

Annex A: The definition of drug misuse deaths used for these statistics

A1. Background

The definition of a drug-related death is not straightforward. Useful discussions on definitional problems may be found in articles in the Office for National Statistics (ONS) publication 'Population Trends' and in the journal 'Drugs and Alcohol Today'.

In 2000, the Advisory Council on the Misuse of Drugs (ACMD) wrote a report called 'Reducing drug related deaths' which recommended that a UK wide technical working group should be brought together to standardise the reporting of drug-related deaths. The predecessor of NRS (General Register Office for Scotland-GROS) was part of this working group which agreed on a standard definition for drug misuse deaths. This is the definition used in this report. It is also the definition used by the ONS and NISRA to produce drug misuse deaths figures for England, Wales and Northern Ireland. It is also used as the baseline definition for the UK Drugs Strategy.

In previous years, this definition has been referred to within the NRS report as 'drug-related deaths' or 'the baseline definition'. Starting with the publication for 2021, the NRS report will refer to these as 'drug misuse deaths'.

A2. The definition

Drug misuse deaths are defined as follows: (the relevant ICD10 codes are given in brackets):

- a) deaths where the underlying cause of death has been coded to the following sub-categories of 'mental and behavioural disorders due to psychoactive substance use':
 - (i) opioids (F11);
 - (ii) cannabinoids (F12);
 - (iii) sedatives or hypnotics (F13);
 - (iv) cocaine (F14);
 - (v) other stimulants, including caffeine (F15);
 - (vi) hallucinogens (F16); and
 - (vii) multiple drug use and use of other psychoactive substances (F19).

- b) deaths coded to the following categories and where a drug listed under the Misuse of Drugs Act (1971) was known to be present in the body at the time of death (even if the pathologist did not consider the drug to have had any direct contribution to the death):
 - (i) accidental poisoning by and exposure to drugs, medicaments and biological substances (X40 – X44);
 - (ii) intentional self-poisoning by and exposure to drugs, medicaments and biological substances (X60 – X64);
 - (iii) assault by drugs, medicaments and biological substances (X85); and
 - (iv) poisoning by and exposure to drugs, medicaments and biological substances, undetermined intent (Y10 – Y14).

A3. Deaths which are excluded

The NRS implementation of the definition excludes a small proportion of the deaths which were coded to one of the ICD10 codes listed in Section A2, specifically:

- deaths coded to drug abuse where the direct cause of death was secondary infections or later complications of drug use. The statistics therefore exclude deaths from:
 - secondary infections such as clostridium or anthrax infection resulting from the injection of contaminated drugs;
 - conditions which could be regarded as later complications of drug use, such as bronchopneumonia, lobar pneumonia, bilateral pneumonia, septicaemia or organ failure where drug misuse was not specified as the direct and immediate cause of death (even though it may have damaged greatly the person's health over the years - so reference to, for example, 'chronic' or 'long-term' drug abuse does not necessarily mean that it was the direct and immediate cause of death).

- deaths where a drug listed under the Misuse of Drugs Act was likely to be present only as part of a compound analgesic or cold remedy. For this purpose, NRS identified the following compound analgesics and cold remedies when producing its statistics:
 - for 2018 and earlier years:
 - Co-codamol (paracetamol and codeine sulphate);
 - Co-dydramol (paracetamol and dihydrocodeine);
 - Co-proxamol (paracetamol and dextropropoxyphene); and
 - Dextropropoxyphene alone (as explained below).
 - for 2019 onwards:
 - Codeine and aspirin (co-codaprin);
 - Codeine and brompheniramine maleate;
 - Codeine and dextropropoxyphene;
 - Codeine and diphenhydramine hydrochloride;
 - Codeine and ibuprofen;
 - Codeine and paracetamol (co-codamol, as before);
 - Dextropropoxyphene and paracetamol (co-proxamol, as before);
 - Dextropropoxyphene alone (as before, as explained below);
 - Dihydrocodeine and aspirin;
 - Dihydrocodeine and dextropropoxyphene;
 - Dihydrocodeine and paracetamol (co-dydramol, as before);
 - Pholcodine;
 - Tramadol and paracetamol.

