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Drug-induced Deaths — A Guide to ABS Causes of Death Data

2002

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**Drug-induced deaths
— A Guide to ABS
Causes of Death
Data**

2002

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AUSTRALIAN BUREAU OF STATISTICS

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PREFACE

This publication provides information about the data concepts relating to deaths from causes related to drugs, in ABS Causes of Death statistics and the International Classification of Diseases.

The main source of information on deaths is the Causes of Death collection maintained by the Australian Bureau of Statistics (ABS). The ABS compiles statistics from information made available by the Registrar of Births, Deaths and Marriages in each state and territory.

The aim of this publication is to provide assistance to researchers and analysts in using statistics on causes of death resulting from drug use. It discusses the availability of ABS data, and the ABS terminology and classifications used to code drug deaths to specific causes of death.

This Information Paper may be read in conjunction with a companion data file, *Drug-induced Deaths, Australia, 1997–2000* (cat. no. 3303.0), which contains statistics on drug-induced deaths. The data file may be purchased directly from the web via e-Commerce, through AusStats for subscribers or by contacting the Health and Vitals National Project Centre on 1800 620 963.

Many individuals and organisations have contributed to the preparation of this publication and their cooperation is very much appreciated.

Dennis Trewin
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8 August 2002

LIST OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACS	Automated Coding System
ASGC	Australian Standard Geographical Classification
ICD	International Statistical Classification of Diseases and Related Health Problems
ICD-9	International Statistical Classification of Diseases and Related Health Problems, Ninth Revision
ICD-10	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision
MAM	Monoacetyl Morphine
n.a.	not available
n.e.c.	not elsewhere classified
URF	Unit Record File
WHO	World Health Organization
YPLL	Years of Potential Life Lost

1 OVERVIEW

Harmful drug use has become a major concern within Australian society; one dimension of this concern is the increase in the number of deaths related to drug use. There are numerous issues associated with the collection and dissemination of information relating to deaths where use of drugs is involved. As a consequence, researchers must exercise considerable care when producing and interpreting statistics on drug deaths.

This publication provides a guide to data on deaths resulting from drug use. It is designed to assist researchers and analysts in using causes of death data produced by the ABS. This paper does not propose a uniform national standard; rather, it discusses ABS terminology and classifications used to code drug deaths to specific causes as well as problems associated with the identification of specific drugs of interest.

The terms defined in this paper will be used in future ABS publication packages relating to the Causes of Death collection. Refer to Section 4 for a description of the ABS definition of drug-induced deaths.

2 INTRODUCTION

The process of defining deaths involving drugs is not straightforward. Published papers sometimes involve inconsistent definitions when reporting drug-related outcomes. Some sources of information may refer to illicit drugs only, while other definitions may include pharmaceuticals in addition to illicit substances. Comparing data from different sources presents problems as a result of variations in definition.

In response to this complexity and the demand for data on deaths caused by drugs, the ABS consulted with researchers to determine the most appropriate way of defining information relating to causes of death due to drug use. This paper explains the ABS definition of drug-induced deaths and discusses issues which influence the definition.

3 REGISTRATION AND CODING OF DEATHS IN AUSTRALIA

Registration of deaths in Australia is the responsibility of the Registrar of Births, Deaths and Marriages in each state and territory. Individual Registrars provide information from the Medical Certificate of Cause of Death to the ABS for coding and compilation of statistics on causes of death.

The ABS codes causes of death according to the rules specified in the International Statistical Classification of Diseases and Related Health Problems (ICD) produced by the World Health Organization (WHO). This classification is used to standardise the coding of diseases, clinical procedures and other relevant items such as pharmaceuticals. A brief outline of the ICD structure is contained in Appendix 1 with details of previous revisions of ICD in Appendix 2.

3 REGISTRATION AND CODING OF DEATHS IN AUSTRALIA *continued*

With the introduction of the tenth revision of ICD (ICD-10) and the Automated Coding System (ACS) for processing deaths registered from 1 January 1997, more detailed information is now available for deaths where the use of drugs was a direct cause or contributory factor. The ACS has enabled efficient production of multiple causes of death statistics, together with more consistent coding practices. The introduction of ICD-10 has enabled the ABS to provide more detail on drugs than was previously available from earlier revisions of the ICD.

From 1997, data for deaths involving drugs are available for the underlying cause which directly led to death (drug-induced) as well as any associated conditions, such as poisoning by particular drugs that contributed to death (multiple causes). See the Glossary for definitions of underlying cause and multiple causes of death.

4 ABS DEFINITION OF DRUG-INDUCED DEATHS

In relation to causes of death data the ABS definition of drug-induced deaths comprises:

Any death where the underlying cause of death was due to:

- An acute episode of poisoning or toxicity to drugs. Included are deaths from accidental overdoses due to misuse of drugs, intentional self-harm, assault and deaths undetermined as to intent.
- An acute condition caused by drug use where the deceased person was identified as drug dependent.

The term 'drug' refers to substances classified as drugs, medicaments or biological substances under ICD-10 guidelines. These drugs may be used for medicinal or therapeutic purposes, or to produce a psychoactive effect. The term excludes alcohol, tobacco and volatile solvents (e.g. petrol).

Unless specifically defined otherwise, the term includes the misuse of regulated legal pharmaceuticals, those that may be purchased without a medical prescription and substances illegal to purchase or use.

For ABS purposes, drug-induced deaths are defined by the following codes from the International Classification of Diseases, tenth revision (ICD-10).

ICD-10 CODES FOR ABS DEFINITION OF DRUG-INDUCED DEATHS

<i>ICD Codes</i>	<i>Descriptors</i>
F11-F16, F19	Mental and behavioural disorders due to psychoactive substance use (excluding alcohol, tobacco and volatile solvents)
F55	Abuse of non-dependence-producing substances
X40-X44	Accidental poisoning by drugs, medicaments and biologicals
X60-X64	Intentional self-harm by drugs, medicaments and biologicals
X85	Assault by drugs, medicaments and biological substances
Y10-Y14	Deaths of undetermined intent by drugs, medicaments and biologicals

For further details and descriptions of the above codes, refer to Appendix 3, table 1.

