

Statistical bulletin

Deaths Registered in England and Wales: 2013

Deaths, stillbirths and infant mortality including death rates, causes, age, and area of residence.



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1. Main findings

- There were 506,790 deaths registered in England and Wales in 2013, compared with 499,331 in 2012 (a rise of 1.5%)
- Age-standardised mortality rates (ASMRs) have continued to decrease in 2013. There were 11,583 deaths per million population for males and 8,526 deaths per million population for females
- The infant mortality rate decreased in 2013 to 4.0 deaths per thousand live births, compared with 4.2 in 2012
- There were 3,284 stillbirths in England and Wales in 2013, compared with 3,558 in 2012 (a fall of 7.7%)
- In 2013, cancer was the most common broad cause of death (29% of all deaths registered) followed by circulatory diseases, such as heart disease and strokes (28% of all deaths registered). For males, cancer was the most common broad cause of death, while for females it was circulatory diseases

2. Summary

This bulletin presents summary statistics on deaths, stillbirths and infant mortality in England and Wales in 2013. All statistics are based on deaths registered in England and Wales in a particular year. For information on registration delays for a range of causes, see [Impact of Registration Delays on Mortality Statistics](#).

The death statistics reported include counts of deaths by age and sex, and by selected cause and age-standardised mortality rates. Standardised mortality ratios (SMRs) and counts of stillbirths and infant mortality rates by area of usual residence are also included.

This is the first time that 2013 annual figures for deaths in England and Wales have been published by the Office for National Statistics (ONS).

3. Total deaths

There were 506,790 deaths registered in England and Wales in 2013, compared with 499,331 in 2012 (a rise of 1.5%), and 539,151 in 2003. This is the first time since 2008 that annual death registrations have been above half a million. The number of registration days in a calendar year can have a small effect on the number of deaths registered in that year. The number of deaths is also affected by the size and age structure of the population. Statistics on the number of deaths in England and Wales are available back to 1938 in the [Vital Statistics: Population and Health Reference Tables](#) and back to 1901 in the [20th Century Mortality Files](#).

4. Age-standardised mortality rates

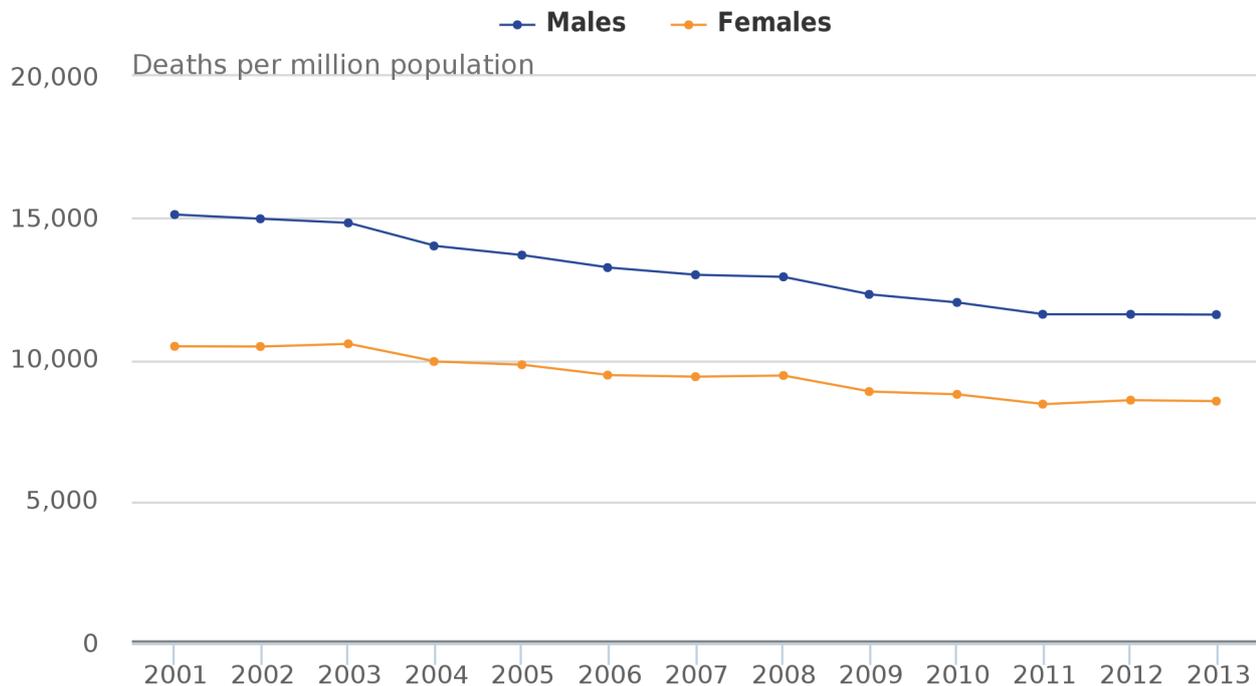
The age-standardised mortality rates (ASMRs) produced in this report and in the associated reference tables have been calculated using the new 2013 European Standard Population (ESP). Eurostat updated the ESP for the first time since it was introduced in 1976, to make it more representative of the current population in Europe ([Eurostat, 2013](#)).

