Quality and Methodology Information

General details

Title of output: Deaths related to Drug Poisoning in England and Wales
Abbreviated title: None
Designation: National Statistics (awaiting assessment)
Geographic coverage: England and Wales
Date of last SQR or QMI: September 2014
Contact details: mortality@ons.gov.uk

Executive summary

This report is part of a rolling programme of quality reports that are produced by the Office for National Statistics (ONS) to accompany statistical outputs. The full programme of work being carried out on Statistical Quality is available on the National Statistics website. Quality and Methodology Information papers are overview notes which pull together key qualitative information on the various dimensions of quality as well as providing a summary of methods used to compile the output.

This report concerns deaths related to drug poisoning in England and Wales and it provides users with information on the usability and fitness for purpose of these statistics. ONS first published a report on this topic in 2000 and figures have been published annually since then. Until 2009 these figures were published as an annual report in the ONS journal Health Statistics Quarterly, but since 2010 they have been published as a statistical bulletin on Deaths related to Drug Poisoning. The bulletin contains key findings and commentary on the latest years of data, with a time series of figures from 1993 available on the ONS website. Figures are broken down by cause of death, sex and age of the deceased and the substances involved in the death.

This output is compiled using a drugs database, which ONS developed to facilitate research into deaths related to drug poisoning. The drugs database is extracted from the national mortality database for England and Wales. Deaths are included if the underlying cause of death is regarded as drug-related, according to the National Statistics definition. ONS mortality data - including data on drug-related deaths - come from the information collected when a death is registered. Information about the underlying mortality data, including details on how the data are collected and coded are available in the Mortality Metadata. The majority of deaths related to drug poisoning are registered following a coroner’s inquest, and the text on the coroner’s death certificate is used to code all of the substances involved in the death.

This document contains the following sections:

- Output quality;
- About the output;
- How the output is created;
- Validation and quality assurance;
- Concepts and definitions;
- Other information, relating to quality trade-offs and user needs; and
- Sources for further information or advice.
**Output quality**

This document provides a range of information that describes the quality of the data and details any points that should be noted when using the output.

ONS has developed [Guidelines for Measuring Statistical Quality](#): these are based upon the five European Statistical System (ESS) Quality Dimensions. This document addresses these quality dimensions and other important quality characteristics, which are:

- Relevance;
- Timeliness and punctuality;
- Comparability and coherence;
- Accuracy;
- Output quality trade-offs;
- Assessment of user needs and perceptions; and
- Accessibility and clarity.

More information is provided about these quality dimensions in the sections below.

**About the output**

**Relevance**

(The degree to which statistical outputs meet users’ needs.)

Drug use and drug dependence are known causes of premature mortality, with drug poisoning accounting for nearly one in seven deaths among people in their 20s and 30s in 2013. Consequently, there is considerable political, media and public interest in these figures.

The annual statistical bulletin presents figures on deaths related to drug poisoning in England and Wales for the latest years, and a time series from 1993 to the latest year available can be downloaded from the ONS website. Figures are broken down by country of usual residence (England and Wales), cause of death, sex and age of the deceased and the substances involved in the death. Counts of deaths and mortality rates are presented for all deaths related to drug poisoning (including both legal and illegal drugs) and also for drug misuse deaths (those involving illegal drugs). More information on these definitions can be found below in Box 1.

In December 2010, the coalition government launched a new drug strategy entitled ‘Reducing demand, restricting supply, building recovery: supporting people to live a drug-free life’ (Home Office, 2010a). This strategy highlights preventing drug-related deaths as one of the key outcomes that services should be focused on. Statistics on deaths related to drug poisoning are used by a range of public bodies, including the National Treatment Agency for Substance Misuse (NTA), the Department of Health (DH) and Public Health Wales, in order to monitor the effectiveness of policies aimed at reducing drug-related deaths.

In addition, data from the drug poisoning database are also used by medical professionals, academics and other researchers (for example, the Centre for Suicide Research at the University of Oxford), to investigate trends in drug-related deaths and effectiveness of measures taken to prevent or treat drug overdoses. For example, the data have been used to investigate the impact of the withdrawal of the drug co-proxomal and the reduction in paracetamol pack sizes on drug-related deaths.

