

Statistical bulletin

Deaths Registered in England and Wales: 2012

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



Contact:
Elizabeth McLaren
vsob@ons.gsi.gov.uk

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1. Main points

- There were 499,331 deaths registered in England and Wales in 2012, compared with 484,367 in 2011 (a rise of 3.1%)
- The infant mortality rate decreased in 2012 to 4.2 deaths per thousand live births compared with 4.4 in 2011
- There were 3,558 stillbirths in England and Wales in 2012, compared with 3,811 in 2011 (a fall of 6.6%)
- Age-standardised mortality rates (ASMRs) in 2012 were 6,191 deaths per million population for males and 4,510 deaths per million population for females. The male rate is the lowest ever recorded in England and Wales
- In 2012, cancer was the most common cause of death (29% of all deaths registered) followed by circulatory diseases, such as heart disease and strokes (28% of all deaths registered)

2. Summary

This bulletin presents summary statistics on deaths, stillbirths and infant mortality in England and Wales in 2012. All statistics are based on deaths registered in England and Wales in a particular year. For further information on registration delays for a range of causes, see [Impact of Registration Delays on Mortality Statistics](#).

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 2012 annual figures for deaths in England and Wales have been published by the Office for National Statistics (ONS).

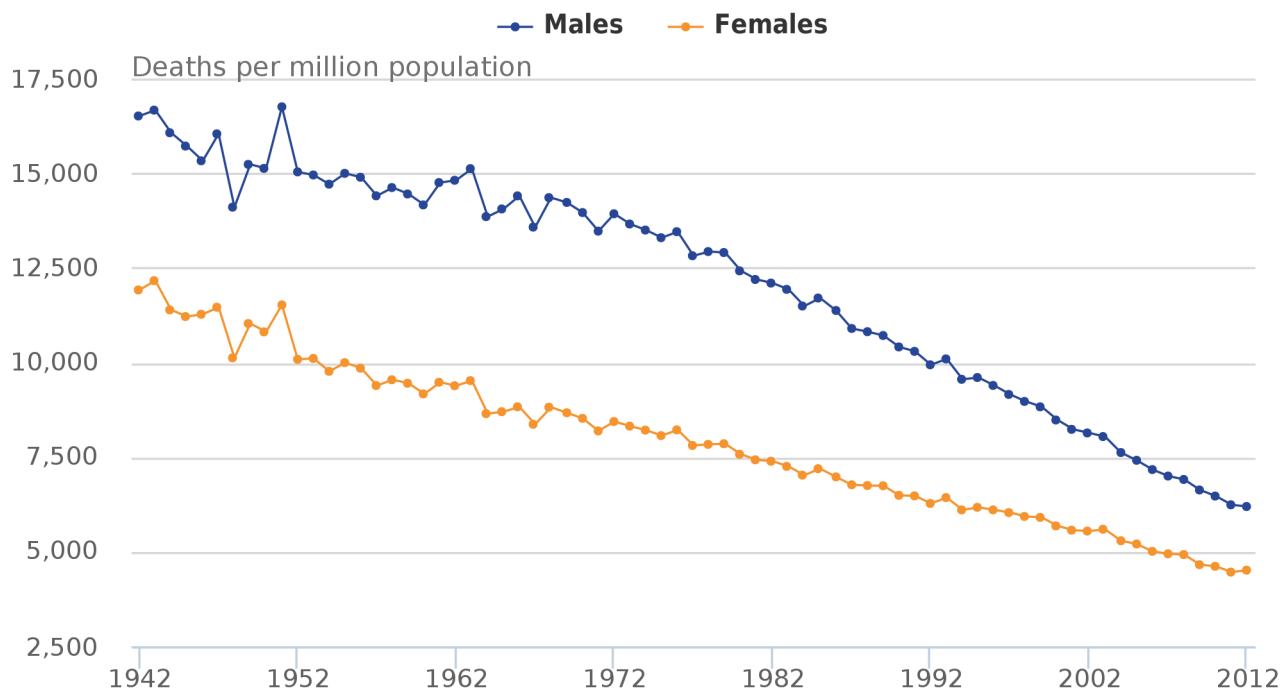
The mortality rates for 2011 and 2012 have been calculated using mid-year population estimates based on the 2011 Census. Mortality rates for 2002-2010 have been calculated using revised population estimates which take account of the 2011 Census so rates may differ from those previously published.