For almost all causes of death, the age-standardised mortality rates are higher when calculated using the 2013 ESP, and for some causes of death, this change is large. This is to be expected as the 2013 ESP gives the populations in older age groups greater weighting than the 1976 ESP and deaths predominantly occur at older ages.

The impact of the change from the 1976 ESP to the 2013 ESP was greatest for conditions commonly associated with older ages (where ASMRs increased) and those almost exclusive to very young ages (where ASMRs decreased). More information about the impact of this change can be found on the [ONS website](#).

Figure 1: Age-Standardised Mortality Rates (ASMRs), 2001–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year
2. These rates are for all ages and are standardised to the 2013 European Standard Population, expressed per million population (see background note 3)

Mortality rates calculated using the 2013 ESP have continued the downward trend previously reported using the 1976 ESP, with 11,583 deaths per million population for males and 8,526 deaths per million population for females in 2013 (Figure 1). Since 2001, ASMRs have decreased by 23% for males and 19% for females. The male ASMR has decreased each year since 2001, whereas the female ASMR has decreased with the exception of three small rises in the ASMR, the latest being in 2012.

Mortality rates are generally falling, as people are tending to live longer as a result of medical advances in the treatment of many illnesses and diseases. This is illustrated by the reduction in ASMRs for many causes of death. Since 2003, age-specific mortality rates across all five year age groups by sex have either decreased or remained unchanged (see [Table 1 \(286.5 Kb Excel sheet\)](#)). While there has been a small increase in the number of deaths, due to the increased population at older ages, mortality rates for males and females in 2013 have continued to decline.

5. Stillbirths

The number of stillbirths in England and Wales decreased to 3,284 in 2013 compared with 3,558 in 2012 (a fall of 7.7%). In comparison, the total number of births (both live births and stillbirths) decreased by just 4.3% in 2013. Stillbirths in England decreased by 7.6% while stillbirths in Wales decreased by 15.5%.

The stillbirth rate takes into account the total number of births and so provides a more accurate indication of trends than just analysing the number of stillbirths over time. In 2013, the stillbirth rate for England and Wales fell to 4.7 per thousand total births, from 4.9 in 2012. This is the lowest stillbirth rate since 1992 when it was 4.3. In England the stillbirth rate in 2013 was 4.7 per thousand total births, down from 4.8 in 2012. In Wales the stillbirth rate in 2013 was 4.5 per thousand total births, down from 5.1 in 2012.