There are many other potential uses of these figures; for example, organisations such as the Advisory Council on the Misuse of Drugs (ACMD) could use them to help evaluate the risk of death posed by new psychoactive substances. However, it’s important to bear in mind that it may not be possible to identify new substances during post-mortem investigations, and so deaths involving these substances may not be accurately represented in ONS statistics. In addition, ONS data cannot shed any light on other types of short-term harm associated with drug use (for example, social or psychological) or the long-term damage that using such substances may cause.

Figures on the number of deaths related to drug misuse are presented separately for England and Wales, but all other statistics are presented for England and Wales combined. We are aware that users would like data to be available for smaller geographical areas, and in 2008 ONS published an article examining [Geographical variations in deaths related to drug misuse in England and Wales](#) (Griffiths et al, 2008). Figures were aggregated over two seven-year periods to protect confidentiality and ensure that mortality rates were sufficiently robust.
Figures for subnational geographies are published separately following the release of the drug poisoning bulletin. More detailed statistics on drug-related deaths are available on request. However, because drug-related deaths figures are based on confidential information contained on the coroner’s death certificate, these statistics will be subject to disclosure control. To meet with the requirements in the ONS policy on protecting confidentiality within birth and death statistics it is sometimes necessary to suppress small cell counts (including secondary suppression where necessary), or the table may be redesigned (for example several years of data may be combined). Discussions are always held with the customer in order to provide the most useful non-disclosive table.

The drug poisoning database contains some information on deaths involving volatile substances (for example butane). Unfortunately, this information has not been consistently recorded over time and so is not reported in the bulletin. In the past the Volatile Substance Abuse (VSA) Mortality Project, run by a team at St George’s, University of London, provided an alternative source of data on VSA deaths. However, due to funding problems, the future of this project is now uncertain, so it is likely users will now look to ONS for statistics on VSA deaths, and ONS is considering how best to meet these user needs.

We are aware that users would like drug-related deaths statistics to be available more quickly; this is discussed in the Timeliness and punctuality section below.

**Timeliness and punctuality**

(Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the gap between planned and actual publication dates.)

For more details on related releases, the UK National Statistics Publication Hub is available online and provides 12 months’ advance notice of release dates. In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the Code of Practice for Official Statistics.

The provisional release date of the statistical bulletin on deaths related to drug poisoning is announced on the statistics page on GOV.UK up to a year in advance. The date is then finalised at least four weeks before publication. The bulletin is published annually at the end of August or early September, which is approximately eight months after the end of the reference period. This delay is due to the large amount of quality checking that must be performed on the underlying mortality data, and the complex processing that is then carried out in order to update the drug poisoning database.

In common with most other mortality statistics, figures for drug-related deaths are based on deaths registered in a particular calendar year. The alternative would be to publish statistics based on the year in which the death occurred. Almost all drug-related deaths are registered following a coroner’s inquest, so deaths are often not registered until many months after they occurred. Due to the length of time it takes to hold an inquest, the bulletin actually presents information on deaths that may have occurred months or even years ago. This makes it more difficult to evaluate sudden changes in drug-related deaths.

Some users would like these statistics to be based on occurrences rather than registrations, and they would also like figures to be available more quickly. This would help them monitor rapidly emerging trends in drug-related deaths. Unfortunately, legislation in England and Wales means when a coroner’s inquest takes place, the death cannot be registered until the inquest is completed. Since ONS has no information about a death until it is registered, it can take months or even years for a death to be added to our mortality database. The only exception is when the coroner adjourns the inquest and carries out an ‘accelerated registration’, while awaiting the outcome of criminal proceedings.

If ONS were to produce data based on the year a death occurred (rather than the year it was registered), publication would be delayed by at least six months in order to allow enough time for most of the deaths that occurred in a given year to be registered. If it was produced any earlier the data would be incomplete, and hence inaccurate. It’s unlikely this delay would be acceptable to users. In response to the concerns of users ONS carried out an investigation in 2012 into the impact of registration delays on drug-related deaths and mortality statistics in general. We examined whether it is possible to estimate the number of deaths that occurred in a year reliably, based on the number that have been registered by a given date. Unfortunately, it was concluded that the estimation methods were not robust enough to implement.
How the output is created

Source data

This output provides figures to enable monitoring of the number of deaths related to drug poisoning in England and Wales, including analysis of the types of substances involved in these deaths. To facilitate this research ONS has developed a drug-related deaths database, which is a subset of the national mortality database for England and Wales.

