

# Information paper

## Quality and Methodology Information

### General Details

Title of output:	Alcohol-related deaths in the United Kingdom.
Designation:	National Statistics
Geographic Coverage:	UK, England, Wales, Regions of England
Date of last SQR or QMI*:	January 2012
Contact details:	mortality@ons.gov.uk

### Executive Summary

Excessive consumption of alcohol is a major preventable cause of premature mortality. '*Alcohol-related deaths in the United Kingdom*' presents statistics on the number of deaths and the age-standardised mortality rates for deaths where there is a direct link between the underlying cause of death and excessive consumption of alcohol.

'*Alcohol-related deaths in the United Kingdom*' is compiled using information supplied when a death is registered. The number of deaths where the underlying cause of death is considered to be alcohol-related is extracted from the ONS Deaths Registrations Database for England and Wales and is provided by National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA). The number of deaths and the mid-year population estimates calculated by ONS are used to produce age-standardised mortality rates, standardised using the European Standard Population.

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
- 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 six 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
- Accessibility and Clarity

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

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\* Quality and Methodology Information' (QMI) replaced 'Summary Quality Reports' (SQR) from 04/11

## About the Output

### Relevance

*The degree to which statistical outputs meet users' needs.*

Excessive consumption of alcohol is a major preventable cause of premature mortality, responsible for approximately 1.5% of all deaths and estimated to cost the NHS in England (in 2006/07 prices) around £2.7 billion each year (Department of Health, 2008). There is widespread policy, professional and public interest in the prevalence of alcohol-related deaths in the UK.

In November 2010, the government published a White Paper titled '[Healthy lives, healthy people: our strategy for public health in England](#)'.<sup>3</sup> It outlines the government's commitment to protecting the population from serious health threats and helping people to live longer, healthier and more fulfilling lives. Among other lifestyle and behavioural factors, the Paper highlights the harmful effects of alcohol abuse and the associated cost to the National Health Service (NHS).

The White Paper introduces a [Public Health Responsibility Deal](#)<sup>4</sup> in which public, private and voluntary organisations sign-up and work collaboratively to address key public health issues, including alcohol. The list of [Responsibility Deal Partners](#)<sup>5</sup> includes organisations such as the Alcohol Education Trust, the British Beer and Pub Association, and Drinkaware.

As part of the Responsibility Deal, there is a core commitment to foster a culture of responsible drinking and there are seven [collective alcohol pledges](#)<sup>6</sup>:

[A1: Alcohol labelling](#)<sup>7</sup>

[A2: Awareness of alcohol units in the on-trade](#)<sup>8</sup>

[A3: Awareness of alcohol units, calories and other information in the off-trade](#)<sup>9</sup>

[A4: Tackling under-age alcohol sales](#)<sup>10</sup>

[A5: Support for Drinkaware](#)<sup>11</sup>

[A6: Advertising and marketing alcohol](#)<sup>12</sup>

[A7: Community actions to tackle alcohol harms](#)<sup>13</sup>

Although the proposals in the White Paper and the Responsibility Deal apply to England, it is made clear that the Department of Health will work closely with the devolved administrations on areas of shared interest. Indeed, the Scottish Government, the Welsh Government and the Northern Ireland Executive each have similar alcohol policies. For example, the Scottish Government publishes [information](#)<sup>14</sup> about minimum pricing, impacts on health, drinking culture, economic impact, drinking limits and alcohol licensing.

Alcohol-related death statistics produced by ONS can be used by governments and health organisations for policy and monitoring purposes, as the figures show trends in deaths from the causes most closely associated with alcohol consumption.

Other users of alcohol-related death statistics include health professionals, academics and charity organisations. The figures are often used for research purposes and they are utilised to target support services to vulnerable groups.

Alcohol-related death statistics are not routinely produced for areas smaller than Regions due to small numbers. For users who require alcohol-related deaths data for local areas, a study was conducted by ONS in 2007 to calculate rates for the 1991–1997 and 1998–2004 periods. Figures were aggregated over two seven-year periods to ensure that the rates calculated were sufficiently robust. More information is available in an article titled '[Trends and geographical variations in alcohol-related deaths in the United Kingdom, 1991–2004](#)',<sup>15</sup> published in [Health Statistics Quarterly](#)<sup>16</sup> 33, and [accompanying data](#)<sup>17</sup> are available on the ONS website.