Exclusions As the ABS definition of drug-induced deaths refers to those cases where the underlying cause of death is directly attributed to drug use, the following categories of death are excluded:

- Any death where drugs played only a contributory role. Deaths considered to be indirectly related to drug use include cases such as motor vehicle accidents or drownings where drugs were reported as having played a contributory role.
- Deaths of newborn babies associated with the mother's drug use.
- Any death where the underlying cause of death is a medical condition caused by long-term drug use e.g. where the underlying cause of death is cardiomyopathy due to drugs. In these instances, there is no drug toxicity reported on the Medical Certificate of Cause of Death.
- Any death where the underlying cause of death is related to the use of alcohol, tobacco or volatile solvents (e.g. petrol). These deaths are excluded as the substances involved are classified as non-medicinal substances under ICD-10 rules.

Note: Multiple cause data may provide some information on deaths which involved the use of alcohol and tobacco. However, where death is a result of long-term use of alcohol or tobacco, a large proportion of medical certifiers do not report these drugs as contributory factors. For example, lung cancer is often reported with no mention of smoking on the death certificate. A more accurate measure of the contribution of smoking to lung cancer deaths would need to be based on the use of aetiological fractions. Refer to Section 9.3 for information on this methodology.

The ABS definition of drug-induced deaths may not meet the needs of all users. Customised requests for specific research studies may be available depending on research requirements and limitations of the Causes of Death collection. Further clarification can be obtained by contacting Peter Burke, Health and Vitals National Project Centre, Brisbane on 1800 620 963 or email <peter.burke@abs.gov.au>.

5 UNDERLYING CAUSES OF DEATH

The primary purpose of causes of death coding is to identify the underlying cause or circumstance of death. This is defined as the condition, disease or injury which initiated the train of events leading directly to death.

Sudden or unexpected deaths determined to be directly caused by drug use are classified across several chapters of the ICD. Drug-induced deaths may be classified as being due to external causes (assault by poisoning, accidental overdose, suicide or undetermined intent by poisoning) or due to mental and behavioural disorders (dependence, harmful use or psychosis).

As a result of this focus on the circumstance of death, the codes assigned to the underlying cause may not be unique to any specific drug. For example, under ICD-10 rules, deaths due to an accidental overdose of cannabis, cocaine or morphine would all be assigned an underlying cause code of X42 (accidental poisoning by narcotics and hallucinogens). Refer to Appendix 3, table 2.

Where evidence of more than one drug was found in the body, a code indicating multiple drug use would be used for the underlying cause, rather than the more specific codes. For example, if death was due to an overdose of cocaine and benzodiazepines, the code assigned would be X44 as the underlying cause (accidental poisoning by a combination of drugs). Refer to Appendix 3, table 2 for a comprehensive list of codes designated for multiple drug use.

A more comprehensive analysis of drugs involved in death is now possible due to the introduction of multiple cause coding and ICD-10 from 1997. This enhancement is discussed in Section 6 ‘Multiple Causes of Death.’

6 MULTIPLE CAUSES OF DEATH

Prior to 1997 only the underlying cause of death was coded; other information provided by the medical practitioner or coroner was not used. This was a limitation, particularly for deaths coded as due to external causes (injury, poisoning and violence). For example, information about any additional drugs considered to have contributed to death was not coded.

In addition to the underlying cause of death, from 1997, it has become possible to obtain information for associated or contributory causes reported on the Medical Certificate of Cause of Death. The introduction of ACS in 1997 has enabled ABS to code all causes and conditions reported on each death certificate, resulting in their retention on individual death records, grouped together as ‘multiple causes’. Furthermore, the implementation of ICD-10 provides more detailed classification of data by incorporating codes from Chapter XIX ‘Injury, poisoning and certain other consequences of external causes.’

6 MULTIPLE CAUSES OF DEATH *continued*

Multiple cause data may be used to enhance information relating to the underlying causes of death. These data are particularly useful when analysing drug-induced deaths. The ABS can provide data on contributory causes such as drugs found in the body in toxic quantities. When reported on the Medical Certificate of Cause of Death, a toxicology report may also be provided, listing all drugs involved in the death. From this, the ABS assigns a poison code (ICD-10 codes T36-T50) to indicate that an overdose or poisoning contributed to the death.

Two particular areas of research will be supported by multiple causes of death data.

- research into the contribution made by the use of specific drugs
- research into deaths where drug use is identified as a contributory cause.

Although ICD-10 does not have a unique poison code for all drugs, many drugs of interest can be identified by cross-tabulating the appropriate external cause code (underlying cause) by the poison code (multiple cause). For example, if a coroner determined a death to be an accidental cocaine overdose, the death would be assigned ICD-10 codes of X42 as the underlying cause (accidental poisoning) and T40.5 as the poison code (poisoning by cocaine).

Multiple cause coding can provide data on deaths not defined as drug-induced but where drugs were reported on the Medical Certificate of Cause of Death as being found in toxic quantities in the deceased person. An example of this is where a person may have taken an overdose of methadone and died as a result of an accidental drowning. In this instance, the underlying cause would be coded to accidental drowning with multiple cause data providing information on the methadone overdose.

Below is an example of how deaths are coded from information received from the coroner. In this instance, the death was due to an accidental overdose of a combination of drugs

CORONER'S FINDINGS

Intent	Accidental death
Mechanism	Poisoning by solid substances
Causes of death	Combined drug intoxication (drugs involved: morphine, doxylamine and nortriptyline) Ischaemic heart disease

INFORMATION HELD ON THE ABS DEATHS DATASET

Variable	ICD-10 code	Code Description
Underlying cause	X44	External cause code used to identify accidental deaths due to multiple drug use
Multiple cause	I25.9	Medical condition — ischaemic heart disease
Multiple causes	T40.2, T45.0, T43.0	Poison codes for all drugs listed with toxic levels
Multiple causes(a)	X44	Underlying cause code is repeated in this field for all deaths

(a) The variable Multiple Causes contains the underlying cause and any associated or contributory causes or conditions reported on the Medical Certificate of Cause of Death

Multiple cause data which provides information on the type of drug that contributed to death are available from the ABS on a consultancy basis.

7 ISSUES AFFECTING CLASSIFICATION OF DATA

There are a number of conditions and constraints which affect mortality coding and need to be taken into account when analysing or interpreting drug-induced death data. Among these factors are ICD coding rules, the availability of toxicology results and the terminology used by medical certifiers. These issues particularly influence the classification and release of statistics on deaths where drugs were involved. A summary of issues which impact on the coding of causes of death is listed below.