All ONS mortality data - including statistics on deaths related to drug poisoning - come from information collected when a death is certified and registered. ONS codes all of the causes mentioned on a death certificate using the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10). From all of the causes mentioned, an underlying cause of death is selected using ICD coding rules. Deaths which are certified by a doctor are coded using the automated cause coding system (known as PCACCS). However, most drug-related deaths are certified by a coroner, and due to the extra information contained on the coroner’s death certificate, the cause coding must be carried out manually.

Further details about how ONS mortality data are collected and coded can be found in the Mortality metadata and the Mortality Statistics in England and Wales Quality and Methodology Information.

Definition

The figures reported in this statistical bulletin are based on the current National Statistics definition of deaths related to drug poisoning (Christopherson et al, 1998), which is described in the Concepts and definitions section below.

How the bulletin is produced

The first stage in creating the bulletin about deaths related to drug poisoning is to add the latest year’s data to the drugs database. An extract is taken from the national mortality database in May, following extensive quality checks on these underlying data. All deaths with a drug-related underlying cause (ICD-10 codes shown in Box 1) are selected and a wide range of variables are extracted from the database including: sex, age, postcode of usual residence, the dates the death occurred and was registered, ICD-10 codes for all conditions mentioned on the death certificate and the text from the coroner’s death certificate.

Once the extract is taken, the data are processed in SAS. Firstly, up to seven variables are created showing which drugs are mentioned on the death certificate. Secondly, a variable is created showing whether alcohol was mentioned. This includes a wide variety of scenarios ranging from evidence of alcohol consumption around the time of death (for example an empty vodka bottle found at the scene, mention of the deceased having been to the pub or alcohol found after toxicology tests) to long-term alcohol abuse and cirrhosis of the liver. The broad nature of this variable may limit its usefulness for some researchers. Thirdly, a variable is created showing whether a volatile substance was mentioned (for example Butane or lighter fluid). The data are then formatted and output into Excel workbooks.

Every record is then manually checked by examining the text on the death certificate to ensure the SAS program has coded the data correctly. Once the manual checking is completed and corrections made, the dataset is expanded by deriving additional variables to show whether any of the following things were mentioned on the death certificate:

- common types of drug such as heroin/morphine, cocaine and anti-depressants;
- only one drug;
- no specific drugs (for example, the death certificate just said ‘drug overdose’);
- drugs controlled under the Misuse of Drugs Act (1971); and
- certain types of compound analgesics such as co-codamol (paracetamol and codeine).

Uniform formatting is then applied, for example, generic names are used rather than brand names, for example ‘Prozac’ is formatted as ‘fluoxetine’. This standard formatting allows the database to be searched more easily. A final set of manual checks is completed to ensure the last stage of processing has been completed correctly, and the latest year of data are then added to the drugs database.
The statistical bulletin includes the following tables, which are extracted from the drugs database:

- Numbers of deaths from drug-related poisoning and drug misuse by sex, age group and underlying cause of death;
- Numbers of deaths where selected substances were mentioned on the death certificate. This table includes total mentions, mentions alone - ie with no other substance present (apart from alcohol) and mentions with alcohol; and
- Numbers of deaths related to drug misuse by sex and country.

In addition, the statistical bulletin contains several graphs:

- Age-standardised mortality rates for deaths related to drug poisoning and drug misuse by sex;
- Age-specific mortality rates for deaths related to drug misuse by sex;
- Age-standardised mortality rates for selected substances by sex; and
- Age-specific mortality rates for deaths related to drug misuse by country and region.

Mortality rates for deaths by drugs misuse by local authority are published separately on the ONS website close to the date of bulletin release.

Mortality rates are calculated using the number of deaths and mid-year England and Wales population estimates provided by the Population Estimates Unit at ONS. Further information about the methods used to calculate mid-year population estimates can be found in the Mid-year population estimates short methods guide.