Small fluctuations in the number of stillbirths and the stillbirth rate in England and Wales have occurred during the last decade, with the highest stillbirth rate during the period being 5.8 per thousand total births in 2003. Key risk factors for stillbirths include maternal obesity, smoking, and fetal growth restriction ([Gardosi et al., 2013](#)).

The number of stillbirths is an indicator within the [NHS outcomes framework 2013/14](#) for reducing deaths in babies and young children in England. The Department of Health (DH) together with the stillbirth and neonatal death charity (Sands) and a number of key organisations such as NHS England, Public Health England (PHE), the Royal College of Midwives and the Royal College of Obstetricians and Gynaecologists are working on an ongoing [stillbirth programme](#). This has included identifying and agreeing the key messages that can be used to raise awareness among both pregnant women and health professionals of the risk factors for stillbirths and the actions that can be taken to minimise these risks.

In Wales, a National Stillbirth Working Group was set up within the 1000 Lives Plus programme of work in April 2012, and includes representation of key stakeholders in maternity care. The National Assembly for Wales published a report in 2013 which identified a number of actions to improve the stillbirth rate in Wales. Further information can be found on the [1000 Lives Plus](#) website.

6. Infant, perinatal and neonatal deaths

In 2013, there were 2,767 infant deaths (under 1 year of age) registered in England and Wales, a decrease from 3,040 in 2012. The infant mortality rate (based on death registrations – see background note 8) decreased in 2013 to 4.0 deaths per thousand live births, compared with 4.2 in 2012.

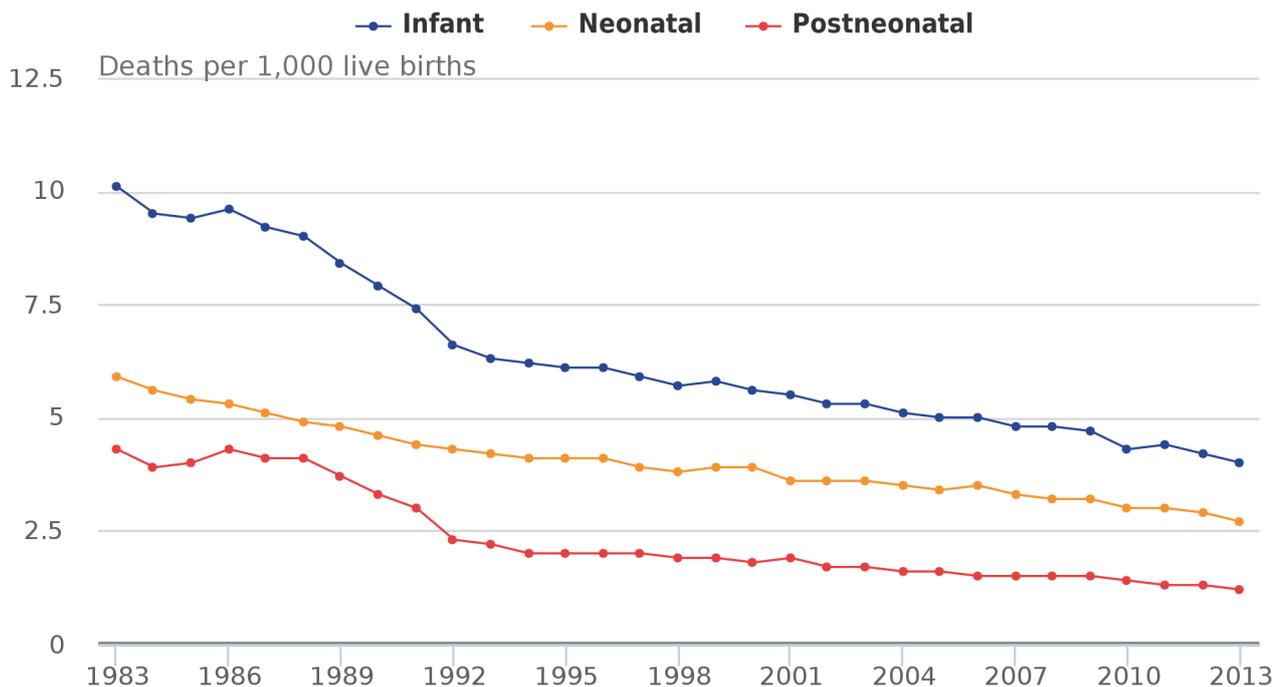
In 2013, the neonatal mortality rate (deaths under 28 days) decreased slightly to 2.7 deaths per thousand live births compared with 2.9 in 2012. The postneonatal mortality rate (deaths between 28 days and 1 year) decreased to 1.2 deaths per thousand live births in 2013, compared with 1.3 in 2012.