## 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.*

The annual release of 'Alcohol-related deaths in the United Kingdom' is announced on the [UK National Statistics Publication Hub](#)<sup>22</sup> 12 months in advance.

Statistics are published in January each year (12 months after the end of the reference period), following the release of final annual death registrations data and mid-year population estimates for each constituent country.

Figures are released at the same time every year and have always been punctual.

For more details on related releases, the [UK National Statistics Publication Hub](#) is available online and provides 12 months' advanced 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](#).

## How the Output is Created

The definition used to compile '*Alcohol-related deaths in the United Kingdom*' includes only deaths where the underlying cause of death is regarded as being most directly due to alcohol consumption. Other than deaths due to poisoning with alcohol (accidental, intentional or undetermined), this definition excludes external causes of death, such as road traffic and other accidents. Further information about the definition used can be found in the 'Concepts and Definitions' section.

'*Alcohol-related deaths in the United Kingdom*' is compiled using information supplied when a death is registered. Information about all deaths registered in England and Wales is held on the ONS Deaths Registrations Database. Death registration data for Scotland and Northern Ireland is held by the National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA), respectively. Further details about the information held on the ONS Deaths Registrations Database as well as the methods used to quality assure the data can be found in '[Mortality Statistics: Metadata](#)'.

The number of alcohol-related deaths split by sex and age group (<1, 1-4, 5-9...80-84, 85 and over) for England and Wales, England, Wales, and Regions, for the latest calendar year are extracted from the ONS Death Registrations Database. Respective data for Scotland and Northern Ireland are supplied to ONS by NRS and NISRA, which are combined with data for England and Wales to produce UK numbers. Since information is held for all deaths registered, it is possible to extract actual counts of deaths, representative of the whole UK population. No modelling or imputation of the number of deaths is necessary.

Mortality rates are calculated using the number of deaths and mid-year UK population estimates provided by the Population Estimates Unit at ONS. Population estimates are based on the decennial UK census estimates and use information on births, deaths and migration to estimate the mid-year population in non-census years. Further information about the methods used to calculate mid-year population estimates can be found in the '[Mid-year population estimates short methods guide](#)'.

The mortality rates published in '*Alcohol-related deaths in the United Kingdom*' are age-standardised rates. Age-standardised rates allow for differences of the age structure of populations and therefore allow valid comparisons to be made between geographical areas. The rates presented in '*Alcohol-related deaths in the United Kingdom*' are standardised using the direct method which gives the alcohol-related mortality rate that would have occurred if the mortality rates observed had been applied to a standard population. Mortality rates are not calculated where there are fewer than ten deaths.

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 years and over

Age-standardised rates are standardised to the European Standard Population. 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. The European Standard Population was first introduced in 1976 and its suitability as a standard population has not been reviewed since its introduction. Demographic changes since the population was developed may mean that it is no longer suitable for use and work has begun to update it.

### Distribution of the European Standard Population

Age	Population	Age	Population
0	1,600	45-49	7,000
1-4	6,400	50-54	7,000
5-9	7,000	55-59	6,000
10-14	7,000	60-64	5,000
15-19	7,000	65-69	4,000
20-24	7,000	70-74	3,000
25-29	7,000	75-79	2,000
30-34	7,000	80-84	1,000
35-39	7,000	85+	1,000
40-44	7,000		
<b>Total</b>		<b>100,000</b>	

Source: Waterhouse J, Muir C, Correa P and Powell J (eds) (1976) Cancer incidence in five continents, vol III. IARC Scientific Publications No. 15. International Agency for Research on Cancer: Lyon.

Mortality rates are presented alongside 95 per cent confidence intervals as a measure of the precision of the calculated rate.

Confidence intervals are calculated as follows:

$$95 \text{ per cent confidence interval} = r \pm 1.96 \cdot \frac{r}{\sqrt{\sum n_k}}$$

Where:  $r$  = age-standardised mortality rate  
 $n_k$  = number of deaths in sex/age group k

A Microsoft Excel [template](#) which demonstrates how age-standardised rates and 95 per cent confidence intervals are calculated is available on the ONS website.

## Validation and Quality Assurance

### Accuracy

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

To show the statistical precision of the rates, 95 per cent confidence intervals are calculated and presented alongside the figures. As a general rule, if the confidence interval around one figure overlaps with the interval around another, we cannot say with certainty that there is more than a chance difference between the two figures.