Age-standardised rates are calculated as follows:

\[
\text{Age-standardised rate} = \frac{\sum (P_k m_k)}{\sum P_k}
\]

Where:
- \( P_k \) = Standard population in sex/age group \( k \)
- \( m_k \) = Observed mortality rate (deaths per 100,000 persons) in sex/age group
- \( k \) = age/sex group 0, 1-4, 5-9, ..., 80-84, 85-89, 90 years and over

Age-standardised rates are standardised to the European Standard Population (ESP). This is a hypothetical population and assumes that the age structure is the same in both sexes, therefore allowing comparisons to be made between the sexes as well as between geographical areas. In 2014, the ONS introduced a change to the ESP used for calculating age standardised rates. The ESP 2013 contains age bands of 85-89, 90-94 and 95+ and is replacing the previous ESP 1976.

**Distribution of the European Standard Population**

**ESP 2013**

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<td>7,000</td>
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<tr>
<td>1-4</td>
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<td>15-19</td>
<td>5,500</td>
<td>65-69</td>
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<td>20-24</td>
<td>6,000</td>
<td>70-74</td>
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<td>25-29</td>
<td>6,000</td>
<td>75-79</td>
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<td>6,500</td>
<td>80-84</td>
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<td>35-39</td>
<td>7,000</td>
<td>85-89</td>
<td>1,500</td>
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<td>40-44</td>
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<td>90+</td>
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Mortality rates are presented alongside 95% confidence intervals as a measure of the precision of the calculated rate. Lower and upper confidence limits form a confidence interval, which shows the range of uncertainty around the estimated figure. As a general rule, if the confidence interval around two figures overlap there is only a small probability that there is a genuine difference. The age-standardised mortality rates and accompanying confidence intervals can be used to compare drug-related deaths in males and females and also to examine trends over time. An Age Standardised Mortality Rate Calculation Template showing how to calculate age-standardised mortality rates is available on the ONS website.

Validation and quality assurance

Accuracy

(The degree of closeness between an estimate and the true value.)

The legal requirement to register all deaths occurring in England and Wales means that death registrations provide an almost complete data source for mortality statistics. Moreover, more information about the quality assurance and accuracy of the underlying mortality data can be found in the Mortality metadata and the Mortality Statistics Quality and Methodology Information.

ONS does not have access to post-mortem reports or toxicology results, so the accuracy of figures on deaths related to drug poisoning depends on the information provided by the coroner on the death certificate. There is wide variation in the level of detail given by individual coroners. Some provide a detailed description of the circumstances surrounding the death and list all of the substances found at post-mortem, including the amount of drugs that were taken. Others may list some, but not all of the substances involved, and in around 12% of drug poisoning deaths only a general description is recorded on the coroner’s death certificate (such as drug overdose or multiple drug toxicity). Due to this variation the findings relating to specific substances should be interpreted with care. In particular, figures on the number of deaths involving so-called ‘legal highs’ should be treated with caution because these types of psychoactive substances are constantly evolving and it may not always be possible to identify new substances during post-mortem investigations.

Another potential source of error is the coding of substances mentioned on the death certificate which is done automatically in SAS and then manually checked. The automatic coding looks for key words or phrases within the coroner’s text, but it has limitations. For example, new, unusual or some misspelt substances will not be identified by the automatic coding, so care is taken during manual checking to ensure they are included. In addition, automatic coding can sometimes ‘over-code’ the data, because it cannot take account of the context. For example, if both ‘opiate’ and ‘heroin’ are mentioned in the text, usually only heroin should be coded as we assume that heroin is the opiate that is being referred to.
The underlying cause of death is assigned manually, which is a potential source of error. However, this risk is minimised as the coding is carried out by highly trained, experienced staff who apply standardised ICD coding rules. Extensive quality checks are carried out on the underlying cause of death before the drugs extract is taken, and further checks are conducted as part of the manual drugs coding process.

**Coherence and comparability**

(Coherence is the degree to which data that are derived from different sources or methods, but refer to the same topic, are similar. Comparability is the degree to which data can be compared over time and domain for example geographic level.)

A number of methodological changes have been implemented in recent years, revisions to both drug misuse definition and ESP in 2014.