7.1 Quality Control Processes

The ABS employs a series of quality control checks to ensure compilation of reliable causes of death statistics. For example, where insufficient information is received to assign an ICD code, further information is sought from the certifier, via the relevant Registrar, to ensure accurate classification of the underlying cause of death or any associated or contributory causes.

7.2 Terminology

In compiling deaths statistics the ABS uses textual information provided by a coroner or medical practitioner on the Medical Certificate of Cause of Death to assign ICD codes. Inconsistencies with terminology used by certifiers impact on the classification of deaths.

Currently there is no consistency of terminology used by coroners to define a deceased person as drug dependent. Individual State Coroners use differing terms. As a consequence, coding inconsistencies may occur at the more detailed level of classification. In the event of a death due to a mental or behavioural disorder (drug dependence), the term used determines the fourth digit allocated by ABS to reflect the clinical state, e.g. harmful use or drug dependence. For a full list of relevant codes, refer to the Glossary, mental and behavioural disorders.

7.3 Toxicology

Once drugs are ingested, the body breaks down these substances. In the case of heroin, the body rapidly metabolises the drug and changes its chemical form. Rarely, if ever, is heroin excreted from the body as heroin. Once injected, the body rapidly converts heroin first to monoacetyl morphine (MAM) and then to morphine. The presence of MAM is an indicator of heroin rather than morphine use. (Makkai, Toni, 2000, *Drug Use Monitoring in Australia (DUMA): Drug Detection Testing*, Research and Public Policy Series No. 25, Australian Institute of Criminology, Canberra).

As a consequence of these chemical changes, some deaths from heroin may not be identified and therefore would be assigned a poison code within the broader group 'Other Opioids' (ICD-10 code T40.2 — morphine and codeine) rather than the more specific code for heroin (ICD-10 code T40.1). For those researchers interested in the number of heroin deaths, ABS data cannot accurately distinguish the number of heroin deaths from those due to morphine/codeine.

7.4 ICD Rules and Coding of Accidental Deaths

Causes of death information is coded according to internationally agreed standards specified in the ICD. These guidelines enable straightforward classification of some circumstances of death due to drug use such as intentional self-harm, assault and undetermined deaths.

7.4 ICD Rules and Coding of Accidental Deaths
continued

Coding of accidental deaths from drug use is complicated by the fact that these deaths are classified across two chapters of the ICD. For these deaths, if drug dependence is implicated on the Medical Certificate of Cause of Death, the death is classified to the chapter on mental and behavioural disorders (ICD-10 codes F11-F16, F19). If there is no mention of dependence, the death is classified as accidental and coded to the chapter on external causes (ICD-10 codes X40-X44).

Further to this, any cases involving drugs that are not finalised by the coroner before closure of the annual deaths file are coded as accidental (X40-X44).

To obtain comprehensive coverage of accidental deaths, relevant codes from both chapters must be included.

8 DATA AVAILABILITY

Availability of ABS data on drug-induced deaths is influenced by a number of issues as outlined below.

8.1 Collection Period and Release of Data

Data are collected and processed on a calendar year basis with their release scheduled for November following the reference year. This timetable enables the ABS to classify the causes of death to ICD codes and to complete a series of quality control checks to ensure reliable statistics.

8.2 Reference Period

The ABS publishes causes of death data based on calendar year of registration. However, these data are also available based on year of occurrence. Deaths data based on year of registration include all deaths registered in a specific year, whereas year of occurrence data are deaths that occur in a specific year irrespective of when the death was registered. An example of data based on both methods appears in Section 11, from which it can be observed that at the broad level, trends over time are similar.

8.3 Demographic Information

In addition to the cause of death, the ABS collects a comprehensive list of demographic information relating to the deceased person e.g. age, sex, marital status, Indigenous status and place of usual residence. For a list of variables held in the dataset, researchers may refer to Appendix 4 or contact the ABS on 1800 620 963 for advice on data availability to suit individual needs.

8.4 Small Area Data

The usual residence of the deceased is recorded in the datasets. All information relating to geographical area is classified using the ABS publication *Australian Standard Geographical Classification (ASGC)* (cat. no. 1216.0). The ASGC is updated annually with concordances available to assist with area comparisons over time.

Small area data relating to deaths are available on a consultancy basis, although confidentiality restrictions may apply to their release. It is likely that individual geographic areas may contain a small number of deaths and data would need to be aggregated or averaged over several years to make reliable comparisons.

8.5 Alternative Mortality Measures In addition to actual numbers of deaths, the ABS can provide crude death rates, age-specific death rates and standardised death rates to enable more reliable comparisons to be made across time periods or geographic regions.

The ABS can also provide data for 'years of potential life lost' (YPLL) which is a measure of the extent of premature mortality which is assumed to be any death at ages of 1–75 inclusive.

9 OTHER INFORMATION

There are a number of factors directly related to drug-induced deaths that may be of interest to researchers but are not available from the Causes of Death collection. Some information on these issues may be obtained from the ABS publication *Illicit Drug Use, Sources of Australian Data, 2001* (cat. no. 4808.0). A brief summary of these issues is outlined below:

9.1 Methods Used to Administer Drugs Data are not available on the number of deaths classified by the method used to administer drugs e.g. injecting, ingesting or inhaling. ICD rules do not stipulate the capture of this information.

9.2 Licit or Illicit Drugs Causes of death data are unable to differentiate between licit or pharmaceutical drugs and those obtained illegally. Medical certificates do not report whether the drugs involved were prescribed or not.

9.3 Aetiological Fractions The ABS does not undertake research into the proportion of deaths which can be attributed to specific conditions (such as diabetes) or activities (such as drug use). As aetiological fractions are only one component of this methodology, their use is excluded from ABS mortality analysis.

This method of identifying deaths attributable to drug use, including alcohol and tobacco, is detailed in *The quantification of drug-caused mortality and morbidity in Australia, 1998*, by Ridolfo and Stevenson, Drug Statistics Series No. 7, Australian Institute of Health and Welfare, Canberra, 2001. This publication may be accessed on the Internet <www.aihw.gov.au/publications/health.html>.

