Office for National Statistics

Statistical Bulletin

Deaths Related to Drug Poisoning in England and Wales, 2013

Coverage: **England and Wales**
Date: **03 September 2014**
Geographical Areas: **Country, Region**
Theme: **Health and Social Care**
Theme: **Population**

Key Findings

- 2,955 drug poisoning deaths (involving both legal and illegal drugs) were registered in 2013 in England and Wales (2,032 male and 923 female deaths).
- Male drug poisoning deaths increased by 19% compared with 2012. Female drug poisoning deaths have increased every year since 2009.
- Male drug misuse deaths (involving illegal drugs) increased by 23%, from 1,177 in 2012 to 1,444 in 2013. Female drug misuse deaths increased by 12%, from 459 in 2012 to 513 in 2013.
- Heroin/morphine remain the substances most commonly involved in drug poisoning deaths. 765 deaths involved heroin/morphine in 2013; a sharp rise of 32% from 579 deaths in 2012.
- Deaths involving tramadol have continued to rise, with 220 deaths in 2013. This is almost 2.5 times the number seen in 2009 (87 deaths).
- There was a sharp increase of 21% in the number of drug misuse deaths in England in 2013, with no change to the number of these deaths in Wales. However, mortality rates from drug misuse were still significantly higher in Wales than in England.
- Male mortality rates significantly increased in three substance categories: heroin/morphine, benzodiazepines and paracetamol. Conversely female mortality rates remained relatively stable except for a sharp increase in the cocaine-related death rate.
- In England, the North East had the highest mortality rate from drug misuse in 2013 (52.0 deaths per million population), and London had the lowest (23.0 deaths per million population).
- All figures presented in this bulletin are based on deaths registered in a particular calendar year. Out of the 2,955 drug-related deaths registered in 2013, 1,488 (just over half) occurred in years before 2013.

Summary

This bulletin presents the latest figures from the Office for National Statistics (ONS) on deaths related to drug poisoning (involving both legal and illegal drugs) and drug misuse (involving illegal drugs) in England and Wales for the last five years (2009 to 2013). Figures from 1993 are available to download, and are discussed in the commentary to provide further context to the latest (2013) data. Figures presented in this bulletin are for deaths registered each year, rather than occurring each year. See the ‘Impact of registration delays on drug-related deaths’ section below for more information. Figures are given by cause of death, sex, age, substance(s) involved, and area of usual residence of the deceased.

Two revisions to methodology were implemented in 2014:

1. The introduction of a revised method for calculating age standardised rates using the new 2013 European Standard Populations (ESP): and

2. The inclusion of 20 extra drugs to the drugs misuse definition, following their addition to the list of substances controlled under the Misuse of Drugs Act 1971.

A back series has been provided for the 2013 ESP age standardised rates, and all rates figures in this report are calculated using the revised method. All figures for drug misuse in this report are based on the revised drugs misuse definition and a back series has also been provided. A separate set of reference tables with figures calculated using the previous misuse definition are available on the ONS website. For full details see section on methodological changes.

There were 2,955 drug poisoning deaths (involving both legal and illegal drugs) registered in 2013, and, as in previous years, just over two-thirds of these deaths were in males. There were 2,032 male deaths from drug poisoning in 2013, an increase of 19% since 2012, and the highest since 2009.The equivalent number of female deaths was 923, an increase of 4% since 2012, and the highest since 2004.

In 2013 males aged 30 to 39 had the highest mortality rate from drug misuse (130.7 deaths per million population), followed by males aged 40 to 49 (108.3 deaths per million population). The male mortality rates in these two age groups were significantly higher than the rates in all other age groups, and much higher than for females of any age.

The highest mortality rates for females were among those aged 40 to 49, followed by those aged 30 to 39 (33.5 and 33.1 deaths per million respectively). These rates were significantly higher than the rates in other age groups.

Over half (56%) of all deaths related to drug poisoning in 2013 involved an opiate drug. In men aged 30 to 39, over two thirds (68%) of drug-related deaths involved an opiate. In 2013, as in previous years, the most commonly mentioned opiates were heroin and/or morphine, which were involved in 765 deaths.

Deaths involving heroin/morphine increased by 32% in 2013 to 765, up from 579 deaths in 2012. Meanwhile deaths involving tramadol, a synthetic opiate, have also continued to rise. There were 220 deaths in 2013, an increase of 26% from the 175 deaths in 2012. This is now almost 2.5 times the number recorded in 2009 (87 deaths). The number of deaths involving new psychoactive substances (sometimes referred to as ‘legal highs’) increased by 15% in 2013, with 60 deaths, up from 52 deaths in 2012. However, this increase was not as steep as that observed between 2011 and 2012.

The number of drug misuse deaths in England and Wales increased by 20% in 2013 to 1,957 deaths, from 1,636 in 2012. However, this increase was not consistent nationwide. There were 1,812 drug misuse deaths in England, an increase of 21% in 2013 from 1,492 in 2012. In Wales there were 135 deaths, the same number recorded in 2012. However, mortality rates from drug misuse remained significantly higher in Wales than in England, despite rates in England increasing significantly, from 28.0 deaths per million population to 33.9 in 2013.

The differing trends between England and Wales is particularly apparent in the number of female drug misuse deaths. In England the number of these deaths increased by 14% between 2012 and 2013, whilst there was a 11% decrease in the figures for Wales. However, the number of female

drug misuse deaths in Wales are small (35 in 2012 and 31 in 2013), so these figures should be treated with caution.

Within England the drug misuse mortality rates vary considerably. The North East had the highest mortality rate from drug misuse in 2013 (52.0 deaths per million population), whereas London had the lowest (23.0 deaths per million population).

Introduction

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 (see Background note 7). Drug-related deaths occur in a variety of circumstances, each with different social and policy implications. Consequently, there is considerable political, media and public interest in these figures.

This bulletin covers accidents and suicides involving drug poisonings, as well as deaths from drug abuse and drug dependence. It doesn't include other adverse effects of drugs (for example, anaphylactic shock). Drug poisoning deaths involve a broad spectrum of substances, including legal and illegal drugs, prescription drugs (either prescribed or obtained by other means) and over-the-counter medications. Some of these deaths may also be because of complications of drug abuse, such as deep vein thrombosis or septicaemia from intravenous drug use, rather than an acute drug overdose.

The figures presented here are for deaths registered each year, rather than deaths occurring each year. Almost all drug-related deaths are certified by a coroner. Due to the length of time it takes a coroner to complete an inquest, just over half of drug-related deaths registered in 2013 will have actually occurred prior to 2013. See the 'Impact of registration delays on drug-related deaths' section below for more information.

Methodological Changes

Misuse Indicator

ONS have implemented a revision to the definition of the drugs misuse indicator for the 2013 data onwards and a back series has been provided for comparison purposes. The definition of this indicator includes (a) deaths where the underlying cause is drug abuse or drug dependence, and (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 ensure the drug misuse data reported in this bulletin includes deaths involving all drugs recently added to the list of substances controlled under the Misuse of Drugs Act 1971, 20 new drugs have been added to the definition. These include tramadol and 3,4-methylenedioxy-N,N-dimethylamphetamine (MDDA). For the full list of additional misuse drugs included in the revised

definition see Background note 6. Figures for all previous years (1993 to 2012) have been revised to allow comparison for statistical purposes across the entire time series.

Inevitably, this 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, only three additional deaths were classified as due to drug misuse in 1995, rising to an extra 140 in 2012.

The revision has also led to drug misuse mortality rates increasing over the time series, as there are more deaths related to these newly classified drugs with no change to the underlying population estimates. The largest increase in the drug misuse mortality rate for regions was in Yorkshire and Humber in 2012 (30.1 to 33.8 deaths per million population in 2012) and the East Midlands (from 20.7 to 23.8 deaths per million population in 2012). Additionally, for both males and females, the largest increase in the mortality rate occurred in the 40 to 49 age group.

All figures for drug misuse have been calculated using the revised drugs misuse indicator. A separate set of reference tables with figures calculated using the previous misuse are available on the ONS website.

2013 European Standard Population

The European Standard Population (ESP) is an artificial population structure used to weight mortality or incidence data to produce age-standardised rates, to comparisons across populations that may have different age and sex structures. The 2013 ESP takes account of changes in the EU population, providing a more current, methodologically sound and acceptable basis to calculate age standardised rates (Office for National Statistics). 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 had 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, since population estimates of assured quality are not readily available for the 95 and over age group, and differences between ASRs calculated using 90+ and 95+ as the upper age group are not significant (for either sex), ONS recommends that National Statistics outputs are produced using the 2013 ESP with the 90-94 age group aggregated to 90 and over.

The impact of implementing the 2013 ESP has been that 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 the rates for females increased in every year with the largest increase in 1993, of 1.1 deaths per million. For males, the mortality rate related to drug misuse 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 figures for 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.

All age standardised rates in this report have been calculated using the 2013 ESP, with revisions provided back to 1993. ONS have published a study on the impact of calculating mortality rates using the 2013 European Standard Population on causes of death.

Policy Context

The current Government drug strategy, 'Reducing demand, restricting supply, building recovery: supporting people to live a drug-free life' (Home Office, 2010), highlights preventing drug-related deaths as one of the key outcomes that recovery-oriented services should be focused on. In April 2013 responsibility for public health – including drug and alcohol prevention and treatment – passed from the NHS to local authorities.

Patterns of drug use change over time. For instance, in recent years people have been taking new psychoactive substances, including so-called ‘legal highs’. In response to this, a Government review of NPS looking at the nature of the market and legislative and operational responses is due to report this year. There is also an increased emphasis on drug prevention alongside drug treatment across all substances and drug using cohorts. Misuse of prescription drugs continues to attract attention and tighter prescribing rules for tramadol were introduced in 2014.

In February 2013, the Welsh Government published the Substance Misuse Delivery Plan 2013–2015 (Welsh Government, 2013), which included the specific target of ‘reducing the number of substance misuse related deaths and non-fatal overdoses/alcohol poisonings in Wales’. To support this, guidance for undertaking fatal and non-fatal drug poisoning reviews has been developed and is now available on the Welsh Government website. The Welsh Government are now working with partners to implement the guidance.

Uses Made of this Data

The figures contained in this bulletin are used by a range of public bodies, such as Public Health England (PHE), the Department of Health (DH) and the Welsh Government to evaluate the effectiveness of various drug strategies.