**ESP 2013 implemented in 2014**

With the implementation of the ESP 2013 in the calculation of age-standardised rates, figures for age standardised rates in this report have been calculated using the 2013 ESP, with revisions provided back to 1993. With the change from ESP 1976 to ESP 2013, rates previously provided may not match. The previously used 1976 ESP and the 2013 ESP differ in two ways. Firstly, the 2013 ESP gives the populations in older age groups greater weighting than the 1976 ESP. Secondly, the age distribution of the 1976 ESP has an upper limit of 85 years and over, while the 2013 ESP is further disaggregated to include age groups 85 to 89, 90 to 94 and 95 and over. However, due to the availability of population estimates of assured quality for the upper age band and the differences between the ASRs calculated using 90 and over and 95 and over upper limits was not significant (for either sex), ONS recommends that National Statistics outputs use the 2013 ESP aggregated to 90 and over.

The impact of implementing the 2013 ESP is that drug poisoning mortality rates have increased slightly for females over all years with the largest increase in 1993 of 3.3 deaths per million population. For males the difference ranges from a decrease of 2.2 deaths per million population in 1998 to an increase of 0.9 deaths per million in 2011. For drug misuse, again for females the rates have increased in every year with the largest increase in 1993 of 1.1 deaths per million. For males it has decreased in every year with the largest decrease in 2002 of 3.2. This is because the 2013 ESP gives a higher weight to those in the higher age groups. Males dying due to drug poisoning tend to be younger than females, which explains the different impact for the different sexes. When looking at the substances mentioned on death certificates, the female mortality rate with the largest change was for paracetamol in 2004, an increase of 1.4 deaths per million. For males the largest change was for heroin/morphine in 2001, a decrease of 2.4 deaths per million. Again this will relate to the age groups most associated with these substances. Further details on the effect of this change on statistics are available on the website.

**Drug misuse indicator definition revised in 2014**

ONS have implemented a revision to the drugs misuse indicator for the 2013 data onwards. The definition of this indicator is (a) deaths where the underlying cause is drug abuse or drug dependence, or (b) deaths where the underlying cause is drug poisoning and where any of the substances controlled under the Misuse of Drugs Act 1971 are involved. This definition has been adopted across the UK.

To make sure the ONS drug misuse data include drugs that are newly controlled under the Misuse of Drugs Act, 20 newly controlled drugs were added. These include tramadol and 3,4-methylenedioxy-N,N-dimethylamphetamine (MDDA). For the full list of additional misuse drugs included, please see Background note 6 in the bulletin. Figures for all previous years (1993 to 2012) have been revised to allow for statistical comparison across the time series.

The revision has caused the number of drug misuse deaths in England and Wales to increase, with the increase being greatest in the most recent years. For example, 3 additional deaths were classified as due to drug misuses in 1995 whilst there were 140 in 2012. The mortality rates increase over the years as there are more deaths related to these newly classified drugs. The largest change in rate for regions is in Yorkshire and Humber in 2012 (30.1 to 33.8 deaths per million population in 2012) and in East Midlands (from 20.7 to 23.8 deaths per million population in 2012). Additionally, for both males and females, the largest increase in mortality rate occurs in the 40 to 49 age group.
New version of ICD-10 introduced in 2011

In January 2011, ONS introduced a new version of ICD-10 (software version 2010), which replaced the version introduced in 2001 (version 2001.2). This means figures for 2011 onwards will not be directly comparable with figures for 2001 to 2010. ONS use the International Classification of Diseases, Tenth Revision (ICD-10, WHO, 2010) to code all conditions and events mentioned on the death certificate. The ICD contains a general principle and a range of selection and modification rules that are used to ascertain a causal sequence and consistently assign an underlying cause of death from the conditions recorded on the death certificate. The underlying cause is defined by the World Health Organisation (WHO) as:

- the disease or injury that initiated the train of events directly leading to death, or
- the circumstances of the accident or violence that produced the fatal injury.

To understand the impact of the introduction of ICD-10 v2010 on mortality statistics, ONS carried out a bridge coding study in which a sample of deaths that had previously been coded using v2001.2 were then independently recoded using the new version of ICD-10 (Office for National Statistics, 2011)\(^\text{17}\). However, not all of the information provided by coroners at registration was available to use when recoding deaths, so the bridge coding study results for drug-related deaths should be treated with caution.

The impact of the new version of ICD-10 on drug-related deaths figures was not reported in the bridge coding study. However, new analysis presented below shows that the number of deaths coded as mental and behavioural disorders due to drug use (ICD-10 codes F11–F16 and F18–F19) decreased by 84% in v2010, compared with v2001.2. This decrease is due to these deaths being allocated to accidental poisonings by drugs (ICD-10 code X40–X44), which consequently increased by 44%. The new version of ICD-10 caused very little change in the number of deaths being coded as intentional self-poisoning by drugs, or poisoning by drugs, undetermined intent.