Three points should be noted on these matters:

- Such deaths are excluded because compound analgesics and cold remedies contain relatively small quantities of drugs that are listed under the Misuse of Drugs Act. It would not be appropriate to count a death as drug misuse, where a controlled substance was only present because the deceased had taken a compound analgesic or cold remedy.
- This list was expanded again in 2019 after a discussion about a death due to an overdose of codeine and aspirin. It was agreed that NRS and ONS should both use the above longer list of compound analgesics and cold remedies when producing their statistics for 2019 onwards. Both NRS and ONS decided not to revise the statistics for earlier years because the number of deaths affected were so few that the cost of revision outweighed the benefit.
- As it is believed that dextropropoxyphene has rarely, if ever, been available other than as a constituent of a paracetamol compound, deaths caused by dextropropoxyphene have been excluded even if there is no mention of a compound analgesic or paracetamol.

A4. Exclusions do not apply to the immediate or short-term effects of drugs

The exclusions above do not apply to conditions which could be the immediate or short-term effects of drugs and where terms such as 'intoxication', 'poisoning', 'toxicity', 'overdose', 'acute drug misuse', 'adverse effects of', 'combined effects of', 'possible intoxication' or 'suspected drug overdose' appear.

For example, deaths for which the cause was:

- complications of acute and chronic drug misuse or
- bronchopneumonia [due to] heroin intoxication or
- hypoxic brain injury [due to] morphine and methadone intoxication or
- multi-organ failure [due to] cardiac arrest [due to] multi-drug intoxication

would be counted as drug misuse deaths. It would be assumed either that the death was due to the effects of the drugs (rather than the medical condition) or that the medical condition was an immediate consequence of the drug-taking.

In some cases, there is a reference to causes of death that might be considered immediate consequences of drug intoxication (for example, deaths caused by the inhalation of gastric contents, aspiration pneumonia or choking on food.) These deaths are counted as drug misuse deaths. Similarly, hypothermia may be an immediate consequence of drug intoxication. The statistics also include deaths where the cause was given as 'cocaine-related cardiac arrhythmia' and 'acute intracerebral haemorrhage due to amphetamine use', unless it is clear that the drugs were not used recently.

A5. Some other points on the definition

Under the ICD10 rules, if a death due to the joint effects of two (or more) conditions, the first-mentioned condition should be considered the underlying cause of the death. So, the following examples would all be counted as drug misuse deaths:

- Adverse effects of methadone, etizolam, gabapentin and benzodiazepines and chronic bronchitis and emphysema
- Amphetamine toxicity and coronary artery atheroma
- Cocaine intoxication and cardiac enlargement
- Cocaine toxicity and chronic obstructive pulmonary disease
- Cocaine toxicity and left ventricular hypertrophy
- Combined drug intoxication (morphine, etizolam and pregabalin) and ketoacidosis
- Etizolam and codeine intoxication with fatty change of the liver
- Heroin, cocaine and alcohol intoxication and hypertensive heart disease
- Methadone and etizolam intoxication and bicuspid aortic valve stenosis
- Methadone, etizolam and pregabalin intoxication and cirrhosis of the liver
- Methadone intoxication and acute myocardial infarction
- Morphine and tramadol intoxication, pulmonary adenocarcinoma and ischaemic heart disease
- Morphine (heroin) intoxication with severe pulmonary emphysema
- Multi-drug toxicity and ischaemic heart disease
- Tramadol toxicity with atherosclerotic cardiovascular disease

Whereas the following examples would not be counted as drug misuse as a different medical condition is listed first for each:

- Coronary artery thrombosis and morphine, etizolam and diclazepam intoxication
- Ischaemic heart disease and methadone and etizolam intoxication

- Probable hypoglycaemia (insulin dependent diabetes mellitus and suspected insulin overdose) and etizolam intoxication

If a drug's legal status changes, NRS aims to count it on the basis of its classification on the day the person died (as NRS does not know when the drug was taken). For example, mephedrone was banned under the Misuse of Drugs Act with effect from 00.01 on 16 April 2010. Therefore, if mephedrone was the only drug found to be present in the body, a death coded to one of the categories listed under (b) in Section A2 would not be counted in the drug misuse deaths statistics if it occurred before 16 April 2010.