3. Total deaths

There were 499,331 deaths registered in England and Wales in 2012 compared with 484,367 in 2011 (a rise of 3.1%), and 535,356 in 2002. This is the fourth consecutive year that annual death registrations have been below half a million. Before 2009 the last time that death registrations fell below half a million was in 1952.

Figure 1: Age-standardised mortality rates (ASMRs), 1942-2012

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in the calendar year
2. ASMRs for 2011 and 2012 have been calculated using mid-year population estimates based on the 2011 Census. Rates for 2002-2010 have been recalculated using revised mid-year population estimates which take account of the 2011 Census and therefore may differ from previously published figures
3. These rates are for all ages and are standardised to the 1976 European standard population, expressed per million population (see background note 3)

Over the course of the 20th Century, age-standardised mortality rates (ASMRs) (see background note 3) steadily decreased (Figure 1). Up until the early 1970s, year-on-year fluctuations were higher, a likely consequence of influenza epidemics and cold winters although the relationship between temperature, influenza and winter mortality is complex (for further information see [Excess winter mortality in England and Wales, 2011/12 provisional and 2010/11 final](#)).

Mortality rates have continued their downward trend, with 6,191 deaths per million population for males and 4,510 deaths per million population for females in 2012. Since 1972 ASMRs have decreased by 56% for males and 47% for females. The 2012 ASMRs for males are the lowest ever recorded in England and Wales. For females there was a small increase in the ASMR for England and Wales in 2012, from 4,458 in 2011 to 4,510 in 2012.

Mortality rates are generally falling; reasons for this include medical advances in the treatment of many illnesses and diseases. This is illustrated by the reduction in ASMRs for many causes of death. Since 2002 age-specific mortality rates across all five-year age-sex groups have either decreased or remained unchanged (see [Table 1 \(307 Kb Excel sheet\)](#)). Mortality rates for males in 2012 have continued to decline despite a small increase in the number of deaths. This is due to the increased population at older ages.

4. Stillbirths

The number of stillbirths in England and Wales decreased to 3,558 in 2012 from 3,811 in 2011 (a fall of 6.6%) even though the total number of births (both live births and stillbirths) increased in 2012. Stillbirths in England decreased by 7.2% while stillbirths in Wales increased by 8.4%.

The stillbirth rate takes into account the total number of births and therefore provides a more accurate indication of trends. In 2012 the stillbirth rate for England and Wales fell to 4.9 per thousand total births from 5.2 in 2011. This is the lowest stillbirth rate since 1992 when it was 4.3. In England the stillbirth rate in 2012 was 4.8 per thousand total births down from 5.2 in 2011. In Wales the stillbirth rate in 2012 was 5.1 per thousand total births up from 4.7 in 2011.

Small fluctuations in the number of stillbirths and the stillbirth rate in England and Wales have occurred during the last decade (the highest stillbirth rate during the period was 5.8 per thousand live and stillbirths in 2003). Key risk factors for stillbirths are overweight mothers, smoking during pregnancy and multiple pregnancies. ([SANDS, 2012](#)).

The number of stillbirths is an indicator within the [NHS outcomes framework 2012/13](#) for reducing deaths in babies and children in England. Department of Health and SANDS have developed a stillbirth prevention programme as a result of a workshop on stillbirth prevention in March 2012 which brought together a select group of key experts and professional bodies.

In Wales, a National Stillbirth Working Group was set up within the 1000 Lives 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.

5. Infant, perinatal and neonatal deaths

In 2012, there were 3,040 infant deaths (under 1 year of age) registered in England and Wales, a small decrease from 3,154 in 2011. The infant mortality rate (based on death registrations – see background note 7) decreased in 2012 to 4.2 deaths per thousand live births compared with 4.4 in 2011.