10 TIME SERIES

10.1 Comparability of Data Over Time Comparability of mortality data over time is affected by a number of factors. In recent years, there have been two major changes within Australia, namely, the introduction of ICD-10 and ACS for processing deaths registered from 1 January 1997. A benefit of using the ACS is that information on all causes and conditions reported on the Medical Certificate of Cause of Death is now recorded (multiple causes of death). This additional information may be useful for research into mortality patterns.

10.1 Comparability of Data Over Time *continued*

The introduction of ICD-10 and the ACS has resulted in a break in time series for a number of underlying causes of death, particularly at the more detailed level of classification. To provide a link between the two revisions of ICD-9 and ICD-10, the ABS has dual coded data for the years of 1997 and 1998. For further information pertaining to comparability of data over time refer to *Causes of Death, Australia* (cat. no. 3303.0), Appendix 4 and Appendix 5.

Time series data for drug-induced deaths may be possible for years prior to 1997, depending on the extent of detail required. The various revisions of ICD used for mortality coding in Australia record differing levels of information concerning individual drugs. As a consequence, longer time series may only be available at the broader classification level. Refer to Appendix 2 for a comparison of ICD-9 and ICD-10 codes.

10.2 Drug-related Flag

To assist in identifying deaths involving drugs prior to the use of ACS and ICD-10, a drug-related flag was introduced in 1994. This flag is activated for cases where the coroner or medical practitioner considered drug use contributed to (but did not necessarily cause) the person's death. Only a broad indication of the substance involved is available e.g. alcohol, tobacco, other drugs or combinations of these. Further detail is not possible.

Data produced using this flag differ from those generated using the definition of drug-induced deaths described in this Information Paper. These data include all deaths involving drugs irrespective of the underlying cause of death. For example, it is possible to identify the number of deaths for a specific underlying cause of death such as drowning, where alcohol was reported on the medical death certificate as a contributory factor.

The quality of data produced using this flag varies, depending on the cause of death. Deaths classified as external causes (e.g. accidental drug overdoses) are subject to coronial inquiry, resulting in the availability of toxicology reports listing drugs that have contributed to death. This enables the ABS to record any drug involvement, thereby ensuring a comprehensive coverage for deaths classified as external causes.

For deaths from medical conditions, the certifiers sometimes do not report drugs as a contributory factor. For example, deaths from peripheral vascular disease are often reported with no mention of smoking on the death certificate. As a result, data produced using the drug-related flag for medical conditions are often undercounted.

For advice on whether these data will suit individual needs, please contact the ABS on 1800 620 963.

11 EXAMPLES OF ABS DATA RELATING TO DRUG-INDUCED DEATHS

Examples of ABS data on drug-induced deaths are illustrated in the tables below. Information presented relates to the number of deaths where the underlying cause was due to drug use, classified by the circumstance of death i.e. accident, intentional self-harm, assault or undetermined intent.

Underlying Cause of Death by Year of Registration The ABS publishes causes of death data on a calendar year of registration basis.

UNDERLYING CAUSE OF DEATH BY YEAR OF REGISTRATION, AUSTRALIA — 1997–2000

Underlying cause/circumstance of death	Year of registration			
	1997	1998	1999	2000
Drug-induced deaths	1 323	1 645	1 739	1 569
Accidental (F11–F16, F19, F55, X40-X44)(a)	916	1 243	1 403	1 274
Intentional self-harm (X60-X64)	309	310	278	273
Assault (X85)	4	6	2	1
Undetermined (Y10-Y14)	94	86	56	21

(a) Includes two components: mental and behavioural disorders due to drug use (F11-F16, F19, F55) and accidental poisoning by drugs (X40-X44).

Source: Causes of Death collection

Underlying Cause of Death by Year of Occurrence Causes of Death information is also available on a year of occurrence basis.

Registration of deaths, particularly those involving drugs, are sometimes affected by time lags. The volume of deaths, changing lags in coronial inquiries and other associated factors may vary, resulting in some late registrations. In practice, late registrations may be received for a number of years after the event. However, the great majority of deaths occurring in a particular year are registered in that year (95%) and the year immediately following (5%). Research has shown the number of deaths registered after the second year of occurrence are of little significance (less than 0.1%).

The following table presents data based on year of occurrence. Comparison to the table above reveals a similar trend for the years 1997 to 1999. However, as the file for deaths registered in 2001 is not yet available, the number of deaths in 2000 is incomplete.

UNDERLYING CAUSE OF DEATH BY YEAR OF OCCURRENCE, AUSTRALIA — 1997–2000

Underlying cause/circumstance of death	Year of occurrence(a)			
	1997	1998	1999	2000(b)
Drug-induced deaths	1 322	1 625	1 740	1 449
Accidental (F11–F16, F19 F55, X40-X44)(c)	924	1 245	1 405	1 176
Intentional self-harm (X60-X64)	301	294	282	254
Assault(X85)	5	5	2	1
Undetermined intent (Y10-Y14)	92	81	51	18

(a) Data are based on registrations across two years.

(b) Incomplete data. Excludes those deaths that occurred in 2000 and were not registered until 2001. Data for 2001 are not yet available.

(c) Includes two components: mental and behavioural disorders due to drug use (F11-F16, F19, F55, X40-X44) and accidental poisoning by drugs (X40-X44).

Source: Causes of Death collection

Multiple Causes Multiple cause data enable provision of more detailed information on causes or conditions that contributed to death. In the event of a drug-induced death, information recorded includes the nature of injury (poisoning) as well as any other conditions reported on the Medical Certificate of Cause of Death.

The examples presented in the table below illustrate the type of information available for drug-induced deaths. For example, for deaths registered in 2000, drug use was the underlying cause of death in 1,569 cases (1.2% of total deaths). Of these drug-induced deaths, 1,091 deaths had mention of one or more drugs of abuse, 268 cases mentioned anti-depressants and in 403 cases benzodiazepines had contributed to death.

DRUG-INDUCED DEATHS BY SELECTED MULTIPLE CAUSES,
AUSTRALIA — 1997–2000

<i>Underlying cause/multiple cause</i>	<i>Year of registration</i>			
	1997	1998	1999	2000
Drug induced deaths	1 323	1 645	1 739	1 569
Drugs contributing to death				
Drugs of abuse(a)	887	1 072	1 275	1 091
Anti-depressants	233	215	300	268
Benzodiazepines	352	347	503	403

(a) Includes opioids, cocaine, cannabis, amphetamines and hallucinogens.