In April 2013, the key functions of the National Treatment Agency for Substance Misuse were transferred into PHE, and they have linked ONS data on drug-related deaths with data from the National Drug Treatment Monitoring System (NDTMS). This is to investigate the timing of drug-related deaths in relation to treatment history. This research will also examine risk factors associated with these deaths and carry out comparisons of areas.

The Welsh Government and Public Health Wales are linking ONS data to information on the distribution and coverage of the National Take-Home Naloxone (THN) programme. This will be used to evaluate whether the THN program is having an impact on the number of drug-related deaths in Wales, and also to identify areas requiring further focus.

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) combines data for England and Wales from the ONS drug poisoning database with data from Scotland and Northern Ireland to publish UK figures. This allows comparisons to be made with other European countries. The 2013 EMCDDA statistical bulletin shows that the drug-related mortality rate in the UK was

the fourth highest in Europe (EMCDDA, 2013). However, caution should be applied when making international comparisons, because of differences in definitions and the quality of reporting.

ONS drug poisoning data are also used by academic researchers. For example, analysis of this data by the Centre for Suicide Research at the University of Oxford revealed that there was a major reduction in deaths involving co-proxamol following its withdrawal in 2005, with no evidence of an increase in deaths involving other analgesics, apart from oxycodone (Hawton et al, 2012). Updated data on deaths involving co-proxamol and other analgesics are shown in Reference Table 6a.

Number of Deaths from Drug Poisoning

There were 2,955 drug poisoning deaths (involving both legal and illegal drugs) registered in 2013. This is the highest since 2001, and represents an increase of 14% since 2012. As in previous years, the majority (just over two-thirds) of these deaths were in males. There were 2,032 male deaths from drug poisoning in 2013, an increase of 19% since 2012, and the highest since 2009. The equivalent number of female deaths has been steadily rising since 2009, and rose to 923 in 2013. This is an increase of 4% since 2012.

Table 1: Number of deaths from drug-related poisoning and drug misuse, by sex, England and Wales, deaths registered between 2009–2013

England and Wales

Deaths

	All drug poisoning		Drug misuse	
Registration year	Males	Females	Males	Females
2009	2,098	780	1,572	404
2010	1,890	857	1,446	457
2011	1,772	880	1,267	470
2012	1,706	891	1,177	459
2013	2,032	923	1,444	513

Table source: Office for National Statistics

Table notes:

1. Age-standarised mortality rates per 1 million population have been revised using the 2013 European Standard Population. More details can be found in the 'Methodological Changes' section of this bulletin.
2. The drug misuse indicator was revised in 2014 with 20 new substances. Therefore figures for drug mususe may not match those previously published. More details can be found in the'Methodological Changes' section of this bulletin.
3. Cause of death was defined using the International Classification of diseases, Tenth Revision (ICD-10). The underlying cause of death codes used to select deaths related to drug poisoning and drug misuse are shown in background notes 4 and 5.
4. Figures for England and Walesinclude deaths of non-residents.

5. Figures are for deaths registered, rather than deaths occuring in each calendar. Due to the length of time it takes to complete a coroner's inquest, it can take months or even years for drug-related death to be registered. More details can be found in the 'Impact of Registration Delays on Drug-Related Deaths' section below.

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Number of Drug-Related Deaths by Underlying Cause

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 by underlying cause will not be directly comparable with figures for 2001 to 2010. More information about the impact of this coding change on drug-related deaths statistics can be found in last year's statistical bulletin.

In both males and females, the largest proportion of drug-related deaths were from accidental poisonings (66% of all drug poisoning deaths in males and 55% in females). In males the number of accidental poisonings increased by 22%, from 1,104 deaths in 2012 to 1,351 deaths in 2013. There was no increase in male drug poisoning deaths between 2011 and 2012. In females, accidental poisonings increased by 17%, from 437 deaths in 2012 to 511 deaths in 2013.

In females, 41% of all drug poisoning deaths were suicides (defined as intentional self-poisoning or poisoning of undetermined intent). In 2013, the number of female drug-related suicides decreased by 9%, from 422 deaths in 2012 to 383 deaths in 2013. It is too early to say whether this marks the end of the continuing upward trend since 2009. In males, 29% of all drug poisoning deaths were suicides. The number of deaths rose by 12% in 2013 from 525 deaths in 2012 to 587 deaths, following a decrease between 2011 and 2012. This is the highest number of drug-related male suicides since 2005.

In males, the number of deaths where the underlying cause was a mental and behavioural disorder due to drug use increased by 28% from 86 deaths in 2012 to 92 deaths in 2013. It is not clear what has caused this increase in males, and it may be as a result of random fluctuation, given the fall in deaths between 2011 and 2012. There was no increase in the equivalent number for females, with the number of deaths staying at 29 in 2013, following a large increase between 2011 and 2012.

Table 2: Number of deaths from drug-related poisoning by underlying cause, males, England and Wales, deaths registered between 2009–2013

England and Wales

Deaths (Males)

Underlying cause of death	2009	2010	2011	2012	2013
All drug poisoning deaths	2,098	1,890	1,772	1,706	2,032
Mental and behavioural disorders due to drug use (excluding alcohol and tobacco)	586	504	86	72	92
Accidental poisoning by drugs, medicaments and biological substances	983	899	1,107	1,104	1,351
Intentional self-poisoning and poisoning of undetermined intent, by drugs, medicaments and biological substances	524	482	576	525	587
Assault by drugs, medicaments and biological substances	5	5	3	5	2

Table source: Office for National Statistics

Table notes:

1. Underlying cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10) codes given in Background note 4.
2. In January 2011 ONS introduced a new version of ICD-10, so figures for 2011 onwards are not directly comparable with figures for 2008–10. More information can be found in the 2011 drug-related deaths statistical bulletin:

www.ons.gov.uk/ons/rel/subnational-health3/deaths-related-to-drug-poisoning/2011/stb-deaths-related-to-drug-poisoning-2011.html#tab-ICD-coding-changes-implemented-in-2011.

3. Figures for England and Wales include non-residents.
4. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner's inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the 'Impact of registration delays on drug-related deaths' section below.

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Table 3: Number of deaths from drug-related poisoning by underlying cause, females, England and Wales, deaths registered between 2009–2013

England and Wales

Deaths (Females)

Underlying cause of death	2009	2010	2011	2012	2013
All drug poisoning deaths	780	857	880	891	923
Mental and behavioural disorders due to drug use (excluding alcohol and tobacco)	101	96	17	29	29
Accidental poisoning by drugs, medicaments and biological substances	305	369	445	437	511
Intentional self-poisoning and poisoning of undetermined intent, by drugs, medicaments and biological substances	374	391	418	422	383
Assault by drugs, medicaments and biological substances	0	1	0	3	0

Table source: Office for National Statistics

Table notes:

1. Underlying cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10) codes given in Background note 4.
2. In January 2011 ONS introduced a new version of ICD-10, so figures for 2011 onwards are not directly comparable with figures for 2008–10. More information can be found in the 2011 drug-related deaths statistical bulletin:

www.ons.gov.uk/ons/rel/subnational-health3/deaths-related-to-drug-poisoning/2011/stb-deaths-related-to-drug-poisoning-2011.html#tab-ICD-coding-changes-implemented-in-2011.

3. Figures for England and Wales include non-residents.
4. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner's inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the 'Impact of registration delays on drug-related deaths' section below.

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Number of Deaths Related to Drug Misuse

The definition of this indicator includes (a) deaths where the underlying cause is drug abuse or drug dependence, and (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 used across the UK.

In 2013, there were 1,957 drug misuse deaths, an increase of 20% from 1,636 deaths in 2012 following a decrease over the last two years. While there was a sharp increase in the number of drug misuse deaths in England, there remains no change to the number of drug misuse deaths in Wales. The number of drug misuse deaths in England rose by 21% from 1,492 deaths in 2012 to 1,812 in 2013, the highest figure since 2009. During this 2-year period, the number of drug misuse deaths in Wales stayed at 135 deaths each year.

Since 1993 there has been an upward trend in the proportion of drug poisoning deaths that were related to drug misuse for both males and females. In males this proportion peaked in 2010 at 77%, but fell to 71% in 2013. The proportion of female drug poisoning deaths that were related to drug misuse was highest in 2013 at 56%.

Mortality Rates for all Drug Related Poisonings and Drug Misuse

In 2013, there was an increase in all drug poisoning and drug misuse deaths for both males and females. This may be related to variation in the street purity of heroin over time. For more information, see the 'heroin and morphine' section below. As in previous years, mortality rates from all drug poisoning and drug misuse were significantly higher in males than in females. The Crime Survey for England and Wales showed that 'men were three times as likely as women to report frequent drug use' in 2012/13 (Home Office, 2013). This partly explains the higher mortality rate from drug misuse in males. However, this cannot be the only explanation, as more than 30% of drug poisoning deaths are not related to drug misuse.

The male mortality rate for all drug-related poisonings rose steeply from 1993 and peaked in 1999. Since then mortality rates have been lower but there have been large fluctuations over the years, especially over the 11-year period of 1999–2009. The rate dropped significantly between 2009 and 2010 (see Background note 14 for an explanation of statistical significance) and steadily decreased

each year until 2013. The trend was then reversed, and there was a significant rise in the male mortality rate for all drug-related poisonings to 73.3 deaths per million population.

In contrast, between 1993 and 2004 trends in female mortality rates from drug poisoning were relatively stable. From 2004 rates began to decline, reaching their lowest level in 2007 (26.6 deaths per million population). Female mortality rates have steadily increased each year since 2009, reaching 32.7 deaths per million population in 2013.