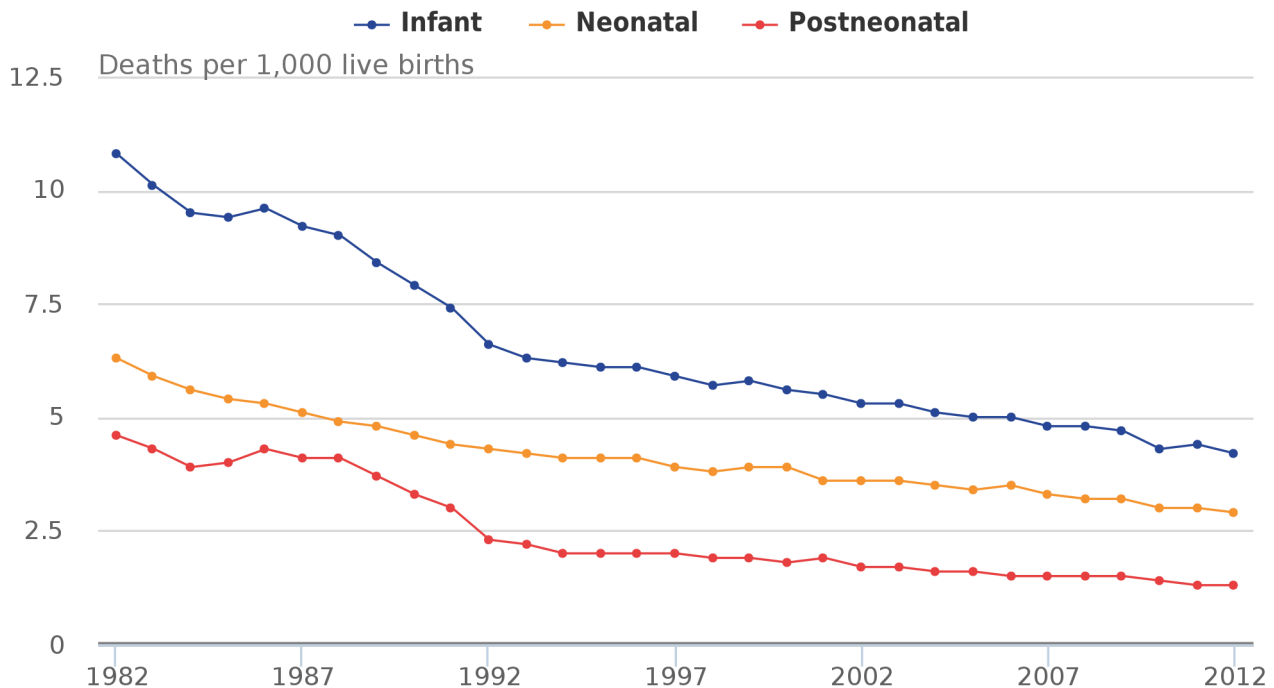
In 2012, the neonatal mortality rate (deaths under 28 days) decreased slightly to 2.9 deaths per thousand live births compared to 3.0 deaths per thousand live births 2011. The postneonatal mortality rate (deaths between 28 days and one year) remained at 1.3 deaths per thousand live births in 2012.

The perinatal mortality rate (stillbirths and deaths under 7 days) was 7.1 per thousand total births in 2012, compared with 7.6 in 2011.

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 1982 and 2012 the infant mortality rate fell by 61%, while the neonatal and postneonatal mortality rates fell by 54% and 72% respectively. However, the rates of change were not constant over the period: change in the first half of the period was nearly twice that in the second half.

Figure 2: Infant, neonatal and postneonatal mortality rates, 1982-2012

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in the calendar year

There are many established risk factors for infant mortality; prematurity, low birthweight and multiplicity being 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 \(720.5 Kb Pdf\)](#)).

6. Causes of death

Cancer accounted for nearly a third (29%) of all deaths registered in 2012, with an age-standardised rate of 2,004 deaths per million population for males and 1,471 deaths per million population for females. Cancer was also the most common cause of death in 2011 (30% of all deaths). Since 2002 death rates for cancer have fallen by 14% for males and 10% for females.

Circulatory diseases, such as heart disease and strokes accounted for over a quarter (28%) of all deaths registered in 2012. Between 2002 and 2012, the male and female age-standardised death rates for circulatory diseases fell by 44% to 1,746 deaths per million population for males and by 43% to 1,118 deaths per million population for females.

Over the course of the 20th and 21st 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 of these diseases. There have also been initiatives to improve people's health through better diet and lifestyle, for example, the Department of Health's '[Change4life campaign](#)' which began in 2009.

7. Death registrations by area of usual residence

A standardised mortality ratio (SMR) (see background note 4) is essentially a comparison of the number of the 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.

The North East had the highest SMR among the regions of England in 2012 with mortality levels 12 percentage points above the national level. In contrast, mortality levels were lowest in London and the South East (7 percentage points below the national level). 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).

In 2012, the local authority in England with the highest SMR was Burnley (33 percentage points above the national level) while Chiltern had the lowest (26 percentage points below the national level).

In Wales, Blaenau Gwent had the highest SMR (31 percentage points above the national level) while Ceredigion had the lowest (13 percentage points below the national level).