The perinatal mortality rate (stillbirths and deaths under 7 days) was 6.7 deaths per thousand total births in 2013, compared with 7.1 in 2012.

Small fluctuations in the infant mortality rate have occurred over recent years, after a series of larger drops in the early 1980s and again between 1987 and 1991 (Figure 2). Between 1983 and 2013 the infant mortality rate fell by 60%, while the neonatal and postneonatal mortality rates fell by 54% and 72% respectively. Although the overall trend has been one of decreasing rates, the rates of change have not been constant over the period: change in the first decade was nearly twice that in the latter two decades.

Figure 2: Infant, Neonatal and Postneonatal Mortality Rates, 1983–2013

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year

There are many established risk factors for infant mortality; prematurity, low birthweight and multiplicity are the most significant in terms of strength of association and consistency. Risk factors are known to vary according to age at death. For example, the effect of low birthweight and prematurity is stronger in the neonatal period than the postneonatal period, while socio-economic status is strongly associated with deaths under one year ([Oakley, et al., 2009 \(720.5 Kb Pdf\)](#)).

7. Causes of death

Cancer accounted for nearly a third (29%) of all deaths registered in 2013, with an age-standardised rate of 3,482 deaths per million population for males and 2,385 deaths per million population for females. Cancer was also the most common broad cause of death in 2012 (29% of all deaths). Since 2003 death rates for cancer have fallen by 12% for males and 8% for females.

Circulatory diseases, such as heart disease and strokes, accounted for nearly a third (28%) of all deaths registered in 2013. Between 2003 and 2013, the male and female age-standardised death rates for circulatory diseases fell by 42% to 3,369 deaths per million population for males, and by 43% to 2,237 deaths per million population for females. For males, cancer was the most common broad cause of death (31% of all deaths registered in 2013) while for females it was circulatory disease (27% of all deaths registered in 2013).

Over the course of the twentieth century, there have been fairly steady decreases in mortality rates for the main three broad disease groups (cancer, circulatory and respiratory) in England and Wales. The reasons for this include improvements in the treatment and diagnosis of these diseases.

There have also been initiatives to improve people's health through better diet and lifestyle, for example, in England the Department of Health's '[Change4life campaign](#)' which began in 2009. There have been other high-

profile awareness campaigns such as '[Be clear on cancer campaign](#)' which has been active since January 2010 and '[Stoptober](#)' which runs every October. In March 2013 DH published a policy paper on '[Living Well for Longer: National support for local action to reduce premature avoidable mortality](#)'. This sets out the work of national partners for health and care, including Government, NHS and PHE and aims to improve outcomes for all.

Similarly, Public Health Wales has a number of campaigns such as '[Stop smoking Wales](#)', '[Change4life Wales](#)' which launched in 2010 and the '[Screening for life](#)' campaign which is run in July.

8. Death registrations by area of usual residence

A standardised mortality ratio (SMR) (see background note 4) is a comparison of the number of observed deaths in a population with the number of expected deaths if the age-specific death rates were the same as a standard population. SMRs allow for useful comparisons to be made against a national average as the results take into account differing age structures in the populations of local areas. Local authorities find these ratios useful to gauge how deaths in their area compare with England and Wales as a whole in a given year.