Mortality statistics achieve 100 per cent coverage since it is a legal requirement that all deaths are registered. However, in some cases the registration of a death may be delayed so that registration of the death does not take place in the same calendar year as the death occurred. This is most likely to occur in cases where the death is referred to a coroner and an inquest is held. Deaths are referred to a coroner in cases including where the cause of death is unknown, where the deceased was not seen by a doctor before or after death or where the death was violent, unnatural or suspicious. If the coroner chooses to hold an inquest, the death can only be registered once the inquest has taken place. Further information about the process of death registration can be found in [‘Mortality Statistics: Metadata’](#).

The accuracy of mortality statistics is dependent on the quality of information supplied when the death is registered. An incorrect underlying cause of death may be provided by the doctor completing the death certificate. Many thousands of practicing doctors complete death certificates and the nature and amount of training they have had in death certification varies greatly. Inaccurate information may also be supplied by the informant (usually a relative of the deceased) who must use the death certificate to register the death with the registrar. It is not possible to measure the magnitude of errors such as these.

Information about the checks carried out on the data held by ONS to ensure their quality can be found in [‘Mortality Statistics: Metadata’](#).

### Comparability and Coherence

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

Alcohol-related death statistics are based on death registrations data. Data for England and Wales are held by ONS and data for Scotland and Northern Ireland are supplied by the National Records of Scotland (NRS), formerly the General Register Office for Scotland (GROS), and the Northern Ireland Statistics and Research Agency (NISRA) respectively. Information on death registration processes in each country can be found at the following links:

[England and Wales](#)<sup>18</sup>

[Scotland](#)<sup>19</sup>

[Northern Ireland](#)<sup>20</sup>

In July 2006, ONS, GROS (now National Records of Scotland) and NISRA agreed on a harmonised definition of alcohol-related deaths (see ‘Concepts and Definitions’ section for further information). A [discussion document](#)<sup>26</sup> and a [summary of responses to the proposals](#)<sup>27</sup> can be found on ONS’s website. All alcohol-related death statistics for the UK from 1991 onwards are based on the harmonised definition.

Alcohol-related death rates are calculated using the latest available [mid-year population estimates](#).<sup>21</sup> In May 2010, ONS published revised estimates based on improved methodology for the years 2002 to 2008. Consequently, all rates for those years were revised and published alongside the 2009 figures which were released in January 2011.

In the UK, causes of death are coded using the International Classification of Diseases (ICD). The Ninth Revision (ICD-9) was used in Scotland until 1999 and in England and Wales and Northern Ireland until 2000. The Tenth Revision (ICD-10) has since been in use. The introduction of ICD-10 in England and Wales in 2001 had a significant effect on mortality rates for some diseases, causing a discontinuity in mortality trends for these causes of death. However, the change resulted in a difference of less than 1 per cent in the number of deaths from alcohol-related causes.

ONS publishes data for the UK, England and Wales, England, Wales, and Regions. Comparable time series are available going back to 1991. These figures are consistent with the alcohol-related death figures published separately for [Scotland](#)<sup>31</sup> and [Northern Ireland](#)<sup>32</sup> and with the annual death registrations data produced by each country:

[England and Wales](#)<sup>28</sup>

[Scotland](#)<sup>29</sup>

[Northern Ireland](#)<sup>30</sup>

The World Health Organization (WHO) has developed the [WHO Global Information System on Alcohol and Health](#) which contains over 200 indicators to allow alcohol consumption and the effects of consumption, including mortality, to be compared on an international basis across continents. Both ONS and the WHO publish age-standardised mortality rates which allow meaningful comparisons between geographical areas by accounting for differences in the age structure of their populations. However, since the WHO publishes its statistics using a standard designed for populations with a much younger age profile, the data held on the WHO system is not comparable to the statistics presented in this bulletin.

## Concepts and Definitions

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

Cause of death is classified using the [International Classification of Diseases \(ICD\)](#). The ICD is used by all WHO member states and is a standard classification used to classify diseases and health problems on death certificates but also on other types of health and vital statistics. Currently the tenth revision ([ICD-10](#)) is in use.

The definition used to compile statistics on alcohol-related deaths across the UK is shown below. This definition includes only those causes regarded as being most directly due to alcohol consumption. It does not include deaths due to other diseases where alcohol has been shown to have some causal relationship, such as cancers of the mouth, oesophagus and liver. The definition includes all deaths from chronic liver disease and cirrhosis (excluding biliary cirrhosis), even when alcohol is not specifically mentioned on the death certificate. Apart from deaths due to poisoning with alcohol (accidental, intentional or undetermined), this definition excludes any other external causes of death, such as road traffic and other accidents. The definition allows for consistent comparisons over time for those deaths most clearly associated with alcohol consumption.

