

Statistical bulletin

# Deaths registered in England and Wales (series DR): 2016

Registered deaths by age, sex, selected underlying causes of death and the leading causes of death for both males and females.



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# 1 . Main points

- Dementia and Alzheimer disease remained the leading cause of death in England and Wales, accounting for 12.0% of all deaths registered in 2016, up from 11.6% in 2015.
- Ischaemic heart diseases remained the second leading cause of death in England and Wales, responsible for 11.0% of all deaths registered in 2016, down from 11.5% in 2015.
- For males, ischaemic heart diseases were the leading cause of death accounting for 13.7% of all male deaths in 2016, down from 14.3% in 2015.
- For females, the leading cause of death was dementia and Alzheimer disease accounting for 15.6% of all female deaths, up from 15.2% in 2015.
- Age-standardised death rates (ASMRs) for dementia and Alzheimer disease decreased for females for the first time in seven years, but continued to increase for males in 2016.

## 2 . Statistician's comment

"Dementia and Alzheimer's disease was once again the leading cause of death for England and Wales in 2016, with an increase in number of deaths compared with 2015. Although general increases in longevity and improved treatment of other conditions are part of the reason for this increase, improvements in recognition, identification and diagnosis of dementia and Alzheimer's disease have also contributed."

Vasita Patel, Vital Statistics Outputs Branch, Office for National Statistics. Follow [@StatsLiz](#) on Twitter.

## 3 . Things you need to know about this release

Important information for interpreting these mortality statistics:

- death statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, a legal requirement
- figures represent the number of deaths registered in the calendar year; this includes some deaths that occurred in the years prior to the calendar year (more information is available in the [Quality and methodology](#) section)
- figures represent deaths that occurred in England and Wales; these include the deaths of individuals whose usual residence was outside England and Wales
- summary figures and analysis of causes of death by broad disease were published in [Deaths registered in England and Wales, 2016](#) released in July 2017; these groupings can be found in section 10 of the [User Guide to Mortality Statistics](#)
- this release provides more detail on both individual causes of death and leading causes of death, where individual causes are aggregated using a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales; a small amendment has been made to this list (see [Quality and methodology](#) section)

## 4 . Dementia and Alzheimer disease remained the leading cause of death in 2016

There were 525,048 deaths registered in England and Wales in 2016, a 0.9% decrease from 2015. As previously reported in [Deaths registered in England and Wales, 2016](#), at the broad disease group level, cancer remained the most common cause of death in 2016 (28.5% of all deaths registered), followed by circulatory diseases, such as heart diseases and strokes (25.5%).

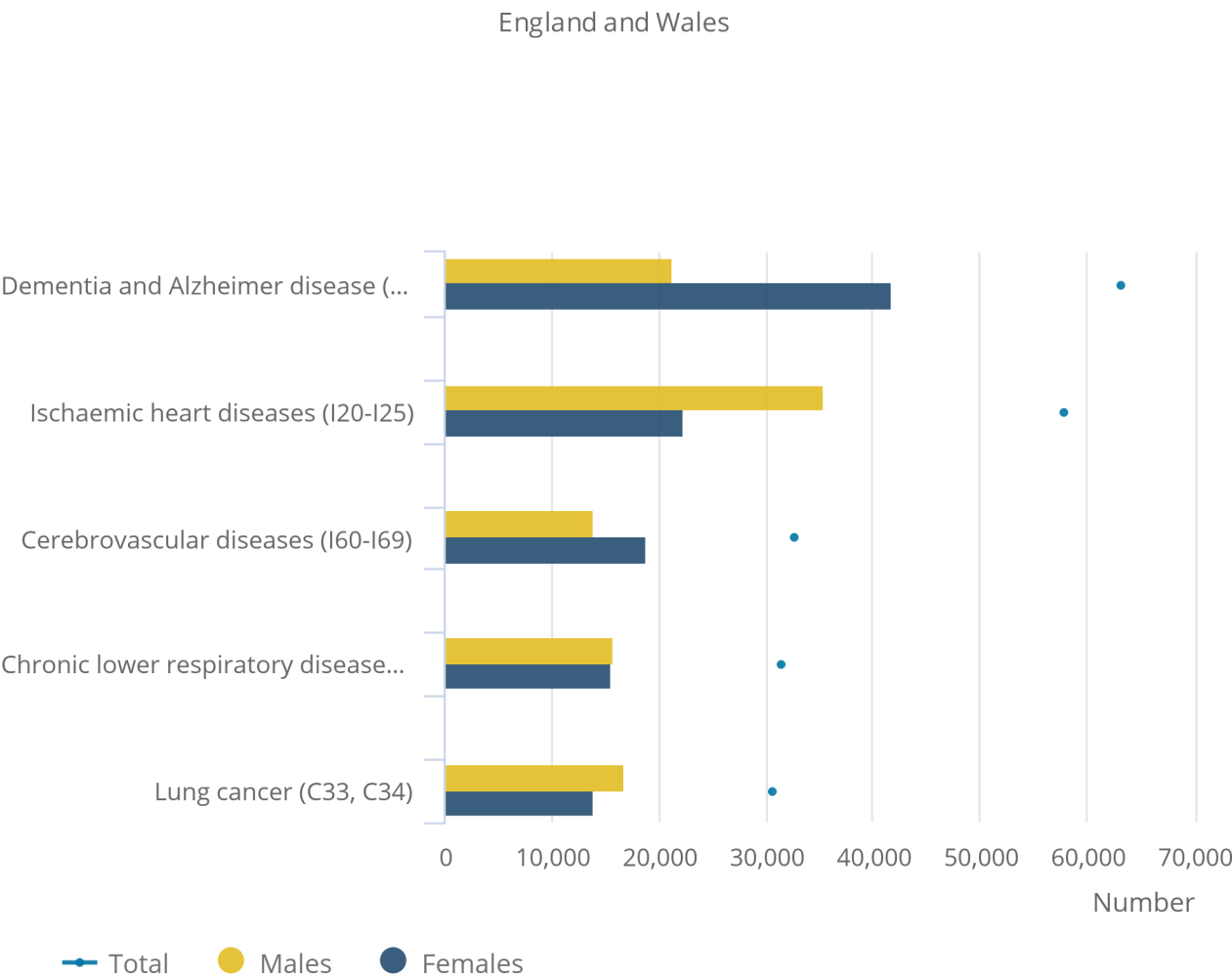
At a lower level, Office for National Statistics (ONS) uses a [grouping](#) based on one developed by the World Health Organization (WHO), which allows mortality patterns in England and Wales to be analysed.