Examples of deaths which were not counted because they were due to secondary infections are deaths caused by clostridium novyi infection: Annex A of 'Drug-related Deaths in Scotland in 2000' explained that 22 such cases had been identified when the 2000 deaths data file was closed in May 2001. Similarly, these figures exclude the 13 deaths which were caused by the outbreak of anthrax that was associated with contaminated heroin and started in December 2009.

There are a number of other causes of death that some might consider to be drug deaths but are not included in the definition of drug misuse deaths. Examples of these are:

- deaths coded to mental and behavioural disorders due to the use of volatile substances;
- deaths from AIDS where the risk factor was believed to be the sharing of needles;
- deaths from drowning, falls, road traffic and other accidents which occurred under the influence of drugs; and
- deaths due to assault by a person who was under the influence of drugs, or as a result of being involved in drug-related criminal activities.

None of these examples would be included in the drug misuse deaths because the underlying cause of death is not included in the list of ICD10 codes in paragraph A2

A6. Identifying deaths which are drug-related, and why there are slight discrepancies in the figures for a few years between 2000 and 2006

There are a few minor discrepancies between the figures for 2006 and earlier years that were published at the time and those which were produced more recently. This is due to a change in the way in which drug misuse deaths are identified using the data held by NRS. This process has two stages:

- first, extract all the records of deaths which meet the conditions for drug poisoning deaths (ICD10 codes F11-F16, F18-F19, X40-X44, X60-X64, X85, Y10-Y14.([Annex B](#)). The method used for this stage has not been changed;
- second, scrutinise the extracted records and set a 'flag' to identify the ones which should be counted under the drug misuse deaths definition. The method used for this stage was changed with effect from June 2008.

Up until mid 2008, the data were scrutinised by a statistician at NRS (then, GROS) who had personal expertise in identifying which deaths should be included in the drug misuse statistics.

Since 2008, this work has been done through a SAS computer programme which identifies potential drug misuse deaths using a look up table. This list is then scrutinised by the head of the PHS drugs team who is a consultant in public health medicine. She provides an independent medical opinion on which deaths should be included or excluded from the statistics.

The database starts with data for 2000 because that was the first year for which NRS used ICD10. NRS used the classification's previous version (ICD9) for 1979 to 1999. Because the data are coded differently for the years up to 1999 and the years from 2000, NRS's current database starts with the data for 2000.

This method is now used to produce time series from 2000 onwards. This means that figures for the year 2000-2006 in recent publication may differ very slightly from when they were originally published.

A7. Revisions to figures for previous years

When a new edition of this publication is produced, some of the figures that were published in the previous edition may be revised slightly, following a correction to the substance name look-up table.

For example:

- after the "... in 2014" edition was prepared, it was found that an error in the look-up table entry for one drug led to one death wrongly not being counted as drug misuse. Correcting the error raised the total number of drug misuse deaths registered in 2013 by one. Some of the other figures (e.g. the number of females, the number aged 25-34) also increased as a result.
- after the "...in 2019" edition was prepared, it was found that an error in the look-up table entry for one drug led to one death, registered in 2019, wrongly not being counted as drug misuse. Correcting the error raised the total number of drug misuse deaths registered in 2019 by one. Some of the other figures also increased as result.

In addition, very occasionally, some of the figures that were published in a previous edition may have to be revised for another reason. This happened after the figures for 2019 were published, when NRS was sent some late information about the substances involved in some deaths in Highland council area. Adding the extra information to the NRS drug-death database increased by 15 the number of drug misuse deaths that were registered in 2019.

A8. References

Arrundale J and Cole S K	Collection of information on drug related deaths by the General Register Office for Scotland	General Register Office for Scotland 1995
Christophersen O, Rooney C and Kelly S	Drug related mortality: methods and trends	'Population Trends' 93, Office for National Statistics, 1998
Corkery, J	UK drug-related mortality – issues in definition and classification	'Drugs and Alcohol Today' volume 8 issue 2, Pavilion Journals, 2008
The Advisory Council on the Misuse of Drugs	Reducing drug related deaths	Home Office, 2000