**Table 1 National Statistics definition of alcohol-related deaths**

**International Classification of Diseases, Ninth Revision (ICD-9)**

291	Alcoholic psychoses
303	Alcohol dependence syndrome
305.0	Non-dependent abuse of alcohol
425.5	Alcoholic cardiomyopathy
571	Chronic liver disease and cirrhosis (Excluding 571.6 – Biliary cirrhosis)
E860	Accidental poisoning by alcohol

**International Classification of Diseases, Tenth Revision (ICD-10)**

F10	Mental and behavioural disorders due to use of alcohol
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
I42.6	Alcoholic cardiomyopathy
K29.2	Alcoholic gastritis
K70	Alcoholic liver disease
K73	Chronic hepatitis, not elsewhere classified
K74	Fibrosis and cirrhosis of liver (Excluding K74.3–K74.5 – Biliary cirrhosis)
K86.0	Alcohol induced chronic pancreatitis
X45	Accidental poisoning by and exposure to alcohol
X65	Intentional self-poisoning by and exposure to alcohol
Y15	Poisoning by and exposure to alcohol, undetermined intent

Information about deaths registered is 100 per cent complete since it is a legal requirement that all deaths are registered. The legislation that requires this is the Births and Deaths Registration Act (1836) which came into force from 1 July 1837.

## Other Information

### Output Quality Trade-Offs

*Trade-offs are the extent to which different dimensions of quality are balanced against each other.*

'Alcohol-related deaths in the United Kingdom' is published 12-months after the reference period. The production of these statistics relies upon the availability of the annual deaths registrations data for each constituent country of the UK as well as the UK mid-year population estimates produced by ONS. Coding and quality assurance of death registration data is time consuming and final figures for the whole of the UK are not available until 12 months after the reference period. For 'Alcohol-related deaths in the United Kingdom' to be published earlier, provisional data would need to be used and would need to be subsequently revised. Users have not indicated that they are unhappy with this balance between timeliness and quality.

## 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, in line with the Health and Life Events [user engagement strategy](#). Direct email and telephone correspondence is maintained with a range of users including government users, students and academics and members of the general public. Details of the nature of any enquiries or additional data requested are held on a customer database.

A user survey for 'Alcohol-related deaths in the United Kingdom' is planned for the next release.

## 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.*

ONS's 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.

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

- Terms and conditions (for data on the website): <http://www.ons.gov.uk/ons/site-information/information/terms-and-conditions/index.html>
- Copyright and reuse of published data: <http://www.ons.gov.uk/ons/site-information/information/creative-commons-license/index.html>
- Pre-release access (including conditions of access): <http://www.ons.gov.uk/ons/guide-method/the-national-statistics-standard/code-of-practice/pre-release-access/index.html>
- Access to unpublished data: <http://www.ons.gov.uk/ons/about-ons/who-we-are/services/unpublished-data/index.html>
- Access to microdata via the Virtual Microdata Laboratory: <http://www.ons.gov.uk/ons/about-ons/who-we-are/services/vml/index.html>
- Accessibility: <http://www.ons.gov.uk/ons/site-information/information/accessibility/index.html>

In addition to this Quality and Methodology Information, Basic Quality Information relevant to each release is available in the background notes of the relevant Statistical Bulletin.

<http://www.ons.gov.uk/ons/publications/all-releases.html?definition=tcm%3A77-29395>

### Useful Links

Mortality Metadata

<http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/mortality-metadata.pdf>

Mortality Summary Quality Report

[www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/social-statistics/sqr-annual-mortality.pdf](http://www.ons.gov.uk/ons/guide-method/method-quality/quality/quality-information/social-statistics/sqr-annual-mortality.pdf)

UK National Statistics Publication Hub

[www.statistics.gov.uk/hub/](http://www.statistics.gov.uk/hub/)

Code of Practice for Official Statistics

[www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html](http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html)



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[www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/a-short-guide-to-population-estimates.pdf](http://www.ons.gov.uk/ons/guide-method/method-quality/specific/population-and-migration/pop-ests/a-short-guide-to-population-estimates.pdf)