The top five leading causes of death, using this grouping, account for 41.0% of all deaths registered in England and Wales in 2016 (Figure 1).

Figure 1: Number of deaths from top five leading causes, 2016

England and Wales

Figure 1: Number of deaths from top five leading causes, 2016



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

Dementia and Alzheimer disease remained the leading cause of death in England and Wales in 2016 accounting for 12.0% of all deaths registered; an increase from 11.6% in 2015 when it replaced ischaemic heart diseases as the leading cause. In contrast, the percentage of deaths to the second and third leading causes, ischaemic heart diseases and cerebrovascular diseases, decreased compared with 2015, from 11.5% to 11.0% and from 6.6% to 6.2% respectively.

There are several important reasons why the number of deaths from dementia and Alzheimer disease have increased in recent years.

People are tending to live longer for a variety of reasons, including improved lifestyles and medical advances in the treatment of many illnesses and diseases. Dementia and Alzheimer disease mainly affects people aged over 65 years. With people living longer and surviving other illnesses, the number of people developing dementia and Alzheimer disease is increasing. Male life expectancy has been improving at a slightly faster rate than women's in recent years and [men are tending to live longer than before](#), which is likely to have contributed to the 3.9% increase in the number of deaths from dementia and Alzheimer disease in men.

A better understanding of dementia and improved diagnosis is also likely to have caused increased reporting of dementia on death certificates. This is likely to be a consequence of ongoing [incentives put in place](#) in 2013 to 2014, such as the Prime Minister's [challenges on dementia](#) and the government's [mandate to NHS England](#), which includes an agreed ambition that two-thirds of the estimated number of people with dementia in England should have a diagnosis.

Updates to the coding framework used to code cause of death took place in 2011 and 2014 (more information on these updates is available in the [Quality and methodology section](#)).

## **5 . Age-standardised mortality rates for dementia decreased for the first time in seven years**

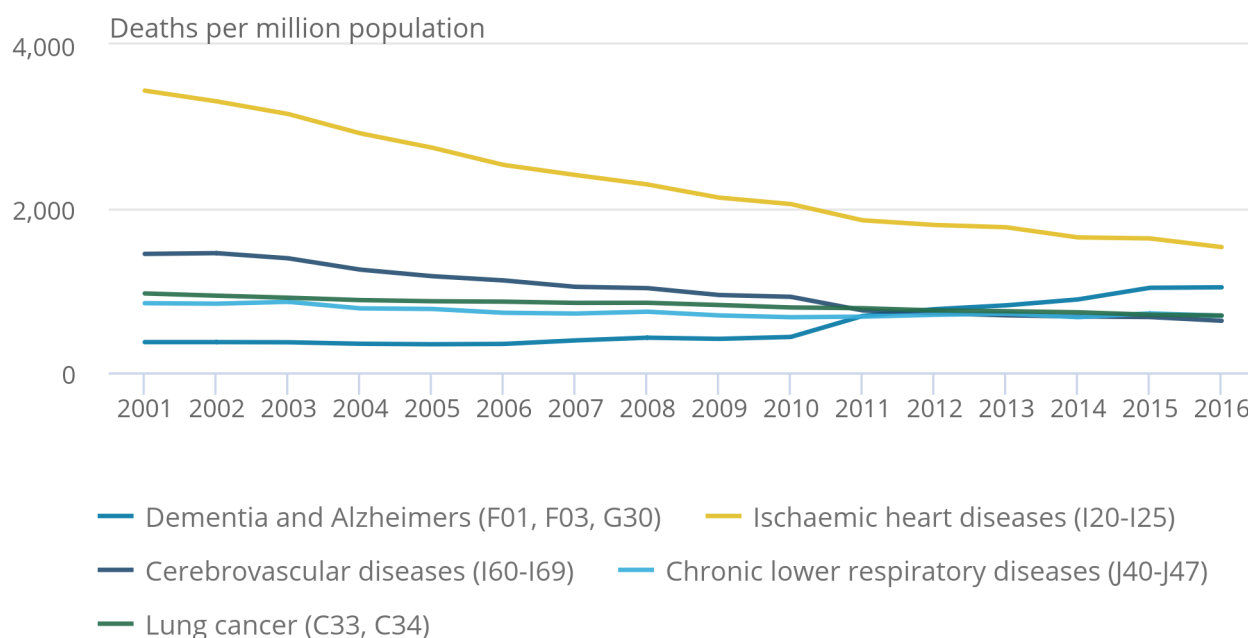
Age-standardised mortality rates for the top five leading causes of death have continued to fall since 2001, with the exception of dementia and Alzheimer disease (Figures 2 and 3). This is perhaps due to improvements in the treatment and diagnosis of these diseases and the introduction of [preventative programmes and awareness campaigns](#) that seek to improve people's health.