Source: *Causes of Death collection*

As illustrated in the table above, the number of drug-induced deaths is not the sum of multiple cause data. The data relating to particular drugs of interest represent the number of instances where toxic levels of a particular selection of drugs played a contributory role in the death. For example, in the event of a drug-induced death, it is possible that both morphine and benzodiazepines may have been taken in toxic quantities. In this instance, when using multiple causes of death data, the death would be included in the count for drugs of abuse and for benzodiazepines.

12 FURTHER INFORMATION

A summary of causes of death information is published annually in *Causes of Death, Australia* (cat. no. 3303.0). Information presented in this publication meets international standards for comparisons at the broader classification level. More detailed information is available upon request from the ABS including annual unit record files for those researchers wishing to conduct their own analysis of mortality data.

To enhance regular publications, the ABS endeavours to make additional data more readily available. A series of data are accessible as companion data files. These companion data files may be purchased directly from the ABS web site via e-Commerce, through AusStats for subscribers or as a data consultancy by contacting the ABS on 1800 620 963.

12 FURTHER INFORMATION
continued

Companion data files are provided in superTABLE format. SuperTABLE is tabulation software which allows you to create tailored tables to suit your needs by manipulating the classifications and counting items in a dataset.

A special companion data file *Drug-induced Deaths, Australia, 1997–2000* (cat. no. 3303.0) has been developed to accompany this publication. Data presented in this file include a number of fields or classifications from the Causes of Death collection. Information relating to drug-induced deaths includes the underlying cause of death, as well as a range of demographic information relating to the deceased person.

For further clarification of data concepts and customised tabulations in hardcopy or electronic format, contact Peter Burke, Health and Vitals National Project Centre, Brisbane on 1800 620 963 or email <peter.burke@abs.gov.au>.

13 RELATED READING

Other available ABS publications which may be of interest include:

Australian Standard Classification of Drugs of Concern, cat. no. 1248.0

Causes of Death, Australia, 1997 — Summary of Findings 'Drug Dependence', cat. no. 3303.0

Causes of Death, Australia, 1998 — Summary of Findings 'Drug Dependence', cat. no. 3303.0

Australian Social Trends, 2001 — Drug-related Deaths, cat. no. 4102.0

Australian Social Trends, 2001 — Health: national summary, cat. no. 4102.0

Illicit Drug Use, Sources of Australian Data, 2001, cat. no. 4808.0

Current publications and other products released by the ABS are listed in the *Catalogue of Publications and Products* (cat. no. 1101.0). These products are available from any ABS office or the ABS web site at <www.abs.gov.au>.

APPENDIX 1

STRUCTURE OF THE INTERNATIONAL CLASSIFICATION OF DISEASES (ICD)

The purpose of the ICD is to enable the recording, analysis and comparison of mortality and morbidity data collected in different countries or areas for different periods. The classification is used to translate diagnoses of diseases and other health problems from words into a code which permits easy storage, retrieval and analysis of the data.

The ICD classification is hierarchical in structure. Chapters are assigned to group diseases, injuries, medical conditions and procedures according to established criteria. Most chapters are associated with particular body systems, special diseases or external factors.

In ICD-10 each chapter contains a number of diseases and conditions which are placed in categories with a three character designation. For example, a death resulting from a mental or behavioural disorder due to opioids would be coded to F11. A fourth character is used to add detail and specificity to data. If a death results as a consequence of the use of opioids and the deceased is identified as drug dependent the code assigned would be F11.2.

The current version (ICD-10) was introduced in Australia for coding mortality data from 1 January 1997. This revision is covered by three volumes. A brief outline of content is provided below:

CONTENT OF ICD-10 VOLUMES

<i>ICD Volume</i>	<i>Section</i>	<i>Chapter</i>	<i>Content</i>
Volume 1 — Alphanumeric listing of terms relating to diseases and nature of injury	Section I		Introduction
	Section II		List of three character categories
	Section III	Chapters I to XVII	Tabular list of inclusions containing Chapters I to XXI
		Chapter XVIII	Diseases and other morbid conditions
		Chapter XIX	Symptoms, signs and abnormal clinical and laboratory findings
		Chapter XX	Injury, poisoning and certain other consequences of external causes
		Chapter XXI	External causes of morbidity and mortality
			Factors influencing health status — This chapter is not used for mortality coding
		Section IV	Morphology of neoplasms
	Volume 2 — Guidelines for recording and coding of information	Section I	
Section II			Guidelines for certification and rules in mortality coding
Section III			Guidelines for recording and coding morbidity
Volume 3 — Alphabetical index of diseases and conditions	Section I		Index to diseases and nature of injury
	Section II		Index to external causes of injury
	Section III		Table of drugs and chemicals

APPENDIX 2

HISTORY OF THE INTERNATIONAL CLASSIFICATION OF DISEASES (ICD) AND COMPARISON OF ICD-9 AND ICD-10

The ABS classifies death information to specific causes of death according to the rules specified in the ICD. There have been ten revisions of the ICD used since its introduction in Australia in 1907. National cause of death data are available in hardcopy from 1907 and electronically from 1968.

ICD REVISIONS	
<i>International classification and revision</i>	<i>Years of usage in Australia</i>
First revision (ICD-1)	1907–1909
Second revision (ICD-2)	1910–1921
Third revision (ICD-3)	1922–1930
Fourth revision (ICD-4)	1931–1939
Fifth revision (ICD-5)	1940–1949
Sixth revision (ICD-6)	1950–1957
Seventh revision (ICD-7)	1958–1967
Eighth revision (ICD-8)	1968–1978
Ninth revision (ICD-9)	1979–1998
Tenth revision (ICD-10)	(a)from 1997

(a) To assist with comparisons over time, data for 1997 and 1998 are available coded to both ICD-9 and ICD-10

The various editions of the ICD have differing levels of detail relating to drugs with the potential to cause death. Data produced prior to 1997 provide limited information relating to specific drugs of interest. The classifications were structured in such a way that groupings or categories of drugs encompassed a wider range of similar drugs. For example, under ICD-9 rules accidental poisonings by morphine and methadone were assigned the same code of E850.0. As a result, the identification of many individual drugs was not possible. However, it is still feasible to monitor mortality trends at a broader level e.g. deaths from opiates and related narcotics (ICD-9 code E850.0).