Comparisons of SMRs across years can be misleading because they are influenced by the size and the age-sex structure of the population in local areas which varies between years (for further information see background note 4).

The North East had the highest SMR among the regions of England in 2013 with mortality levels 11 percentage points above the national level. In contrast, mortality levels were lowest in London (9 percentage points below the national level).

In 2013, the local authority in England with the highest SMR was Blackpool (28 percentage points above the national level) while Kensington and Chelsea had the lowest (29 percentage points below the national level).

In Wales, Blaenau Gwent had the highest SMR (30 percentage points above the national level) while Monmouthshire had the lowest (10 percentage points below the national level).

It is recognised that there are generally higher levels of deprivation in the north of England than in the south ([Department for Communities and Local Government](#), 2011), and in the Welsh Valleys in comparison to counties such as Monmouthshire ([Welsh Index of Multiple Deprivation \(WIMD\)](#), 2011). Increased mortality rates for many causes of death have long been associated with higher levels of deprivation ([Romeri et al., 2006 \(522.9 Kb Pdf\)](#)). This is a reflection of underlying differences in factors such as income deprivation, smoking status and other health-related behaviour. For further information see '[Life Expectancy at birth and at age 65 for local areas in the United Kingdom](#)'.

9. Infant mortality by region of usual residence

Infant mortality rates (based on death registrations – see background note 8) vary by region and can fluctuate over time. In 2013, the West Midlands had the highest regional infant mortality rate, with 5.4 deaths per thousand live births. The North East had the lowest, with 3.2 deaths per thousand live births. Wales had an infant mortality rate of 3.6 deaths per thousand live births.

The variation between different regions reflects underlying differences in maternal factors such as the mother's country of birth, socio-economic status and age (for further information, see [Child Mortality Statistics](#)).

10. Deaths in the UK

The provisional number of UK deaths registered in 2013 was 576,458. This is a rise of 1.3% compared with 2012, when there were 569,024 deaths.

Northern Ireland also recorded a rise in the number of deaths, increasing by 1.4% to 14,968 in 2013 (provisional figure), from 14,756 in 2012. In Scotland the number of deaths decreased, from 54,937 in 2012 to 54,700 in 2013 (provisional figure), a fall of 0.4%.

11. Users and uses of death statistics

ONS uses mortality data for the following purposes:

- producing population estimates and population projections at both national and subnational level
- reporting on social and demographic trends
- carrying out further analysis, for example on life expectancy, health expectancy and by cause of death (including avoidable mortality, drug-related deaths and suicides),
- further analysing infant mortality where infant deaths are linked to their corresponding birth record to enable more detailed analyses on characteristics such as age of parents, birthweight, gestational age, ethnicity and whether the child was born as part of a multiple birth
- quality assuring Census estimates

The Department of Health (DH) is a key user of mortality statistics. The [Public Health Outcomes Framework](#) sets out the desired outcomes for public health and how these will be measured. Data are used, for example, to inform policy decisions and to reduce premature mortality from the major causes of death under an [NHS outcomes framework](#).

The outcomes framework has replaced the Public Service Agreement system that was in place under the previous Government. Infant mortality is also seen as a key measure among health outcomes and there is a long established link between social and health inequalities, and infant mortality.

The Welsh Government (WG) is another key user of mortality statistics. The [Programme for Government](#) sets out the indicators one of which is 21st Century Healthcare. Data are then used to determine delivery priorities such as, those relating to cancer and circulatory diseases as outlined in the Wales [NHS Delivery Framework](#).

Infant mortality continues to take a central role in DH and WG's work on health inequalities. Other key users of mortality data are local authorities and other government departments for planning and resource allocation. The Department for Work and Pensions uses detailed mortality statistics to feed into statistical models they use for pensions and benefits.