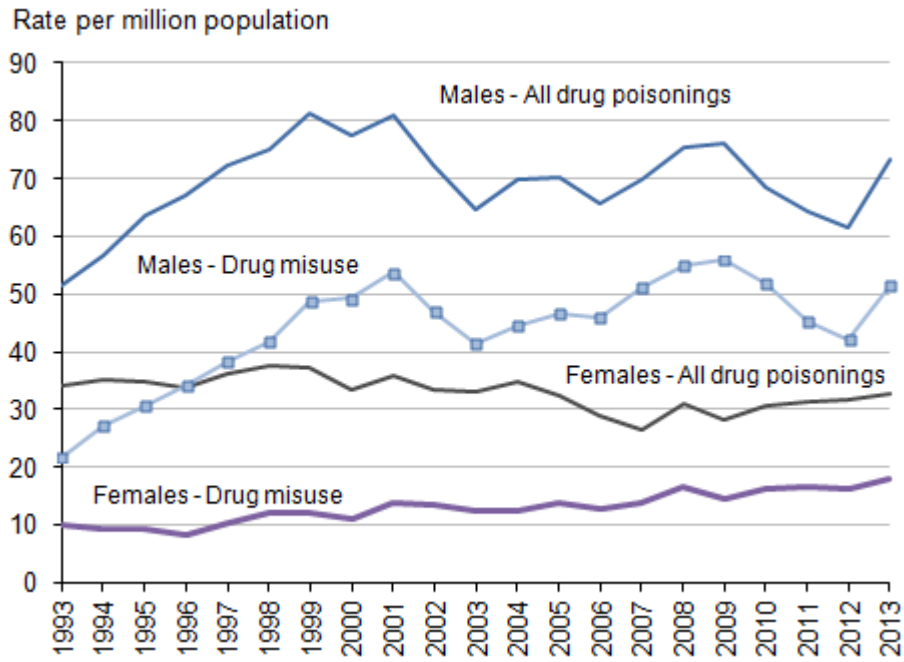
The male mortality rate from drug misuse is variable but follows a similar pattern to that of the all drug poisonings. The mortality rate peaked in 2009 at 55.9 deaths per million population, and then decreased each year until 2013. Rates then increased from 42.0 in 2012 to 51.5 deaths per million population in 2013. Similar patterns have been observed between 1998 and 2009.

Despite some annual fluctuations, the female mortality rate from drug misuse has steadily increased since 1993. The mortality rate increased to 16.5 deaths per million population in 2008, then dropped in 2009, before increasing again between 2009 and 2010. Between 2010 and 2012, the female mortality rate from drug misuse remained relatively stable then in 2013 increased to a new peak of 18.1 deaths per million population.

Figure 1 illustrates that over time the drug misuse mortality rate for each sex has gradually become closer to the all drugs poisoning mortality rate for each sex, so showing the proportion of all drug poisoning deaths that can be explained by drug misuse has increased over time.

Figure 1: Age-standardised mortality rates for deaths related to drug poisoning and drug misuse, by sex, deaths registered in 1993–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Age-standardised mortality rates per 1 million population have been revised using the the 2013 European Standard Population. Age-standardised rates are used to allow comparison between populations which may contain different proportions of people of different ages. More details can be found in the ‘Methodological changes’ section of this bulletin.
2. The drug misuse indicator was revised in 2014 with 20 new substances. Therefore figures for drug misuse may not match those previously published. A full back series has been revised to allow for comparability.
3. The lower and upper confidence limits have been provided. These form a confidence interval, which is a measure of the statistical precision of an estimate and shows the range of uncertainty around the estimated figure. Calculations based on small numbers of events are often subject to random fluctuations. 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.
4. Cause of death was defined using the International Classification of Diseases, Ninth Revision (ICD 9) for the years 1993 to 2000 and Tenth Revision (ICD-10) from 2001 onwards. The underlying cause of death codes used to select 'all drug poisonings' and 'drug misuse' deaths are shown in Background note 4. Drug misuse as defined by the current headline indicator shown in Background note 5. Deaths from drug misuse are included in the figures for all drug poisoning.
5. Figures for England and Wales include deaths of non-residents.
6. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner’s inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the ‘Impact of registration delays on drug-related deaths’ section below.

Download chart

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(68.5 Kb)

Age-Specific Mortality Rates for Deaths Related to Drug Misuse

Males

In 2013 males aged 30 to 39 had the highest mortality rate from drug misuse (130.7 deaths per million population), followed by males aged 40 to 49 (108.3 deaths per million population). This is the highest rate in the 40 to 49 age group on record (which began in 1993). The male mortality rates in these two age groups were significantly higher than the rates in all other age groups, and much higher than females of any age.

There was an increase in the mortality rate from drug misuse across all age groups in 2013. This may be the beginning of a trend following the decline over the previous two years. The largest percentage increase in the male drug misuse mortality rate was for those aged 20 to 29, increasing from 49.2 in 2012 to 63.2 deaths per million population in 2013 (a 29% increase). However, the largest percentage point change occurred in the 30 to 39 age group, increasing from 104.4 to 130.7 deaths per million population (a 26.3 percentage point difference).

Mortality rates in younger males increased from 2.5 in 2012 to 2.9 deaths per million population in 2013. Although an increase from last year, this is still significantly lower than the peak of 11.2 deaths per million population seen in 1997.

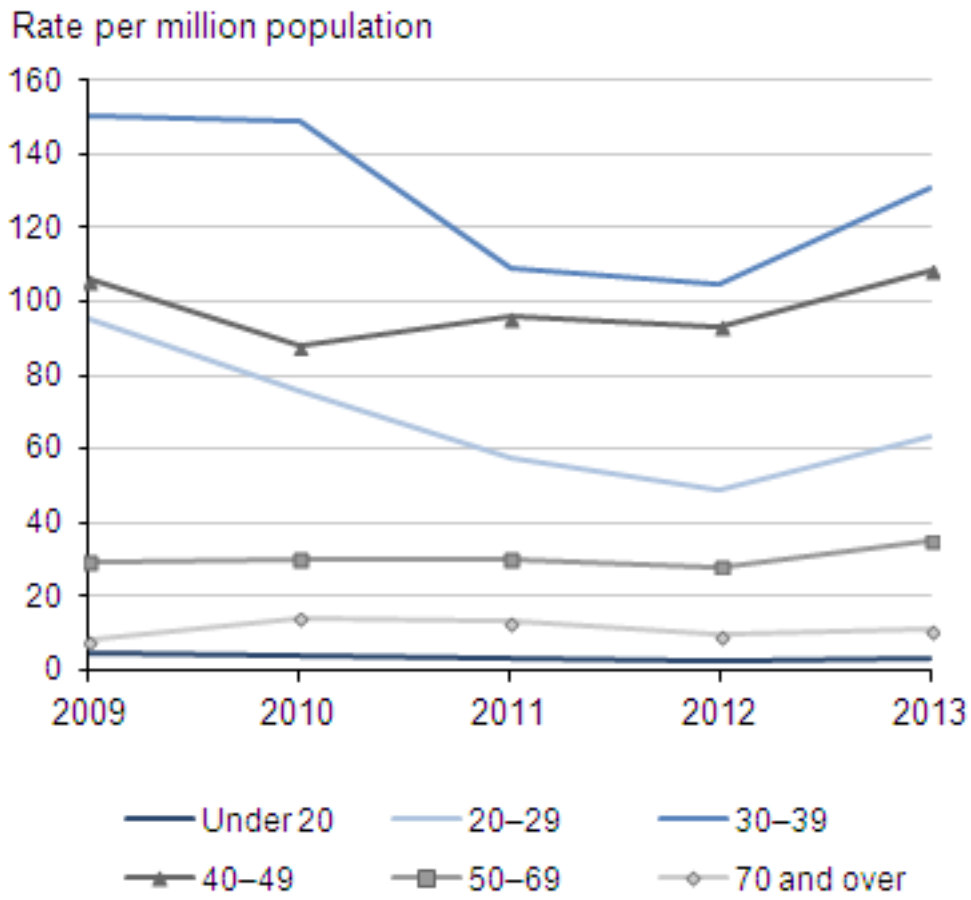
Mortality rates in males aged 50 to 69 increased significantly between 1998 and 2010 from 8.1 to 30.0 deaths per million population, and have remained relatively stable since. However, in 2013 mortality rates for males aged 50 to 69 reached a new peak of 34.8.

Male mortality rates in the oldest age group (70 and over) have shown no consistent trends over time. Although rates increased to 10.9 deaths per million population in 2013, this remains relatively low.

This pattern of drug misuse deaths is broadly in line with treatment figures from the National Treatment Agency which showed that as the drug-dependent population ages, the over 40s have become the largest age group starting treatment. In contrast, the number of 18 to 24-year-olds newly entering treatment for heroin and crack use has halved over the period 2008-2012) (National Treatment Agency, 2012).

Figure 2: Age-specific mortality rates for deaths related to drug misuse, males, deaths registered in 2009–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Age-specific mortality rates per 1 million population.

2. The drug misuse indicator was revised in 2014 with 20 new substances. Therefore figures for drug misuse may not match those previously published. More details can be found in the 'Methodological changes' section of this bulletin.
3. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10). Deaths were included where the underlying cause was due to drug poisoning and where a drug controlled under the Misuse of Drugs Act 1971 was mentioned on the death certificate. More details on the definition of a death related to drug misuse can be found in Background notes 4 and 5.drug controlled under the Misuse of Drugs Act 1971 was mentioned on the death certificate. More details on the definition of a death related to drug misuse can be found in Boxes 1 and 2 on the Definition page.
4. Figures for England and Wales include deaths of non-residents.
5. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner's inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the 'Impact of registration delays on drug-related deaths' section below.

Download chart

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(69.5 Kb)

Females

In 2013, mortality rates from drug misuse for females were lower than males in every age group except those aged 70 and over (12.7 and 10.9 deaths per million population respectively). The highest rates were among those aged 40 to 49 with 33.5 deaths per million population, followed by those aged 30 to 39 with 33.1 deaths per million population. As with males, mortality rates for women aged 30 to 39 and 40 to 49 were significantly higher than rates for any other age group. In 2013, the mortality rate for women aged 40 to 49 was the highest since records began in 1993.

