10-Y14) – Deaths of undetermined intent due to multiple and other drug use disorder cross-classified with cocaine poisoning.

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Related Links:

Data visualisations:	https://drugtrends.shinyapps.io/Deaths
Drug-induced deaths bulletin August 2018	opioid-,amphetamine-, and cocaine-induced deaths
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 research from the Drug Trends program go to:	https://ndarc.med.unsw.edu.au/program/drug-trends

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