Users also include other public sector organisations such as the Police and the Home Office who are interested in data on external causes of death. Private sector organisations such as banks, insurance and investment companies are particularly interested in deaths by single year of age and region which feed into risk estimation, while funeral directors are interested in the number of deaths occurring at the local area level.

Other users include academics, demographers and health researchers who conduct research into trends. Lobby groups and charities use death statistics to support their cause, for example, campaigns against alcohol and drug misuse, or suicide. Organisations such as Eurostat and the UN use death statistics for making international comparisons. The media also report on key trends in mortality.

12. Further information

More data on [Deaths](#) in England and Wales in 2013 are available on the ONS website.

Data on [Births in England and Wales in 2013](#) are also available on the ONS website.

A [Quality and Methodology Information \(382.3 Kb Pdf\)](#) document for mortality statistics is available on the ONS website. Further information on data quality, legislation and procedures relating to mortality is available in the [mortality metadata \(2.7 Mb Pdf\)](#).

There is also an [interactive mapping tool](#) which enables trends in mortality to be analysed at the local level.

Further 2013 death statistics will be published later in 2014, see the [Publication Hub](#) for more details on releases.

[Mortality Statistics: Deaths registered in England and Wales \(series DR\), 2013](#) will be published in October /November 2014.

[Mortality Statistics: Deaths registered in England and Wales by area of usual residence, 2013](#) will be published in December 2014/January 2015.

To meet user needs, very timely but [provisional counts of death registrations are published: provisional counts of weekly death registrations by age-sex group and region](#) and [provisional counts of monthly death registrations by local authority](#). Users should note that figures for 2014 have not been subject to the full quality assurance process so figures are considered provisional. Monthly figures for 2013 will be updated to final figures on 22 July 2014.

For mortality data for other UK countries please see [statistics on deaths in Northern Ireland](#) and [statistics on deaths in Scotland](#).

International comparisons of live death numbers and rates are available in the [Vital Statistics: Population and Health Reference Tables](#).

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

13. References

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Department for Health (2013) Public Health Outcomes Framework, available at: www.gov.uk/government/publications/healthy-lives-healthy-people-improving-outcomes-and-supporting-transparency

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Stillbirth and Neonatal Death charity (Sands) UK stillbirth and neonatal death charity, Sands and the Department of Health progress stillbirth public awareness initiative [accessed 23 June 2014], available at: <http://uk-sands.org/news/research/2013-03-06/sands-and-department-health-progress-stillbirth-public-awareness-initiative>

Welsh Government Programme for Government [accessed 04 July 2014], available at: <http://wales.gov.uk/about/programmeforgov/?lang=en>

Welsh Government (2013) Wales NHS Delivery Framework, available at: <http://wales.gov.uk/docs/dhss/publications/130524frameworken.pdf>

Welsh Government (2011) Welsh Index of Multiple Deprivation (WIMD), available at: <http://wales.gov.uk/docs/statistics/2011/110831wimd11summaryen.pdf>

14. Background notes

1. Death figures reported here are based on deaths registered in the data year. This includes some deaths that occurred in the years prior to 2013 (24,132 deaths). ONS also takes an annual extract of death occurrences in the autumn following the data year to allow for late registrations. This is used for seasonal analysis of mortality data and several infant mortality outputs. The difference between death registrations and death occurrences in a year is relatively small. For example, the number of death registrations in 2012 involving deaths occurring in 2012 was 478,733, while the number of 2012 death occurrences was 499,240 (a difference of 4%). Further information on the impact of registration delays for a range of causes can be found on the [ONS website](#).
2. There is a large degree of comparability in death statistics between countries within the UK. There are some differences, although these are believed to have a negligible impact on the comparability of the statistics. These differences are outlined in [Quality and Methodology Information \(382.3 Kb Pdf\)](#) document for deaths.