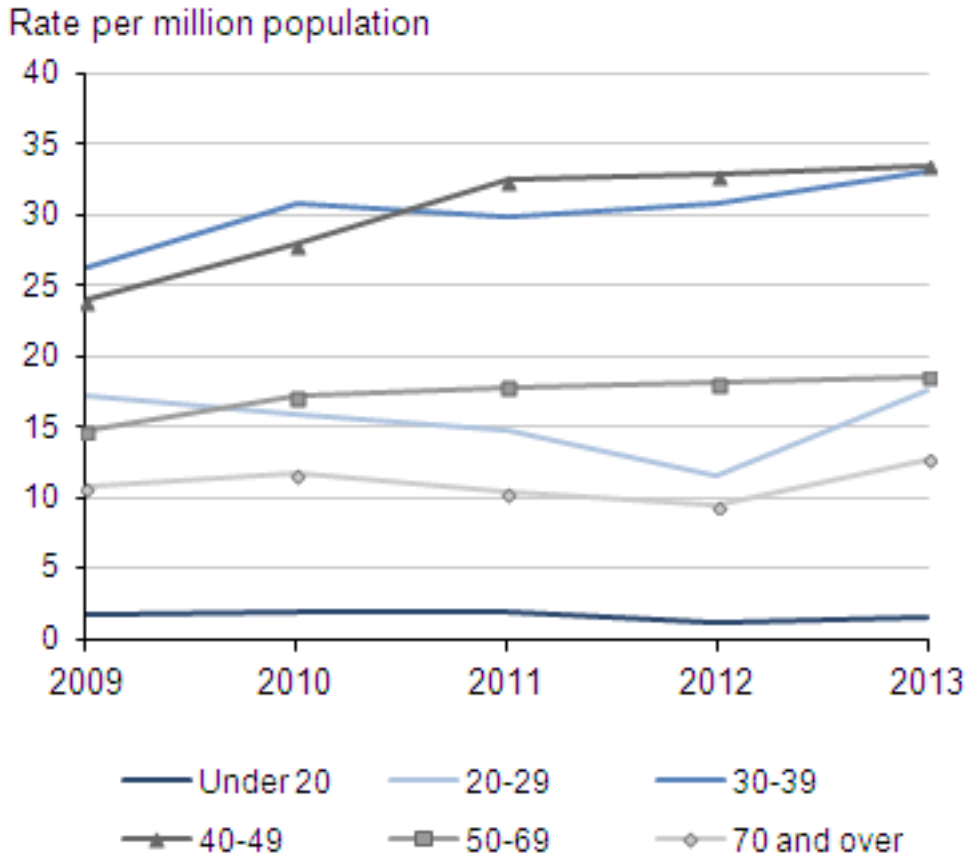
Overall mortality rates for females rose in every age group in 2013. The largest increase was seen in women aged 20 to 29, where the mortality rate rose from 11.5 to 17.5 deaths per million population. Even with this increase, the mortality rate for females aged 20 to 29 still remains slightly lower than the rate in 50 to 69-year-olds.

The female mortality rate for 50 to 69-year-olds has increased steadily over the last few years and is now at 18.5 deaths per million population – the highest level since records began in 1993. Before 2013, the opposite trend was seen in females aged 20 to 29, where the mortality rate had decreased from 17.1 deaths per million population in 2009 to 11.5 per million in 2012. The mortality rate for the 20 to 29 age group became lower than the 50 to 59 group in 2010 although after the sudden rise in 2013, there is now only one percentage point difference.

As with males, the lowest female mortality rates in 2013 were in those aged under 20 (1.5 deaths per million population) and 70 and over (12.7 deaths per million population).

Figure 3: Age-specific mortality rates for deaths related to drug misuse, females, deaths registered in 2009–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Age-specific mortality rates per 1 million population.
2. The drug misuse indicator was revised in 2014 with 20 new substances. Therefore figures for drug misuse may not match those previously published. More details can be found in the ‘Methodological changes’ section of this bulletin.
3. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10). Deaths were included where the underlying cause was due to drug poisoning and where a drug controlled under the Misuse of Drugs Act 1971 was mentioned on the death certificate. More details on the definition of a death related to drug misuse can be found in Background notes 4 and 5.drug controlled under the Misuse of Drugs Act 1971 was mentioned on the death certificate. More details on the definition of a death related to drug misuse can be found in Boxes 1 and 2 on the Definition page.
4. Figures for England and Wales include deaths of non-residents.
5. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner’s inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the ‘Impact of registration delays on drug-related deaths’ section below.

Download chart

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Drug Related Deaths Involving Specific Substances

Figures 4 and 5 give the age-standardised mortality rates where selected substances were mentioned on the death certificate for 2009 to 2013, and Table 4 gives the number of deaths from a wide range of substances. These figures need to be interpreted with caution for the following reasons:

- These figures are based only on information reported on the coroner's death certificate, and may not include every substance involved in the death.
- 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). Deaths where the certificate contains only non-specific information cannot contribute to the counts of deaths involving specific substances.
- In an additional 40% of all drug poisoning deaths, the death certificate mentions more than one specific drug. Where more than one drug is mentioned, it is not possible to tell which was primarily responsible.
- Where more than one drug is mentioned on a death certificate the death will be counted in more than one category in Table 4. For example, if both heroin and methadone are mentioned, the death will be recorded once under heroin and once under methadone. Therefore the numbers for different substances cannot be added together to give a total number of deaths.
- Approximately 30% of all drug-related poisoning deaths also contain a mention of alcohol or long-term alcohol abuse (for example, cirrhosis) in addition to a drug.

Table 4: Number of drug-related deaths where selected substances were mentioned on the death certificate, England and Wales, deaths registered between 2009–2013

Deaths

	2009	2010	2011	2012	2013
All drug poisoning deaths	2,878	2,747	2,652	2,597	2,955
Heroin and Morphine	880	791	596	579	765
Methadone	408	355	486	414	429
All amphetamines	76	56	62	97	120
MDMA/Ecstasy	27	8	13	31	43
PMA / PMMA	0	0	1	20	29
Novel psychoactive substances	26	22	29	52	60
Cathinones	0	6	6	18	26
Mephedrone	0	6	5	12	18
All benzodiazepines	261	307	293	284	342
Diazepam	160	186	179	207	228
Zopiclone / Zolpidem	79	67	71	83	86
All antidepressants	406	381	393	468	466
Tricyclic antidepressants (BNF 4.3.1)	219	194	200	233	235
Selective serotonin re-uptake inhibitors (BNF 4.3.3)	113	136	127	158	150
Other antidepressants (BNF 4.3.2 and 4.3.4)	81	74	84	104	123

	2009	2010	2011	2012	2013
Paracetamol[4]	255	199	207	182	226
Tramadol	87	132	154	175	220
Other opiate (including Codeine and Dihydrocodeine)	418	418	418	348	469
Helium	21	33	42	58	62

Table source: Office for National Statistics

Table notes:

1. Underlying cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10). The ICD-10 codes used to select deaths related to drug poisoning are shown in Background note 4.
2. Figures for England and Wales include deaths of non-residents.
3. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner's inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the 'Impact of registration delays on drug-related deaths' section below.
4. Dextropropoxyphene is very rarely ingested except in combination with paracetamol, therefore figures include dextropropoxyphene mentioned without paracetamol.

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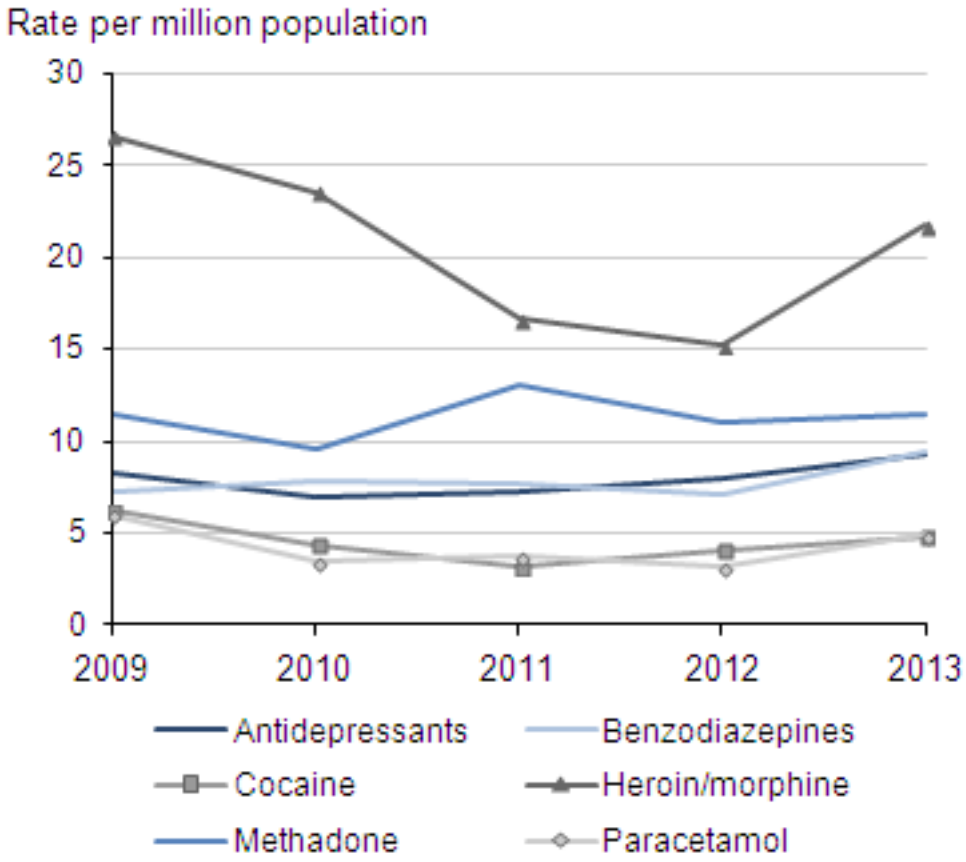
Figure 4: Age-standardised mortality rates for selected substances, males, deaths registered in 2009–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Age-standardised mortality rates per 1 million population have been revised using the the 2013 European Standard Population. Age-standardised rates are used to allow comparison between populations which may contain different proportions of people of different ages. More details can be found in the ‘Methodological changes’ section of this bulletin.
2. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10). The underlying cause of death codes used to select deaths related to drug poisoning are shown in Background note 4.
3. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner’s inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the ‘Impact of registration delays on drug-related deaths’ section below.
4. Figures for England and Wales include deaths of non-residents.