The substantial variation in mortality rates between different local areas reflects underlying differences in factors such as income deprivation, socio-economic status and health behaviour (for further information see '[Life Expectancy at birth and at age 65 for health areas in the United Kingdom](#)').

8. Infant mortality by region of usual residence

Infant mortality rates (based on death registrations – see background note 7) vary by region and can fluctuate over time. In 2012, the West Midlands had the highest regional infant mortality rate, with 5.5 deaths per thousand live births. The South East had the lowest with 3.4 deaths per thousand live births. Wales had an infant mortality rate of 4.1 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](#)).

9. Deaths in the UK

The provisional number of UK deaths registered in 2012 was 569,024. This is a rise of 3.0% compared with 2011 when there were 552,232 deaths.

In Scotland the number of deaths increased, from 53,611 in 2011 to 54,937 in 2012 (provisional figure), a rise of 2.4%. Northern Ireland also recorded a rise in the number of deaths, increasing by 3.9% to 14,756 in 2012 (provisional figure), from 14,204 in 2011.

10. Users and uses of death statistics

The Office for National Statistics uses mortality data to:

- produce population estimates and population projections at both national and subnational level
- quality assure Census estimates
- report on social and demographic trends
- carry out further analysis, for example life expectancies and causes of death (including deaths from injury and poisoning, certain infections and drug related deaths)
- further analyse 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 and whether the child was born as part of a multiple birth

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.

Infant mortality continues to take a central role in DH'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 feeds 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.

11. Further information

More data on [deaths](#) in England and Wales in 2012 are available on the ONS website.

Data on [Births in England and Wales in 2012](#) 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 \(2.7 Mb Pdf\)](#).

Further 2012 death statistics will be published later in 2013, see the [Publication Hub](#) for more details on releases.

[Mortality Statistics: Deaths registered in England and Wales \(series DR\), 2012](#) will be published in October /November 2013.

[Mortality statistics: Deaths registered in England and Wales by area of usual residence, 2012](#) will be published in December 2013/January 2014.

To meet user needs, very timely but provisional counts of death registrations are published as follows: [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 2013 have not been subject to the full quality

assurance process so figures are considered provisional. Monthly figures for 2012 will be updated to final figures on 23 July 2013.

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

International comparisons of 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.

12. References

Department for Health (2013), [Public Health Outcomes Framework](#)

Department for Health (2012), [NHS Outcomes Framework](#)

Department for Health (2009), [Change4life](#)

National Assembly for Wales (2013), [One-day inquiry into stillbirths in Wales](#).

Oakley L, Maconochie N, Doyle P, Dattani N and Moser K (2009) [Multivariate analysis of infant death in England and Wales in 2005–06 with focus on socio-economic status and deprivation \(720.5 Kb Pdf\)](#), Health Statistics Quarterly 42, pp 22–39

Stillbirth and Neonatal Death charity (SANDS), UK stillbirth and neonatal death charity, [Causes and risk factors for stillbirths](#) [accessed 3 July 2013]

13. Background notes

1. Death figures reported here are based on deaths registered in the data year. This includes some deaths that occurred in years prior to 2012 (20,598 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 2011 involving deaths occurring in 2011 was 463,450 while the number of 2011 death occurrences was 481,156 (a difference of 4%).
2. There is a large degree of comparability in death statistics between countries within the UK. However, 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](#) document for deaths.
3. The age-standardised mortality rates in this release cover all ages. Age-specific rates for 2012 are calculated using the mid-2012 population estimates based on the 2011 Census, and are then directly age-standardised to the European Standard Population, which allows comparisons between populations with different age structures, including 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. ONS will publish details of the impact of this change on age-standardised rates, and, following user engagement in summer 2013, the timetable for implementation of the new standard population in relevant publications.
4. A standardised mortality ratio (SMR) is essentially 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. In January 2011, the software used for cause of death coding was updated from the International Classification of Diseases, Tenth Revision (ICD–10) v2001.2 to v2010. 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. 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.
7. 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 2012 will be published in [Child Mortality Statistics](#) (this publication is based on death occurrences rather than registrations).
8. Coding underlying cause of death: the cause of death data are based on the final underlying cause of death, which takes account of 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 2012 have been coded to the Tenth Revision of the International Classification of Diseases and Related Health Problems (ICD–10) v2010.
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 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 444 110 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. The Health and Life Events user engagement strategy is available to download from the ONS website. 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.