3. The age-standardised mortality rates (ASMRs) in this release cover all ages. Age-specific rates for 2013 were calculated using the mid-2013 population estimates based on the 2011 Census, and were then directly age-standardised to the 2013 European Standard Population (ESP), which allows comparisons between populations with different age structures, including between males and females and over time. In 2013 Eurostat, the statistical institute of the European Union, updated the European Standard Population which is used in the calculation of age-standardised rates. ESP changes have caused mortality rates to increase significantly, although this is due to an improvement in statistical methods and not an increase in the actual number of deaths. The increase is due to the 2013 ESP being weighted more heavily towards older ages where most deaths occur. Trends in mortality levels within and between areas have remained relatively unchanged. More information on the 2013 revised ESP is available on the [ONS website](#).
4. A standardised mortality ratio (SMR) is a comparison of the observed number of deaths in a population with the expected number of deaths if age-specific death rates were the same as a standard population. It is expressed as a ratio of observed to expected deaths, multiplied by 100. If an area has an SMR equal to 100 it implies that the mortality levels in the area are the same as the national levels. A number higher than 100 implies an excess mortality rate whereas a number below 100 implies below average mortality. Comparisons of SMRs across years can be misleading because they are influenced by the size and the age-sex structure of the population in local areas which varies between years.
5. The International Classification of Diseases, Tenth Revision (ICD–10) was updated from v2001.2 to v2010 in January 2011. The main changes in ICD-10 v2010 are amendments to the modification tables and selection rules, which are used to ascertain a causal sequence and consistently assign underlying cause of death from the conditions recorded on the death certificate. Overall, the impact of these changes is small although some cause groups are affected more than others. For further information, see the [results of the bridge coding study](#) on the ONS website. There is also another study looking at the impact on [stillbirths and neonatal deaths](#).
6. Coding underlying cause of death: the cause of death data are based on the final underlying cause of death, which takes into account any additional information provided by medical practitioners or coroners after the death has been registered. The original underlying cause of death only changes in a very small number of deaths (around 0.2%) in a given year. Deaths registered in 2013 have been coded to the Tenth Revision of the International Classification of Diseases and Related Health Problems (ICD–10) v2010.
7. Definitions used in this bulletin:
 - Stillbirth – born after 24 or more weeks completed gestation and which did not, at any time, breathe or show signs of life.
 - Early neonatal – deaths under 7 days.
 - Perinatal – stillbirths and early neonatal deaths.
 - Neonatal – deaths under 28 days.
 - Postneonatal – deaths between 28 days and 1 year.
 - Infant – deaths under 1 year.
8. The infant mortality rates in this release have been calculated by dividing the number of infant death registrations (deaths under 1 year) by the number of live births occurring in the year plus late registrations from the previous year. Infant mortality rates can also be calculated using death occurrences. These rates are not released until later because for the death occurrences dataset to be acceptably complete, it must be taken some 9 months after the end of the relevant calendar period. All perinatal and neonatal rates have also been calculated using death registrations rather than death occurrences. Statistics on infant, neonatal and perinatal deaths occurring in England and Wales in 2013 will be published in [Child Mortality Statistics](#) (this publication is based on death occurrences rather than registrations).
9. A list of the names of those given pre-publication access to the statistics and written commentary is available in [Pre-release Access List for Death Registrations Summary Tables](#). The rules and principles which govern pre-release access are featured within the [Pre-release Access to Official Statistics Order 2008](#).

10. Special extracts and tabulations of deaths data for England and Wales are available to order (subject to legal frameworks, disclosure control, resources and agreements of costs, where appropriate). Such enquiries should be made to:

Vital Statistics Outputs Branch
Office for National Statistics
Segensworth Road
Titchfield
Fareham
Hampshire
PO15 5RR

Tel: +44 (0)1329 444110 E-mail: vsob@ons.gsi.gov.uk

The [ONS charging policy](#) is available on the ONS website.

11. We would welcome feedback on the content, format and relevance of this release. Please send feedback to the postal or email address above.
12. Follow ONS on [Twitter](#) and [Facebook](#).
13. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 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.