Download chart

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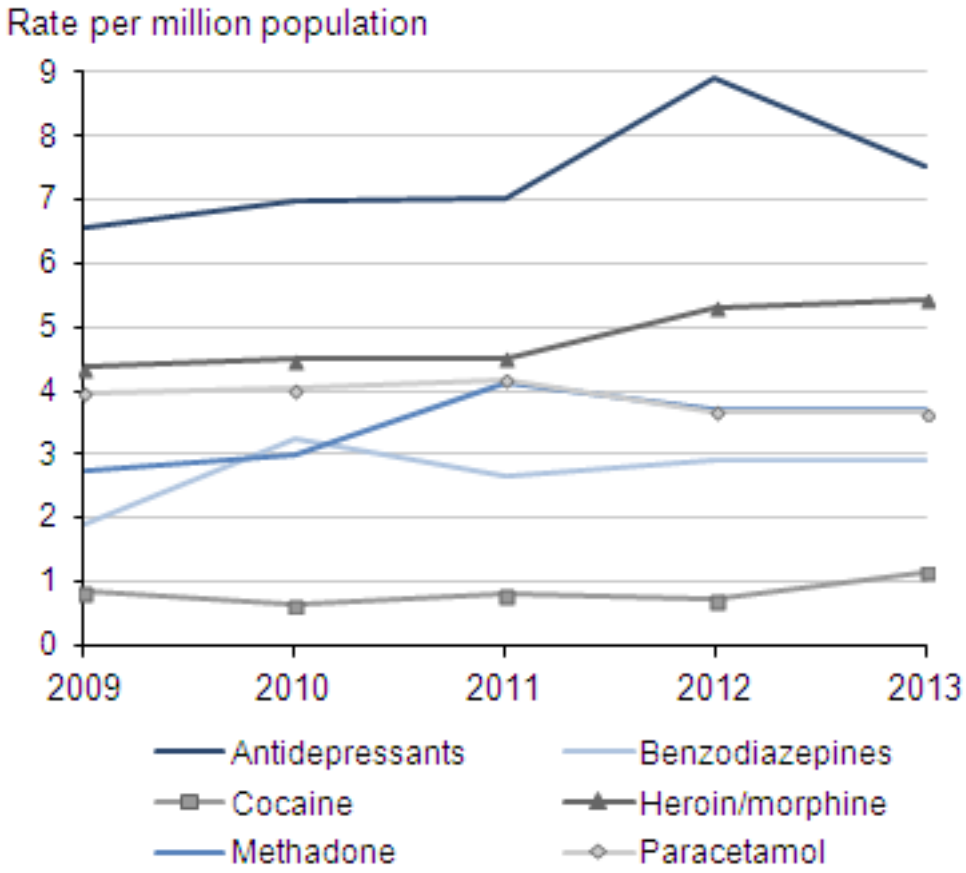
Figure 5: Age-standardised mortality rates for selected substances, females, deaths registered in 2009–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Age-standardised mortality rates per 1 million population have been revised using the the 2013 European Standard Population. Age-standardised rates are used to allow comparison between populations which may contain different proportions of people of different ages. More details can be found in the 'Methodological changes' section of this bulletin.
2. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10). The underlying cause of death codes used to select deaths related to drug poisoning are shown in Background note 4.
3. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner's inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the 'Impact of registration delays on drug-related deaths' section below.
4. Figures for England and Wales include deaths of non-residents.

Download chart

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Heroin and Morphine

Over half (56%) of all deaths related to drug poisoning in 2013 involved an opiate drug. In men aged 30 to 39, over two thirds (68%) of drug-related deaths involved an opiate. In 2013, as in previous years, the most commonly mentioned opiates were heroin and/or morphine, involved in 765 deaths (see Background note 8). The number of deaths involving heroin and/or morphine had steadily declined between 2009 and 2012. However, in 2013 the number of deaths increased by 32% from 579 to 765 deaths. This increase brings the number of deaths relating to heroin and/or morphine to levels similar to 2010.

Evidence suggests that in 2010/11 there was a 'heroin drought' in the UK, with reduced availability of heroin persisting in some areas in 2011/12 and 2012/13 (SOCA, 2011, 2012, 2013, 2014). In recent years there has been a change in the purity of street heroin. SOCA reports claim the street purity of heroin fell from 46% in September 2009 to around 15% to 20% in 2012/13, before increasing again in 2013/14 to 25% (SOCA, 2011, 2012, 2013, 2014). This increase in street purity after a time of lower purity may partly or wholly explain the increase in heroin related deaths in 2013, as users may have had reduced tolerance to the drug.

The mortality rate for males in 2013 increased significantly by 43%, to 21.8 from 15.2 deaths per million population in 2012. Since 2010 the mortality rate had decreased and this reversal brings the mortality rate closer to levels previously seen before the 'heroin drought'. However, even with this increase, the mortality rate still remains lower than in 2010.

The female mortality rate for deaths involving heroin/morphine has been gradually increasing since 2010, and reached the highest rate on record (since 1993) in 2013, with 5.4 deaths per million population. Although the female mortality rate continues to rise it remains significantly lower than the male rate.

Public Health England (2013a) report that the number of people starting treatment for heroin and/or crack addiction (including those returning to treatment) fell from 64,288 in 2005-06 to 47,210 in 2011-12 falling further to 45,739 in 2012-13 (Public Health England, 2013b). However, evidence from the Crime Survey for England and Wales (Home Office, 2012) suggests generally there has been little variation in heroin use year-on-year since their measurement began.

Methadone

In 2013 there were 429 deaths involving methadone, an opiate substance used to treat heroin addiction which is sometimes abused. The number of deaths caused by methadone is fairly variable and this number does not appear unusual. The male mortality rate for deaths involving methadone increased slightly from 11.0 deaths per million population in 2012 to 11.5 in 2013. The equivalent rate for females in 2013 remains the same as in 2012, at 3.7 deaths per million population.

Cocaine

There were 169 deaths involving cocaine in 2013, an increase of 22% from 139 deaths in 2012. However, the number of deaths involving cocaine have been variable over the last few years, with a peak in 2008 of 235 and a low of 112 in 2011. The male mortality rate declined significantly between

2008 and 2011 by over a half, but has since increased to 4.8 deaths per million population in 2013. The equivalent rate in females has continued to be significantly lower than for males despite a 57% rise (from 0.7 to 1.2 deaths per million population in 2012 and 2013 respectively). Recent Home Office reports suggest that in 2013/14, the proportion of adults aged 16 to 59 using powder cocaine was higher than in 2012/13 (1.9%), although this remains lower than the peak of 3.0% in 2008/09 (Home Office, 2014a).

Amphetamines and Ecstasy

The number of deaths involving amphetamines increased from 97 in 2012 to 120 in 2013, which is the highest number of deaths since records began in 1993. In addition to amphetamine itself, the amphetamines group includes substances such as methylenedioxymethamphetamine (MDMA, also known as ecstasy), methylamphetamine, paramethoxyamphetamine (PMA) and Para-methoxymethamphetamine (PMMA).

The number of deaths involving MDMA/ecstasy have varied across the years, with a decrease from 58 in 2005 down to 8 deaths in 2010. Since then the number of deaths have gradually increased to 43 deaths in 2013. The Home Office reported a rise in ecstasy use by adults aged 15 to 59 between 2013 and 2014 (Home Office, 2014a).

Reports have expressed concerns about the availability of ‘super strength’ ecstasy with one recent formulation having a reported MDMA content around 2-2.5 times the standard MDMA dose per pill (Drugscope, 2014). This may partially explain the increased number of deaths involving MDMA/ecstasy. However, the impact of any recent changes in strength may not be fully captured in this bulletin, as deaths occurring in 2014 are not included in this report.

There has also been a large increase in the number of death certificates mentioning PMA or PMMA since 2011. These substances were only involved in one death in 2011, but were involved in 29 deaths in 2013 (a small number of these deaths also mentioned ecstasy). It has been suggested that people may be ingesting PMA/PMMA in the belief that they are taking ecstasy tablets (Frank, 2013). However, there is not enough information recorded on coroners’ death certificates to confirm if this was the case for the deaths registered in 2013.

New Psychoactive Substances (including ‘Legal Highs’)

Over the past few years a number of new drugs have been informally categorised as ‘legal highs’. These include synthetic cannabinoid receptor agonists (for example, ‘spice’), gamma-hydroxybutyrate (GHB) and its precursor gamma-butyrolactone (GBL), piperazines (benzylpiperazine – BZP and trifluoromethylphenylpiperazine – TFMPP), cathinones such as mephedrone, and pipradrols such as desoxypipradrol. Most of these substances are now controlled under the Misuse of Drugs Act (1971). These will all be referred to as new psychoactive substances (NPS) in this report. There is no official definition of ‘legal highs’ or NPS, although all drugs included in the NPS definition for the purposes of this bulletin are listed in Background note 11. This grouping may be revised in future years, as and when further NPSs are identified. The number of deaths involving NPS are low compared with the number of deaths from heroin/morphine, methadone and cocaine poisoning. However, over the past few years there has been an increasing trend in NPS deaths with sharp increases between 2011 and 2012 (29 to 52 deaths). The number of deaths

involving NPS rose again in 2013 by 15% to 60 deaths. This increase is not as steep as previously seen, although it is too early to say whether the rise is stabilising.

The number of deaths involving cathinones (including mephedrone) continued to rise in 2013 , to 26 deaths. This was a rise of 44% from the 18 deaths in 2012, which was over four times greater than the 6 deaths in 2011. It may be that the number of users is increasing as the number of people seeking treatment for NPS has increased significantly. For example, those seeking treatment for mephedrone use rose from 900 new cases in 2012 to 1,630 in 2013 (Public Health England, 2013b). This was despite evidence from the Crime Survey for England and Wales suggesting that the proportion of 16 to 59-year-olds using mephedrone in 2012 has declined since 2010/11 (Home Office, 2013).

Benzodiazepines

There were 342 drug poisoning deaths involving benzodiazepines in 2013, a 20% increase from 2012 and the highest number of deaths since records began in 1993. The number of deaths involving benzodiazepines in 2013 was almost double the historic low of 177 deaths in 2006.

Mortality rates in males increased significantly from 7.1 in 2012 to 9.4 deaths per million population in 2013; the highest rate since records began. Equivalent mortality rates in females were significantly lower than in males at 2.9 deaths per million population in 2013, with no rate change compared with 2012.

In addition to benzodiazepine itself, the benzodiazepines group includes substances such as diazepam and temazepam. Diazepam was the most common type of benzodiazepine mentioned on deaths certificates in 2013, involved in 228 deaths, the highest number on record. The increase in deaths involving diazepam is consistent with a survey suggesting that there has been a continued increase in the use and availability of illicit benzodiazepines, such as diazepam (Daly, 2012). However, the role of diazepam and other benzodiazepines in drug-related deaths is unclear, as more than 9 out of 10 deaths involving benzodiazepines also mentioned another drug.