The number of deaths from assault by drugs is very small and there were no deaths from this cause in the bridge coded sample, so the impact of the ICD coding change could not be examined. The changes in the number of deaths coded to mental and behavioural disorders due to drug use and accidental poisonings by drugs are due to changes in the ICD selection rule 3, which states that:

- if a condition selected by the general principle or by rules 1 or 2 is obviously a direct consequence of another reported condition, whether in part I or part II of the death certificate, select this as the underlying cause.

In ICD-10 v2001.2, if both accidental poisoning by drugs (ICD-10 codes X40–X44) and drug dependence (ICD-10 codes F11.2, F12.2, F13.2, F14.2, F15.2, F16.2, F18.2 and F19.2) were mentioned on the death certificate, and accidental poisoning had been selected as the tentative underlying cause, then this would be considered a direct consequence of the drug dependence. Therefore selection rule 3 meant that the drug dependence would be chosen as the underlying cause.

However, in ICD-10 v2010, this causal sequence is no longer valid, so even if both accidental poisoning and drug dependence are mentioned, the underlying cause will normally be the accidental poisoning. More information about the bridge coding study\(^\text{17}\) can be found on the ONS website. There are several alternative sources of data on drug poisoning deaths. The annual ONS release of mortality statistics Deaths registered in England and Wales (Series DR)\(^\text{18}\) contains data on poisoning deaths. When the underlying cause of death is a drug poisoning, the nature of the main injury, known as the ‘secondary cause’, is also coded, and this shows the drug involved in the death. Table 6 in the Series DR publication shows the number of deaths broken down by secondary cause. The advantage of this alternative table is that it contains a more detailed age-sex breakdown than the drug-related deaths statistical bulletin. However, Table 6 only uses the secondary cause of death and does not include other substances mentioned. Moreover, the ICD codes used for secondary cause of death are often broad groups of drugs, rather than a specific substance (for example, T42.4 - benzodiazepines, rather than eg diazepam). Around 30% of all drug poisoning deaths involve more than one substance, and it is not always possible to tell which of them was primarily responsible for the death. So for example in 2012, Table 6 of the DR Series reports that there were 188 deaths where the secondary cause was poisoning by methadone (ICD-10 code T40.3), whereas the drug-related deaths bulletin reports that there were 414 deaths involving methadone. This large discrepancy shows that the drug poisoning bulletin is a more suitable source of data.
An alternative source of data was produced by the National Programme on Substance Abuse Deaths (np-SAD), which is based at St Georges, University of London. However, the Department of Health has withdrawn its funding of this project, and its future is now uncertain. The latest report contained data on drug-related deaths occurring in the UK in 2013. There are differences in the definition of a drug related death, and the information on which this report is based is collected directly from coroners, rather than from official death registration information. Therefore, the figures in the np-SAD report are not directly comparable with ONS figures.

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) combines data from the England and Wales drug poisoning database with data from Scotland and Northern Ireland to create figures for the United Kingdom, which allows international comparisons with other European countries. The latest EMCDDA report shows that the drug-related death rate in the UK was higher than most other European countries (EMCDDA, 2014). However, the authors advise caution when making international comparisons, because of differences in definitions and the quality of reporting.

The National Statistics definition of deaths related to drug poisoning is based on the ICD code for the underlying cause of death. The Tenth Revision (ICD-10) has been used from 2001 onwards, before then the Ninth Revision (ICD-9) was used. The introduction of ICD-10 caused discontinuities in statistics for some causes of death, but it had no effect on the overall number of deaths related to drug poisoning (ONS, 2002\textsuperscript{19} and Griffiths and Rooney, 2003\textsuperscript{20}). The main difference is that drug dependence and non-dependent abuse of drugs had separate ICD-9 codes, but are combined into Mental and behavioural disorders due to drug use (excluding alcohol and tobacco) in ICD-10.

**Concepts and definitions**

(Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.)

**Source data** - Mortality data are based on the information collected when a death is registered. The collection and dissemination of this data are governed by a range of legislation including the Births and Deaths Registration Act 1953\textsuperscript{21} and the Population (Statistics) Act 1938 and 1960\textsuperscript{22}. More details on this legislation and other relevant legislation can be found in the Mortality metadata\textsuperscript{4}.