Data coded using ICD-10 incorporate codes from Chapter XIX 'Injury, poisoning and certain other consequences of external causes'. This chapter was not used by the ABS for coding Australian mortality prior to 1997. The inclusion of codes from this chapter enables better identification of specific drugs of interest. For example, prior to the use of ICD-10, deaths from an accidental overdose of morphine could not be distinguished from overdoses of methadone. Further details on this concept are discussed in Appendix 3.

Time series data may be available for years prior to 1997 depending on the level of detail required for specific research studies. As the various versions of ICD have differing levels of detail on drugs, longer time series data may only be available at the broader classification level.

For comparison purposes, ICD-9 and ICD-10 are similar in structure for classifying the underlying cause of death due to drug use. Therefore, a time series utilising these two versions of the ICD is possible from 1979. A table listing comparable codes from ICD-10 to ICD-9 for drug-induced deaths follows.

COMPARISON OF ICD-10 AND ICD-9 CODES

<i>ICD-10 Codes</i>	<i>ICD-9 Codes</i>	<i>Code descriptors</i>
F11-F16, F19	304	Mental and behavioural disorders due to psychoactive substance use (excluding alcohol, tobacco and volatile solvents)
F55	305.2–305.9	Abuse of non-dependence-producing substances
X40-X44	E850-E858	Accidental poisoning by drugs, medicaments and biologicals
X60-X64	E950.0-E950.5	Intentional self-harm by drugs, medicaments and biologicals
X85	E962.0	Assault by drugs, medicaments and biological substances
Y10-Y14	E980.0-E980.5	Deaths of undetermined intent by drugs, medicaments and biologicals

APPENDIX 3

ICD-10 CODES FOR DRUG-INDUCED DEATHS

GUIDE TO TABLES

Researchers of drug deaths may find the following tables provide assistance in determining availability of data for drugs of interest. For a comprehensive list of drugs specifying inclusions in each category, refer to the ICD manuals or contact the ABS. Tables 2 and 3 are presented using a common format illustrated below.

FORMAT OF TABLES

<i>ICD-10 Groups</i>			<i>External causes</i>				
<i>Broad category</i> 1	<i>Sub-category</i> 2	<i>Mental and behavioural disorders</i> 3	<i>Accidental</i> 4	<i>Intentional self-harm</i> 5	<i>Assault</i> 6	<i>Undetermined</i> 7	<i>Poison Codes</i> 8
Psychostimulants	Amphetamines	F15	X41, X44	X61, X64	X85	Y11, Y14	T43.6
Narcotics	Heroin	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.1
Narcotics	Other opioids	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.2
Narcotics	Cocaine	F14, F19	X42, X44	X62, X64		Y12, Y14	T40.5

Note:

Column 1 — broad category of drugs.

Column 2 — sub-category of drugs within each broad category.

Column 3 — codes for Mental and behavioural disorders. (Accidental death of a deceased person identified as dependent on drugs.)

Columns 4 to 7 — codes for accidental or violent deaths for each drug type.

Column 8 — poison code used for deaths due to an overdose, toxicity or poisoning. These codes are generally used for deaths classified as external causes.

Content of Tables Table 1 contains examples or common names for ICD-10 groupings of drugs. This list is not exhaustive but rather provides an example of commonly used names.

Table 2 lists ICD-10 codes for drug-induced deaths. This table presents codes for drugs and the relevant codes used to classify the circumstance of death.

Table 3 presents ICD-10 codes for groups of drugs, which may be of interest to researchers, but do not strictly comply with ICD groupings. For example, the term ‘drugs of abuse’ is not a valid ICD grouping, but with the introduction of ICD-10 it is now possible to extract data for deaths directly caused by this group of drugs.

TABLE 1 – COMMON NAMES USED FOR DRUGS

<i>ICD-10 drug groups</i>	<i>Common/example name</i>	<i>Poison code</i>
Multiple drug use	—	T36.0-T50.9
Systemic antibiotics	Penicillin, amoxicillin	T36.0-T36.9
Other systemic anti-infectives and antiparasitics	Antimalaria, antimycobacterial drug	T37.0-T37.9
Hormones and their synthetic substitutes and antagonists n.e.c.	Mesterolone, testosterone, metformin	T38.0-T38.9
Non-opioid analgesics, antipyretics and antirheumatics	Paracetamol, indomethacin, aspirin	T39.0-T39.9
Narcotics		
Opium	Opium gel, poppy straw	T40.0
Heroin	Smack, speedball	T40.1
Other opioids	Morphine, codeine	T40.2
Methadone	Methadone hydrochloride, done	T40.3
Other synthetic narcotics	Pethidine, peth	T40.4
Cocaine	Coke, crack	T40.5
Other and unspecified narcotics	Obstetric narcotic, opiate n.e.c.	T40.6
Hallucinogens (psychodysleptics)		
Cannabis	Grass, hash, pot	T40.7
Lysergide (LSD)	Blotters, acid, lysergic acid	T40.8
Other and unspecified psychodysleptics	Mescaline, psilocin, psilocybine	T40.9
Anaesthetics and therapeutic gases		
Anaesthetics	Nitrous oxide	T41.0-T41.4
Therapeutic gases	Carbon dioxide, oxygen	T41.5
Sedative-hypnotics, antiepileptic and antiparkinsonism		
Barbiturates	Barbs, phenobarbitone	T42.3
Benzodiazepines	Serepax, rohypnol	T42.4
Other and unspecified	Sleeping tablet, methaqualone, amantadine	T42.0-T42.2, T42.5-T42.8
Anti-depressants		
Tricyclic and tetracyclic	Dothiepin, doxepin	T43.0
Monoamine-oxidase-inhibitors	Phenelzine	T43.1
Other and unspecified	Serotonin reuptake inhibitors	T43.2
Psychostimulants	Amphetamines, speed, ecstasy, methylamphetamine	T43.6
Other psychotropic drugs n.e.c.	Phenothiazine antipsychotics, lithium, flupentixol	T43.3-T43.5, T43.8-T43.9
Drugs primarily affecting the autonomic nervous system	Pseudoephedrine	T44.0-T44.9
Primarily systemic and haematological agents n.e.c.	Warfarin, heparin	T45.0-T45.9
Agents primarily affecting the cardiovascular system	Amyl nitrite, clonidine	T46.0-T46.9
Agents primarily affecting the gastrointestinal system	Magnesium trisilicate, kaolin	T47.0-T47.9
Agents primarily acting on smooth and skeletal muscles and the respiratory system	Sobrerol, carbolonium (bromide)	T48.0-T48.9
Topical agents primarily affecting skin and mucous membrane and by ophthalmological drugs etc.	Beta-eucaine, boric acid	T49.0-T49.9
Diuretics and other and unspecified drugs		
Diuretics	Moduretic, dapa-tabs	T50.1-T50.2
Opioid antagonists	Naloxone, Naltrexone	T50.7
Other and unspecified drugs, medicaments and biological substances	Diagnostic agents, cathine, histamine	T50.0, T50.3-T50.6, T50.8-T50.9