Temazepam is also a common benzodiazepine mentioned on death certificates; the number of deaths has gradually decreased since records began. In 2013 there were 31 deaths, the lowest on record, which is less than half of that seen in 2004 (78 deaths) and a fifth of that seen in 1995 (159 deaths).

Zopiclone/Zolpidem

The number of deaths involving zopiclone or zolpidem has steadily increased since 1993 to 86 deaths in 2013. In June 2014, zopiclone was controlled under the Misuse of Drugs Act 1971 as a class C substance (Home Office, 2014b).

Antidepressants

There were 466 deaths involving antidepressants in 2013, comparable with the number in 2012. Male mortality rates increased slightly from 8.0 to 9.3 deaths per million population in 2013 (the

highest since 2004). Female mortality rates fell from 8.9 in 2012 to 7.5 deaths per million population in 2013, following a large increase in the previous year.

Deaths across the different antidepressants were quite variable in 2013. Deaths involving tricyclic antidepressants (TCAs) showed little change from 2012, with 235 deaths. The majority of the TCA deaths involved amitriptyline where there was a 12% rise to 173 deaths, continuing the upward trend since 2010. Conversely, deaths relating to dothiepin decreased by 41% from 51 deaths in 2012 to 30 deaths in 2013, continuing the broadly downward trend since 1994. Although TCAs are still involved in more deaths than other types of antidepressants, the number of deaths from TCA poisoning is now much lower than its peak of 497 deaths in 1998.

Deaths involving Selective Serotonin Re-uptake Inhibitors (SSRIs) had been steadily increasing over recent years, reaching a peak in 2012 (158 deaths). In 2013, this number decreased to 150. However this variability is normal for these data, so does not necessarily indicate a levelling off in deaths.

The majority of SSRI deaths involve the drug citalopram. The number of these deaths, has been increasing gradually over time, but in 2013 there was a decrease in deaths by 19% to 82 deaths. Studies show that SSRIs are less toxic in overdose than TCAs (Hawton et al, 2010), but SSRIs are prescribed more frequently. In the last five years prescriptions for SSRIs have increased more rapidly than prescriptions for TCAs (Health and Social Care Information Centre – HSCIC, 2010 and 2014), which may explain the gradual long-term rise in deaths involving SSRIs.

Deaths involving other types of antidepressants have continued the upward trend, reaching a peak in 2013 of 123 deaths. Reference Table 6a shows that the majority of these deaths involved venlafaxine or mirtazapine (British National Formulary section 4.3.4, British Medical Association and Royal Pharmaceutical Society, 2013). Only one death involved a Monoamine-Oxidase Inhibitor – MAOIs (BNF section 4.3.2). The number of deaths involving mirtazapine increased by 49% in 2013 to 73 deaths from 49 in 2012, the highest number on record since 1993. Deaths involving venlafaxine have decreased by 14% to 48 deaths in 2013, although this followed a large increase in 2012 of 60%. Over time, the number of deaths involving venlafaxine appears to fluctuate around a consistent level. The National Institute for Health and Clinical Excellence guidelines (NICE, 2009) suggest that these drugs should not be used as a first-line treatment for depression, and should only be prescribed to people who have not responded to SSRIs. Venlafaxine in particular is associated with a greater risk of death from overdose.

Prescriptions for ‘other antidepressant drugs’ like venlafaxine and mirtazapine (BNF section 4.3.4) accounted for only 18% of all antidepressant prescriptions in 2013. However, this proportion has increased from 16% in 2009 (HSCIC, 2010 and 2014), which may partly explain the increase in deaths.

Paracetamol and Other Analgesics

There were 226 deaths involving paracetamol and its compounds in 2013, an increase of 24% from 182 deaths in 2012. The mortality rates for males and females differed in 2013. There was a large increase in mortality rate for males from 3.1 to 4.9 deaths per million population, whilst female rates

remained the same at 3.7 deaths per million population. Looking at the long-term trends, both male and female mortality rates had been decreasing since 2004.

Tramadol

A notable trend that had emerged in recent years is the steady increase in the number of deaths mentioning tramadol (a synthetic opioid analgesic). This increasing trend started in 1997 and continued into 2013 where the number of deaths involving tramadol increased by 26% from 2012 to a new peak of 220 deaths. There has been a 29% increase in tramadol prescriptions over the last five years (HSCIC, 2010 and 2014). However, the latest 'Street drug trends survey' carried out among police forces, drug agencies, frontline treatment services and drug user groups showed the continued rise in the recreational use of tramadol and other synthetic opioids (Daly, 2012). In June 2014, tramadol was controlled under the Misuse of Drugs Act 1971 as a class C substance (Home Office, 2014b).

Helium

There were 62 deaths mentioning helium in 2013, over five times higher than the 12 deaths recorded in 2008 (see Background note 12 for further information on helium deaths). Although the number of deaths involving this substance is still relatively small, the recent increases have been of interest to those concerned with suicide prevention, as almost all of these deaths were suicides. In 2013, the number of deaths involving helium increased by 7% compared with 2012.

Geographical Variations in Deaths Related to Drug Misuse

In England, the mortality rate for deaths related to drug misuse had declined between 2008 and 2012 (from 34.9 to 28.0). However, in 2013 the mortality rate increased to 33.9 deaths per million population. The equivalent mortality rate in Wales hardly changed from 46.0 deaths per million population in 2012 to 46.2 deaths per million population in 2013. Although England's mortality rates increased in 2013 while the Wales mortality rate remained constant, England continues to have significantly lower mortality rates than Wales. Both England and Wales mortality rates are similar to that seen in 2009 (34.3 and 46.2 deaths per million population respectively).

There was considerable regional variation within England in deaths relating to drug misuse. In 2013, the lowest mortality rate was in London (23.0 deaths per million population), where the rates have been the lowest in England over the last three years. The regions with the highest mortality rates over the last five years were the North East and North West. Mortality rates in the North were more than double that of London (52.0 and 46.8 deaths per million population in the North East and North West respectively).

Table 5: Age-standardised mortality rate per 1 million population for deaths related to drug misuse, by country and region, deaths registered in 2009–13

England and Wales

Country and Region	2009	2010	2011	2012	2013
England	34.3	32.6	29.8	28.0	33.9
North East	52.7	47.4	43.8	40.1	52.0
North West	49.2	43.1	47.8	44.3	46.8
Yorkshire and The Humber	36.9	38.1	31.6	33.8	40.6
East Midlands	30.5	25.6	23.0	23.8	30.2
West Midlands	25.1	30.4	24.6	25.7	34.6
East of England	26.6	25.1	28.1	23.7	29.8
London	27.1	28.2	22.4	19.1	23.0
South East	33.1	29.9	26.2	23.3	31.4
South West	42.6	37.4	31.9	31.8	35.0
Wales	46.2	55.5	50.4	46.0	46.2

Table source: Office for National Statistics

Table notes:

1. Age-standardised mortality rates per 1 million population have been revised using the the 2013 European Standard Population. More details can be found in the ‘Methodological changes’ section of this bulletin.
2. The drug misuse indicator was revised in 2014 with 20 new substances. Therefore figures for drug misuse may not match those previously published. More details can be found in the ‘Methodological changes’ section of this bulletin.
3. The lower and upper confidence limits have been provided. These form a confidence interval, which is a measure of the statistical precision of an estimate and shows the range of uncertainty around the estimated figure. Calculations based on small numbers of events are often subject to random fluctuations. 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.
4. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10). Deaths were included where the underlying cause was due to drug poisoning and where a drug controlled under the Misuse of Drugs Act 1971 was mentioned on the death certificate (see Background notes 4 and 5).
5. Deaths are for persons usually resident in each country and region, based on boundaries as of May 2014.
6. Figures are for deaths registered, rather than deaths occurring in each calendar year. Due to the length of time it takes to complete a coroner’s inquest, it can take months or even years for a drug-related death to be registered. More details can be found in the ‘Impact of registration delays on drug-related deaths’ section below.

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Comparisons with the Rest of the UK

Figures on drug-related deaths in Scotland are available from National Records of Scotland and the Information Services Division of NHS Scotland.

Figures for Northern Ireland are available from the Northern Ireland Statistics and Research Agency.

Figures for Europe are available from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA).

Figures for other countries may not be comparable with figures presented here for England and Wales, due to differences in data collection methods and in the death registration system.