**Underlying cause of death** - ONS codes all of the causes of death mentioned on the death certificate using the International Statistical Classification of Diseases and Related Health Problems\textsuperscript{11}. From all of the causes mentioned, an underlying cause of death is selected using ICD coding rules. The underlying cause of death is defined by the World Health Organisation as:

a) the disease or injury that initiated the train of events directly leading to death, or

b) the circumstances of the accident or violence that produced the fatal injury (or poisoning).

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\textsuperscript{1} An alternative source of data was produced by the National Programme on Substance Abuse Deaths (np-SAD), which is based at St Georges, University of London. However, the Department of Health has withdrawn its funding of this project, and its future is now uncertain. The latest report contained data on drug-related deaths occurring in the UK in 2013. There are differences in the definition of a drug related death, and the information on which this report is based is collected directly from coroners, rather than from official death registration information. Therefore, the figures in the np-SAD report are not directly comparable with ONS figures.

\textsuperscript{2} The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) combines data from the England and Wales drug poisoning database with data from Scotland and Northern Ireland to create figures for the United Kingdom, which allows international comparisons with other European countries. The latest EMCDDA report shows that the drug-related death rate in the UK was higher than most other European countries (EMCDDA, 2014). However, the authors advise caution when making international comparisons, because of differences in definitions and the quality of reporting.

\textsuperscript{3} The National Statistics definition of deaths related to drug poisoning is based on the ICD code for the underlying cause of death. The Tenth Revision (ICD-10) has been used from 2001 onwards, before then the Ninth Revision (ICD-9) was used. The introduction of ICD-10 caused discontinuities in statistics for some causes of death, but it had no effect on the overall number of deaths related to drug poisoning (ONS, 2002\textsuperscript{19} and Griffiths and Rooney, 2003\textsuperscript{20}). The main difference is that drug dependence and non-dependent abuse of drugs had separate ICD-9 codes, but are combined into Mental and behavioural disorders due to drug use (excluding alcohol and tobacco) in ICD-10.

\textsuperscript{4} Concepts and definitions describe the legislation governing the output and a description of the classifications used in the output.)

**Source data** - Mortality data are based on the information collected when a death is registered. The collection and dissemination of this data are governed by a range of legislation including the Births and Deaths Registration Act 1953\textsuperscript{21} and the Population (Statistics) Act 1938 and 1960\textsuperscript{22}. More details on this legislation and other relevant legislation can be found in the Mortality metadata\textsuperscript{4}.

**Underlying cause of death** - ONS codes all of the causes of death mentioned on the death certificate using the International Statistical Classification of Diseases and Related Health Problems\textsuperscript{11}. From all of the causes mentioned, an underlying cause of death is selected using ICD coding rules. The underlying cause of death is defined by the World Health Organisation as:

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Box 1. International Classification of Diseases, tenth revision (ICD-10) codes used to define deaths related to drug poisoning

<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Description</th>
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<tr>
<td>F11-F16, F18-F19</td>
<td>Mental and behavioural disorders due to drug use (excluding alcohol and tobacco)</td>
</tr>
<tr>
<td>X40-X44</td>
<td>Accidental poisoning by drugs, medicaments and biological substances</td>
</tr>
<tr>
<td>X60-X64</td>
<td>Intentional self-poisoning by drugs, medicaments and biological substances</td>
</tr>
<tr>
<td>Y10-Y14</td>
<td>Poisoning by drugs, medicaments and biological substances, undetermined intent</td>
</tr>
<tr>
<td>X85</td>
<td>Assault by drugs, medicaments and biological substances</td>
</tr>
</tbody>
</table>

Drug poisoning deaths involve a broad spectrum of substances, including legal and illegal drugs, prescription drugs (either prescribed to the deceased or obtained by other means) and over-the-counter medications. Some deaths may also be the result of complications of drug abuse, such as deep vein thrombosis or septicemia resulting from intravenous drug use, or heart disease due to chronic cocaine use, rather than an acute drug overdose. Deaths involving these types of complications are generally coded as a mental and behavioural disorder due to drug use.

The ONS definition does not include every death which involved drugs, for example, transport accidents where the driver was under the influence of drugs are excluded.