Source: *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision; Australian Standard Classification of Drugs of Concern (cat. no. 1248.0).*

TABLE 2 – ICD-10 CODES FOR DRUG-INDUCED DEATHS

ICD-10 drug groups	Mental and behavioural disorders	External causes				Poison code
		Accidental	Intentional self-harm	Assault	Undetermined	
Multiple drug use	F19	X44	X64	X85	Y14	T36.0-T50.9
Systemic antibiotics	n.a.	X44	X64	X85	Y14	T36.0-T36.9
Other systemic anti-infectives and antiparasitics	n.a.	X44	X64	X85	Y14	T37.0-T37.9
Hormones and their synthetic substitutes and antagonists n.e.c.	F55	X44	X64	X85	Y14	T38.0-T38.9
Non-opioid analgesics, antipyretics and antirheumatics	F55	X40, X44	X60, X64	X85	Y10, Y14	T39.0-T39.9
Narcotics						
Opium	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.0
Heroin(a)	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.1
Other opioids	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.2
Methadone	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.3
Other synthetic narcotics	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.4
Cocaine	F14, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.5
Other and unspecified narcotics	F19	X42, X44	X62, X64	X85	Y12, Y14	T40.6
Hallucinogens (psychodysleptics)						
Cannabis	F12, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.7
Lysergide (LSD)	F16, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.8
Other and unspecified	F16, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.9
Anaesthetics and therapeutic gases						
Anaesthetics	F19	X44	X64	X85	Y14	T41.0-T41.4
Therapeutic gases	F19	X44	X64	X88	Y14	T41.5
Sedative-hypnotics, antiepileptic and antiparkinsonism						
Barbiturates	F13, F19	X41, X44	X61, X64	X85	Y11, Y14	T42.3
Benzodiazepines	F13, F19	X41, X44	X61, X64	X85	Y11, Y14	T42.4
Other and unspecified	F55	X41, X44	X61, X64	X85	Y11, Y14	T42.0-T42.2, T42.5-T42.8
Anti-depressants						
Tricyclic and tetracyclic	F55	X41, X44	X61, X64	X85	Y11, Y14	T43.0
Monoamine-oxidase-inhibitors	F55	X41, X44	X61, X64	X85	Y11, Y14	T43.1
Other and unspecified	F55	X41, X44	X61, X64	X85	Y11, Y14	T43.2
Psychostimulants	F15, F19	X41, X44	X61, X64	X85	Y11, Y14	T43.6
Other psychotropic drugs n.e.c	F55	X41, X44	X61, X64	X85	Y11, Y14	T43.3-T43.5, T43.8-T43.9
Drugs primarily affecting the autonomic nervous system	F55	X43, X44	X63, X64	X85	Y13, Y14	T44.0-T44.9
Primarily systemic and haematological agents n.e.c.	n.a.	X44	X64	X85	Y14	T45.0-T45.9
Agents primarily affecting the cardiovascular system	n.a.	X44	X64	X85	Y14	T46.0-T46.9
Agents primarily affecting the gastrointestinal system	F55	X44	X64	X85	Y14	T47.0-T47.9
Agents primarily acting on smooth and skeletal muscles and the respiratory system	F55	X44	X64	X85	Y14	T48.0-T48.9
Topical agents primarily affecting skin and mucous membrane	n.a.	X44	X64	X85	Y14	T49.0-T49.9
Diuretics and other and unspecified drugs						
Diuretics	F55	X44	X64	X85	Y14	T50.1-T50.2
Opioid antagonists	F19	X44	X64	X85	Y14	T50.7
Other and unspecified drugs, medicaments and biological substances	F55	X44	X64	X85	Y14	T50.0, T50.3-T50.6, T50.8-T50.9

(a) Heroin once injected into the body rapidly converts to morphine, therefore some heroin deaths may not be identified and consequently classified as a death from morphine.

Source: *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision.*

TABLE 3 — COMMONLY USED CATEGORIES FOR DRUG-INDUCED DEATHS

<i>ICD-10 drug groups</i>	<i>Mental and behavioural disorders</i>	<i>External causes</i>				
		<i>Accidental</i>	<i>Intentional self-harm</i>	<i>Assault</i>	<i>Undetermined</i>	<i>Poison code</i>
Multiple drug use	F19	X44	X64	X85	Y14	T36.0-T50.9
Drugs of abuse						
Opioids	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.0-T40.4, T40.6
Cannabis	F12, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.7
Cocaine	F14, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.5
Psychostimulants	F15, F19	X41, X44	X61, X64	X85	Y11, Y14	T43.6
Hallucinogens	F16, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.8-T40.9
Opioids						
Opium, heroin, other opioids, methadone, other synthetic and unspecified narcotics	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.0-T40.4, T40.6
Accidental overdoses	F11-F16, F19	X40-X44	n.a.	n.a.	n.a.	T36.0-T50.9
Analgesics						
Opioids	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.0-T40.4, T40.6
Synthetic opioids	F11, F19	X42, X44	X62, X64	X85	Y12, Y14	T40.3, T40.4
Non-opioid	F55	X40, X44	X60, X64	X85	Y10, T14	T39.0-T39.9

Source: *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision.*

APPENDIX 4

ABS DATA AVAILABLE ON REQUEST

Published data are aggregated and generally provide only summary information. For example, broad categories of causes of death are compiled in respect of the state or territory of the usual residence of the deceased.