Impact of Registration Delays on Drug-Related Deaths

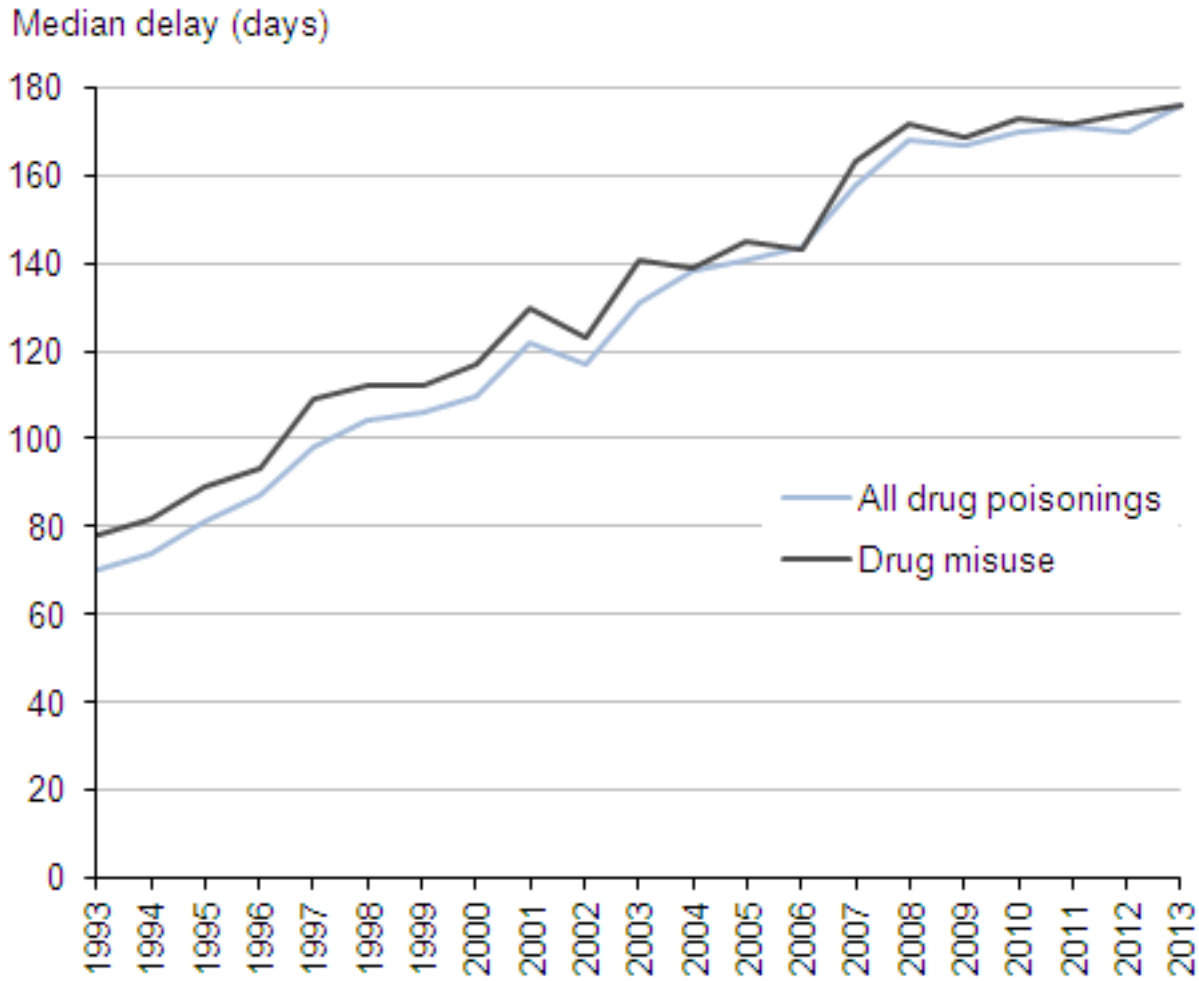
In England and Wales almost all drug-related deaths are certified by a coroner following an inquest. The death cannot be registered until the inquest is completed, which can take many months or even years, and ONS is not notified that a death has occurred until it is registered. If someone is to be charged in relation to the death, the coroner must adjourn the inquest, and they may carry out an accelerated registration. However, the full details are not recorded until the inquest is completed, and these accelerated registration deaths are not included in the drug-related deaths figures.

In common with most other mortality statistics, figures for drug-related deaths are presented for deaths registered in a particular calendar year, which enables figures to be published in a timely manner. The alternative would be to publish statistics based on the year in which the death occurred. However, if ONS were to do this the publication would be delayed by at least six months to allow enough time for the majority of the deaths that occurred in a given year to be registered. If it was produced any earlier the data would be incomplete and inaccurate.

Due to the length of time it takes to hold an inquest, this bulletin actually presents information on deaths that may have occurred months or even years ago. Out of the 2,955 drug-related deaths registered in 2013, 1,488 (just over half) occurred in years prior to 2013. This makes it more difficult to evaluate how changes such as the heroin drought or the banning of certain new psychoactive substances have affected drug-related deaths. It also makes it more difficult to compare trends in drug-related deaths between local areas, as registration delays vary considerably across England and Wales.

Figure 6: Average registration delay for all drug poisoning deaths and deaths related to drug misuse, deaths registered in 1993–2013

England and Wales



Source: Office for National Statistics

Notes:

1. The registration delay is calculated as the difference between the date each death occurred and the date it was registered, measured in days. The average delay is represented using the median. Additional information on the calculation of registration delays is provided Background note 16.
2. Cause of death was defined using the International Classification of Diseases, Ninth Revision (ICD-9) for the years 1993 to 2000 and Tenth Revision (ICD-10) from 2001 onwards. The underlying cause of death codes used to select 'all drug poisonings' and 'drug misuse' deaths are shown in Background note 4. Drug misuse as defined by the current headline indicator shown in Background note 5. Deaths from drug misuse are included in the figures for all drug poisoning.
3. The drug misuse indicator was revised in 2014 with 20 new substances. Therefore figures for drug misuse may not match those previously published. More details can be found in the ‘Methodological changes’ section of this bulletin.
4. Figures are for deaths registered, rather than deaths occurring in each calendar year.
5. Figures for England and Wales include deaths of non-residents.

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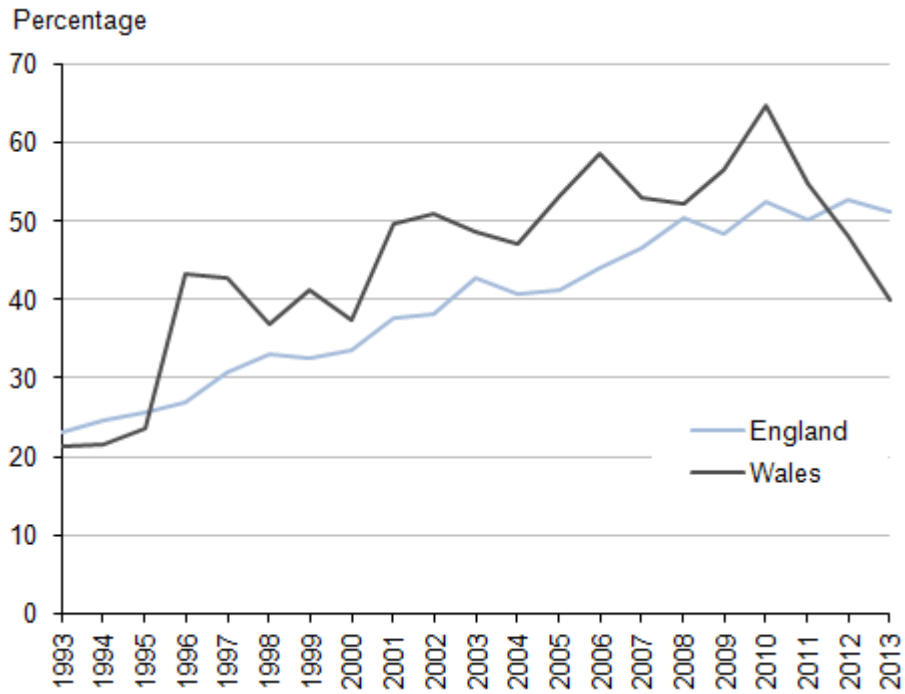
Figure 7: Percentage of deaths registered in a different year to the death occurrence for all drug poisoning deaths, for England and Wales, deaths registered in 1993–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Cause of death was defined using the International Classification of Diseases, Ninth Revision (ICD 9) for the years 1993 to 2000 and Tenth Revision (ICD-10) from 2001 onwards. The underlying cause of death codes used to select 'all drug poisonings' and 'drug misuse' deaths are shown in Background note 4. Drug misuse as defined by the current headline indicator shown in Background note 5. Deaths from drug misuse are included in the figures for all drug poisoning.
2. Figures for England and Wales include deaths of non-residents.

Download chart

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Downloadable Reference Tables

A back series of data on deaths related to drug poisoning in England and Wales between 1993 and 2012 are available to download in a Microsoft Excel workbook from the ONS website (313.5 Kb Excel sheet).

The deaths related to drug poisoning 2013 workbook contains the following tables:

Table 1: Number of deaths from drug-related poisoning and drug misuse, by sex and country, England and Wales, deaths registered between 1993–2013

Table 2: Number of deaths from drug-related poisoning by sex and underlying cause, England and Wales, deaths registered between 1993–2013

Table 3: Number of deaths related to drug misuse by sex and underlying cause, England and Wales, deaths registered between 1993–2013

Table 4: Number of deaths from drug-related poisoning by sex and age, England and Wales, deaths registered between 1993–2013

Table 5: Number of deaths related to drug misuse by sex and age, England and Wales, deaths registered between 1993–2013

Table 6a: Number of drug-related deaths where selected substances were mentioned on the death certificate, England and Wales, deaths registered between 1993–2013

Table 6b: Number of drug-related deaths where selected substances were mentioned without other drugs, England and Wales, deaths registered between 1993–2013

Table 6c: Number of drug-related deaths where selected substances were mentioned with alcohol, England and Wales, deaths registered between 1993–2013

Table 7: Number of deaths and age-standardised mortality rate for deaths related to drug misuse, by country and region, England and Wales, deaths registered between 1993–2013

Figure 1: Age-standardised mortality rates for deaths related to drug poisoning and drug misuse, by sex, England and Wales, deaths registered between 1993–2013

Figure 2: Age-specific mortality rates for deaths related to drug misuse, males, England and Wales, deaths registered between 1993–2013

Figure 3: Age-specific mortality rates for deaths related to drug misuse, females, England and Wales, deaths registered between 1993–2013

Figure 4: Age-standardised mortality rates for selected substances, males, England and Wales, deaths registered between 1993–2013

Figure 5: Age-standardised mortality rates for selected substances, females, England and Wales, deaths registered between 1993–2013

Figure 6: Average registration delay for all drug poisoning deaths and deaths related to drug misuse, by sex, England and Wales, deaths registered between 1993–2013

Figure 7: Percentage of deaths registered in a different year to the death occurrence for all drug poisoning deaths, deaths registered in 1993–2013

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Background notes

1. **Quality Information**

   Further information about the quality of drug-related deaths data can be found in the Quality and Methodology Information (QMI) paper (494.7 Kb Pdf).

2. **Mortality Metadata**

   Information about the underlying mortality data, including details on how the data is collected and coded are available in the mortality metadata (2.7 Mb Pdf).

3. **Drug Poisoning Database**

   The figures presented in this bulletin have been produced using a special database of deaths related to drug poisoning. This has been developed to facilitate research into these deaths and to aid the identification of specific substances involved. The 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. More information on this definition and issues relating to the interpretation of drug-related deaths data can be found in Christophersen et al (1998). (103.5 Kb Pdf)

Almost all deaths on the drug poisoning database had a coroner’s inquest. For each death the database includes the following information:

The ICD codes for underlying cause of death and other causes mentioned on the death certificate.

Every mention of a substance recorded by the coroner in the cause of death section or elsewhere on the coroner's certificate after inquest (up to seven substances).