Also, a small number of deaths from assaults involving drugs are excluded because ONS does not have full information on the death. Here, because someone is being prosecuted in relation to the death, the coroner adjourns the inquest and registers the death using an ‘accelerated registration’. ONS does not receive full information about the death until criminal proceedings are completed.

In addition, the above definition includes only deaths related to poisonings by drugs, medicaments and biological substances - poisonings by other types of chemicals and noxious substances are excluded. The number of deaths from poisoning by other chemicals and noxious substances can be found in Table 5.19 of the Deaths Registered in England and Wales (Series DR) publication, which is available on the ONS website.

Other information
Output quality trade-offs
(Trade-offs are the extent to which different dimensions of quality are balanced against each other.)

As described in the Timeliness and punctuality section above, drug-related deaths statistics are based on deaths registered in a particular calendar year, rather than the year the death occurred. This allows more timely publication of the statistics. The disadvantage of using registration-based figures is that it is harder to examine the relationship between drug-related deaths and other factors. For example, researchers may wish to examine the impact of banning so-called ‘legal highs’ on drug-related deaths, but this is difficult to do using ONS figures because they do not show whether the death actually occurred before or after the ban - only when the death was registered.

ONS is aware that users would like more timely outputs based on when a death occurred. However, this will not be possible without a change in the legislation surrounding death registration (see the Timeliness and punctuality section above). In order to better manage the trade-off between timeliness and usefulness ONS investigated ways of estimating the impact of registration delays on drug-related deaths figures. Unfortunately, the results to this investigation showed this estimation to be lacking in accuracy so this method of estimation has not been implemented.
Assessment of user needs and perceptions
(The processes for finding out about users and uses, and their views on the statistical products.)

Feedback from users is invited in the statistical bulletin with the inclusion of a standard statement within the background notes: ‘We welcome feedback from users on the content, format and relevance of this release’.

In addition, user feedback is requested at the bottom of all e-mails sent by customer service teams within the division. The standard wording is outlined below: ‘We would welcome feedback on the content, format and relevance of this release. Please send feedback to the postal or email address above.’

Feedback is also received through regular attendance of ONS researchers at user group meetings and conferences. In addition, the views of a wide range of users were sought as part of the UK Statistics Authority assessment of mortality statistics.

Sources for further information or advice
Accessibility and Clarity
(Accessibility is the ease with which users are able to access the data, also reflecting the format in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the release details, illustrations and accompanying advice.)

Statistics on deaths related to drug poisoning can be accessed free of charge on the ONS website. Provisional release dates are announced on the statistics page on GOV.UK at least four weeks in advance. This enables equal access to these statistics for all users and signposts the location of the statistics on the ONS website.

The bulletin contains a summary of government policy relating to drug-related deaths and also information on users and uses of the data. It also includes statistical commentary, which describes the data and offers explanations of key trends. This narrative helps users to interpret and make appropriate use of the statistics.

The ONS recommended format for accessible content is a combination of HTML webpages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. The ONS website also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. Available formats for content published on the ONS website but not produced by the ONS, or referenced on the ONS website but stored elsewhere, may vary. For further information please refer to the contact details at the beginning of this document.

In addition to this quality and methodology information paper, basic quality information relevant to each release is available in the background notes of the relevant statistical bulletin, which are available on the ONS website.

It is not possible to publish the drug poisoning database in its entirety, as it contains confidential data. National level figures are available in the bulletin, and variables such as age are grouped to protect confidentiality. More detailed tables, including figures for subnational geographies, different age groups and substances not mentioned in the bulletin, are available on request (subject to legal frameworks, disclosure control, resources and agreement of costs, where appropriate). Information describing the limitations of data in these more detailed tables is provided with each individual request.

In addition, researchers can apply to access the individual record data contained on the drugs database. For more information, please contact the mortality analysis team using the contact details above.

For information regarding conditions of access to data, please refer to the links below:

- Terms and conditions (for data on the website)
- Copyright and reuse of published data
- Pre-release access (including conditions of access)
- Accessibility
Useful Links

Disclosure Control Policy for Birth and Death Statistics

Injury and Poisoning Mortality in England and Wales

Drug Related Deaths in Scotland

Drug Related Deaths in Northern Ireland

References

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