More detailed data for research and analytical purposes are available from the ABS on a consultancy basis as customised tabulations or annual unit record files. These more detailed tabulations are released subject to their meeting strict confidentiality criteria which protect the identity of individuals.

Customised tabulations are available in electronic or hardcopy media. Generally, a fee is charged based on the number of cells required, with the exception of unit record files which are priced separately.

Upon application, unit record files are released to approved users in accordance with practice agreed by ABS and the Registrars of Births, Deaths and Marriages in each state and territory. These files are available via electronic media.

For advice and guidance on the best possible data to suit individual needs, requests should be directed to Peter Burke, Health and Vitals National Project Centre, Brisbane on 1800 620 963 or email <peter.burke@abs.gov.au>.

In addition to the cause of death, the ABS collects an extensive range of demographic information relating to the deceased person. The characteristics listed in the table below may be used for cross-classification with drug-induced deaths.

MAIN DATA ITEMS AVAILABLE FROM THE CAUSES OF DEATH COLLECTION

<i>Date items</i>	<i>Description</i>
Month and year of registration	Month and year the death was registered with relevant state or territory registrar
State or territory of registration	State or territory where the death was registered
Place of usual residence	The home of the deceased State or territory Statistical Division Statistical Local Area
Date of death	Day, month and year when the death occurred
Age at death	Age of deceased
Sex	Gender of deceased
Underlying cause of death	Classified by the relevant International Classification of Diseases version
Marital status	Marital status of deceased
Birthplace	Country of birth of the deceased
Indigenous status	Indigenous status as reported on the Medical Certificate of Cause of Death
Duration of residence	Duration of residence in Australia (if not Australian born)
Multiple causes	Contributory or associated causes of death

(a) It is important to note that availability of some data items is not possible for all years. For example, the collection of information relating to Indigenous status has been progressively introduced across Australia since 1980.

GLOSSARY OF TERMS

Aetiological Fractions Many researchers use mathematical modelling known as aetiological fractions to calculate the proportion of all deaths attributable to drug use. This requires calculating attributable fractions using knowledge about the prevalence of exposure to the drug and the relative risk of death, given such exposure. ABS excludes this methodology from mortality analysis. ABS data relate to cause-specific numbers of deaths.

Drugs of Abuse Drugs of abuse is a term used by ABS to describe substances commonly referred to as 'illicit drugs'. Included are the typical drugs of abuse of opioids, cocaine, amphetamines, hallucinogens and cannabis. These substances are used for their psychoactive effect and have the potential to be self-administered in a manner which may be detrimental to the health of the individual.

Death rates Three forms of death rates are available for the general Causes of Death collection as defined below:

- Crude death rates relate to the total number of deaths for specific causes and are the number of deaths for those causes per 100,000 of estimated resident population at 30 June of that year.
- Standardised death rates enable the comparison of death rates between populations with different age structures by relating them to a standard population. The standard population currently used is all persons in the 1991 Australian population. It is important to note that the 2001 Australian population will be used as the standard in the near future. These rates are expressed per 100,000 persons.
- Age-specific death rates relate to deaths for age groups other than under one year and are the number of deaths per 100,000 of the mid-year estimated resident population as at 30 June of that year in a particular age/sex group.

External causes Deaths due to external causes are those which occur as a result of accidents, poisonings and/or violence. They are listed in Chapter XX of ICD-10. These deaths are classified according to the event, such as drug toxicity leading to the death.

ICD ICD refers to the International Classification of Diseases. Refer to Appendix 1 for structure of the classifications and Appendix 2 for details of revisions used for classification of mortality data in Australia.

Mental and Behavioural Disorders Relating to Drug-induced Deaths

Deaths classified to this chapter of the ICD include a variety of disorders that are attributable to the use of one or more psychoactive substances, which may or may not have been medically prescribed. Relevant ICD-10 codes for the underlying cause of death are F11-F16, F19, F55. Clinical disorders included in this category are identified by a fourth character as follows:

- .0 Acute intoxication
- .1 Harmful use
- .2 Dependence syndrome
- .3 Withdrawal state
- .4 Withdrawal state with delirium
- .5 Psychotic disorder
- .6 Amnesic syndrome
- .7 Residual and late-onset psychotic disorder
- .8 Other mental and behavioural disorders
- .9 Unspecified mental and behavioural disorders

Multiple Causes of Death

All morbid conditions, diseases and injuries entered on the Medical Certificate of Cause of Death including the underlying cause of death. Where poisoning by drugs contributed to death, multiple causes include circumstances of injury, the nature of injury as well as any other conditions reported on the Medical Certificate of Cause of Death. Poison codes (T-codes) are assigned for all drugs found in toxic quantities.

Opiates

Opiates refers to natural derivatives of the opium poppy. e.g. opium, morphine and codeine.

Opioids

Opioids refers to both the natural derivatives of the opium poppy (opiates) and related synthetic substances derived from other sources e.g. heroin, methadone and pethidine.

Poison Codes Relating to Drug-induced Deaths

Poison codes are contained in Chapter XIX of ICD-10 and applied when toxic levels or poisoning from drug use contribute to death. Relevant poison codes are T36-T50. These codes are used in conjunction with external cause codes (Chapter XX).

Unit Record File (URF)

Unit record file is a term used by ABS to describe the deaths data files containing all variables recorded for all deaths in the Causes of Death collection. The URF enables purchasers to tabulate, manipulate and analyse data to their own specifications. Due to the detailed nature of information held, release of these files is governed by strict guidelines to ensure confidentiality is maintained.

Underlying Cause of Death

The underlying cause of death is defined as the disease or injury which initiated the train of morbid events leading directly to death. To be classified as a drug-induced death, the coroner must state that the death was a direct result of drug use.

Undetermined Deaths Deaths where the available information is insufficient to enable a medical or legal authority to make a distinction between accident, self-harm and assault are classified as undetermined deaths.

Years of Potential Life Lost (YPLL) YPLL measures the extent of 'premature' mortality, where 'premature' mortality is assumed to be any death at ages of 1–75 years inclusive. By estimating YPLL for 'premature deaths' it is possible to assess the significance of specific diseases or trauma as a cause of premature death.