An indicator to show if alcohol is 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 or alcohol found after toxicology tests) to long-term alcohol abuse and cirrhosis of the liver.

Other information recorded at death registration such as age, sex, marital status, occupation and place of usual residence.

4. Definition of a Drug-Related Death

International Classification of Diseases Codes used to Define Deaths Related to Drug Poisoning

Mental and behavioural disorders due to drug use (excluding alcohol and tobacco)	292, 304, 305.2–305.9	F11–F16, F18–F19
Accidental poisoning by drugs, medicaments and biological substances	E850–E858	X40–X44
Intentional self-poisoning by drugs, medicaments and biological substances	E950.0–E950.5	X60–X64
Assault by drugs, medicaments and biological substances	E962.0	X85
Poisoning by drugs, medicaments and biological substances, undetermined intent	E980.0–E980.5	Y10–Y14

5. Definition of a Death Related to Drug Misuse

In 2000, the Advisory Council on the Misuse of Drugs published a report called 'Reducing Drug Related Deaths' (The Advisory Council on the Misuse of Drugs, 2000). In response to this report's recommendations on improving the present system for collecting data on drug-related deaths, a technical working group was set up. This group, consisting of experts across government, the devolved administrations, coroners, toxicologists and drugs agencies, proposed a headline indicator for drug misuse deaths as part of the government's action plan (Department of Health, 2001), to reduce the number of these deaths. This indicator also takes into account the information needs of the European Monitoring Centre for Drugs and Drug Addiction. The baseline year for monitoring deaths related to drug misuse was set as 1999. The definition of the headline indicator using ICD-10 is shown below. The definition using ICD-9 was published in a previous annual report (723.4 Kb Pdf) (Office for National Statistics, 2002).

Cause of death categories included in the headline indicator of drug misuse deaths (the relevant ICD-10 codes are given in brackets):

a) Deaths where the underlying cause of death has been coded to one of the following categories of mental and behavioural disorders due to psychoactive substance use (excluding alcohol, tobacco and volatile solvents):

- opioids (F11)
- cannabinoids (F12)
- sedatives or hypnotics (F13)
- cocaine (F14)
- other stimulants, including caffeine (F15)
- hallucinogens (F16)
- multiple drug use and use of other psychoactive substances (F19)

b) Deaths where the underlying cause of death has been coded to one of the following categories and where a drug controlled under the Misuse of Drugs Act 1971, was mentioned on the death certificate:

- Accidental poisoning by drugs, medicaments and biological substances (X40–X44)
- Intentional self-poisoning by drugs, medicaments and biological substances (X60–X64)
- Poisoning by drugs, medicaments and biological substances, undetermined intent (Y10–Y14)
- Assault by drugs, medicaments and biological substances (X85)
- Mental and behavioural disorders due to use of volatile solvents (F18)Notes

i. Specific rules were adopted for dealing with compound analgesics which contain relatively small quantities of drugs listed under the Misuse of Drugs Act, the major ones being dextropropoxyphene, dihydrocodeine and codeine. Where these drugs are mentioned on a death record, they have been excluded from the drug misuse indicator if they are part of a compound analgesic (such as co-proxamol, co-dydramol or co-codamol) or cold remedy. Dextropropoxyphene has been excluded on all occasions, whether or not paracetamol or a compound analgesic was mentioned. This is because dextropropoxyphene is rarely, if ever,

available other than as part of a paracetamol compound. However, codeine or dihydrocodeine mentioned without paracetamol or ibuprofen were included in the indicator. This is because they are routinely available and known to be abused in this form. This approach is the same as that taken by National Records of Scotland (NRS). Drugs controlled under the Misuse of Drugs Act 1971 include class A, B and C drugs.

6. **Revisions to the Drug Misuse Definition**

20 additional drugs were added to the drug misuse indicator in 2014 and the full back series from 1993 has been revised. Several new psychoactive substances and other drugs which have been controlled under the Misuse of Drugs Act 1971 in the last few years have been added. The following drugs were added to the drug misuse indicator in 2014:

- 1-(benzofuran-5-yl)-N-methylpropan-2-amine
- 1-(Benzofuran-5-yl)-propan-2-amine
- 1-(Benzofuran-6-yl)-propan-2-amine
- 2-(1H-Indol-5-yl)-1-methylethylamine
- 2-diphenylmethylpyrrolidine
- 4-Methoxymethcathinone
- APB
- Khat
- Lisdexamphetamine
- Tapentadol
- Tramadol
- Zaleplon
- Zopiclone
- Fluoromethamphetamine
- MDDA
- Cannabinoid
- Demoxepam
- Phenobarbital
- Remifentanil
- Zolpidem

7. **Deaths Among People in their 20s and 30s**

Nearly one in seven deaths among people in their 20s and 30s were drug-related. This figure has been calculated from the number of deaths from all drug poisonings of people aged 20 to 39, (1,218 deaths) and the number of deaths from all causes in this age group (8,613 deaths) for England and Wales in 2013. The number of deaths from all causes, by sex and age is available on the ONS website.

8. **Heroin and Morphine**

Heroin (diamorphine) breaks down in the body into morphine, so either heroin and/or morphine may be detected at post mortem and recorded on the death certificate. Therefore a combined

figure for deaths where heroin or morphine was mentioned on the death certificate is included in Table 4.

9. **Cocaine**

The figure for cocaine in Table 4 includes deaths where cocaine was taken in the form of crack cocaine. It is not possible to separately identify crack cocaine from other forms of cocaine at post mortem. Other evidence to distinguish the form of cocaine taken is rarely provided on death certificates.

10. **GHB and GBL**

The figure for GHB (gamma-hydroxybutyrate) in Reference Table 6a includes deaths where GBL (gamma-butyrolactone) was taken. It is not possible to separately identify GBL and GHB at post mortem as GBL is rapidly converted to GHB when ingested into the human body.

11. **List of drugs included as New Psychoactive Substances**

There is no official definition new psychoactive substances. The following substances have been included in this group in this bulletin:

- 1-(Benzofuran-6-yl)-propan-2-amine
- 2-(1H-Indol-5-yl)-1-methylethylamine
- 4-Fluoroephedrine
- 4-Fluoromethcathinone
- 4-Methylamphetamine
- 4-Methylethcathinone
- Alpha-methyltryptamine
- BZP
- Cathinone
- Desoxypipradrol
- Fluoromethcathinone
- GHL/GHB
- Khat
- Legal high
- Mephedrone
- Methiopropamine
- Methoxetamine
- Methylenedioxypyrovalerone
- Methylone
- Synthetic cannabinoid
- TFMPP
- 1-(Benzofuran-5-yl)-propan-2-amine
- 1-(benzofuran-5-yl)-N-methylpropan-2-amine
- APB
- 2-diphenylmethylpyrrolidine
- 4-Methoxymethcathinone

- N-Methyl-3-phenyl-norbornan-2-amine
- Fluoromethamphetamine
- MDDA

It is likely that this list will be revised in future as new substances emerge.

12. **Helium**

The number of deaths mentioning helium reported in this statistical bulletin before 2011 are likely to be an underestimate, as some deaths involving helium were assigned an underlying cause of death of hanging, strangulation and suffocation (ICD-10 codes X70 and Y20), and were not included in the drug poisoning database. From 2011 onwards, we have tried to ensure that all deaths mentioning helium are coded to the appropriate poisoning code and not as a suffocation.

13. **Calculation of Mortality Rates**

Mortality rates are presented as deaths per one million population. The mortality rates in Figures 2 and 3 are age-specific rates; and those in Figures 1, 4 and 5 and Table 5 are directly age-standardised to the 2013 European standard population. Age-standardised rates are used to allow comparison between populations which may contain different proportions of people of different ages, including comparisons between males and females and over time. Eurostat, the statistical institute of the European Union, has decided to update the European Standard Population, which is used in the calculation of age-standardised rates.

14. **Confidence Intervals**

Excel workbooks containing the data used to produce Figures 1 to 6 and Tables 1 to 5 are available to download from the ONS website (313.5 Kb Excel sheet). These tables contain both the mortality rate and the upper and lower confidence limits. These limits form a confidence interval, which is a measure of the statistical precision of an estimate and shows the range of uncertainty around the estimated figure. Calculations based on small numbers of events are often subject to random fluctuations. 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. Within this statistical bulletin, a difference which is described as ‘significant’, means ‘statistically significant’, assessed by examining the confidence intervals.

15. **Revisions**

The ONS revisions policy is available on our website.

16. **Calculation of Registration Delays**

Figure 6 presents data on the length of time taken to register a death (also known as the registration delay) for drug-related deaths. This is calculated as the difference between the date each death occurred and the date it was registered, measured in days. Data where the exact date of death was unknown or where either the date of death or date of registration was clearly

recorded incorrectly (that is, the death appeared to have been registered before it occurred) were excluded from this analysis. Approximately 0.2% of the data were excluded for these reasons. Analysis showed that the data was positively skewed, and contains some deaths with very long registration delays (for example, more than eight years). Therefore the average registration delay has been presented using the median value, as this is not influenced by extreme values. The median is defined as the value that is halfway through the ordered data set, below and above which there lies an equal number of data values.

17. **Special Extracts of Data**

    Special extracts and tabulations of drug poisoning deaths data are available to order (subject to legal frameworks, disclosure control and agreement of costs, where appropriate). Enquiries should be made to:

    Mortality Analysis Team, Life Events and Population Sources Division

    Office for National Statistics

    Government Buildings

    Cardiff Road

    Newport

    NP10 8XG

    Tel: +44 (0)1633 455667

    Email: mortality@ons.gsi.gov.uk

    The ONS charging policy is available on the ONS website.

18. **Feedback**

    We would welcome feedback on the content, format and relevance of this release. Please send feedback to the postal or email address above.

19. **Plan for Mortality Outputs**

    Future changes to mortality outputs are outlined in the plan for mortality outputs (116 Kb Pdf) available on the ONS website.

20. **Pre-Release Access**

    A list of the names of those given pre-publication access to the statistics and written commentary is available in this pre-release access list (EMBED LINK) for deaths related to drug poisoning in England and Wales in 2013. The rules and principles which govern pre-release access are featured within the Pre-release Access to Official Statistics Order 2008.

21. **National Statistics**

The UK Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 (393.8 Kb Pdf) and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs
- are well explained and readily accessible
- are produced according to sound methods
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

22. **Social Media**

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