**Figure 2: Male age-standardised mortality rates for top five leading causes of death, 2001 to 2016**

England and Wales

Figure 2: Male age-standardised mortality rates for top five leading causes of death, 2001 to 2016

England and Wales



Source: Office for National Statistics

Notes:

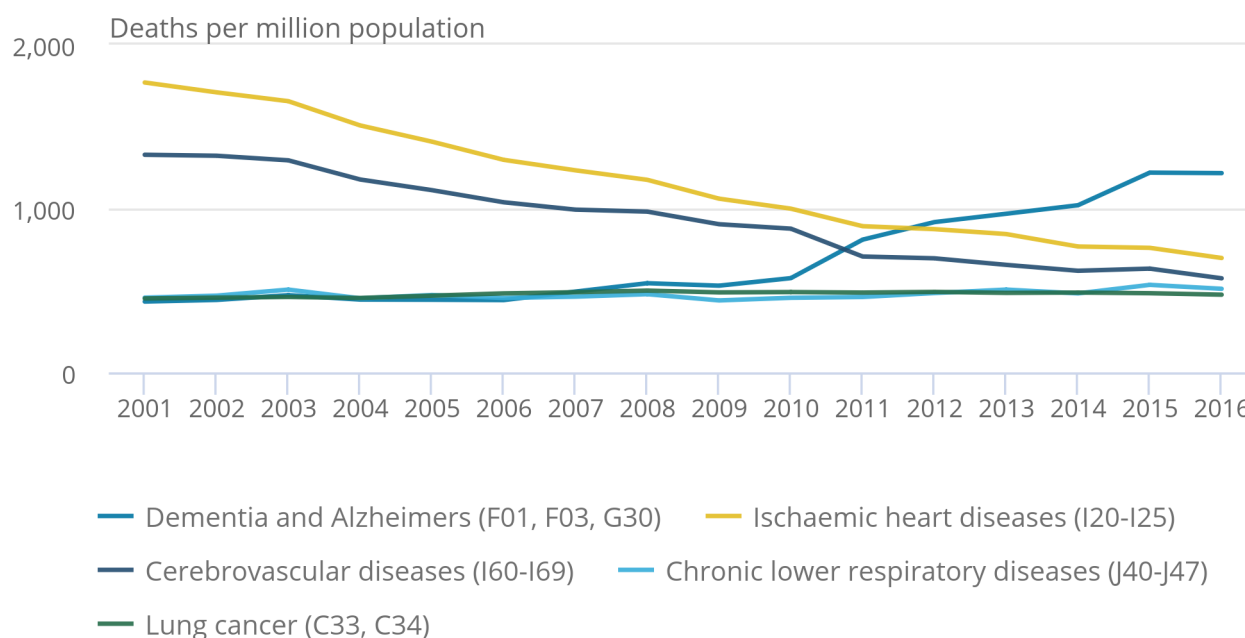
1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.
3. These rates are for all ages and are standardised to the 2013 [European Standard Population](#).

**Figure 3: Female age-standardised mortality rates for top five leading causes of death, 2001 to 2016**

England and Wales

**Figure 3: Female age-standardised mortality rates for top five leading causes of death, 2001 to 2016**

England and Wales



Source: Office for National Statistics

**Notes:**

1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.
3. These rates are for all ages and are standardised to the 2013 [European Standard Population](#).

Age-standardised mortality rates (ASMRs) for dementia and Alzheimer disease have been increasing in recent years for both males and females (Figures 2 and 3). In 2016, this trend continued for males, however, ASMRs for females decreased slightly, by 0.2%.

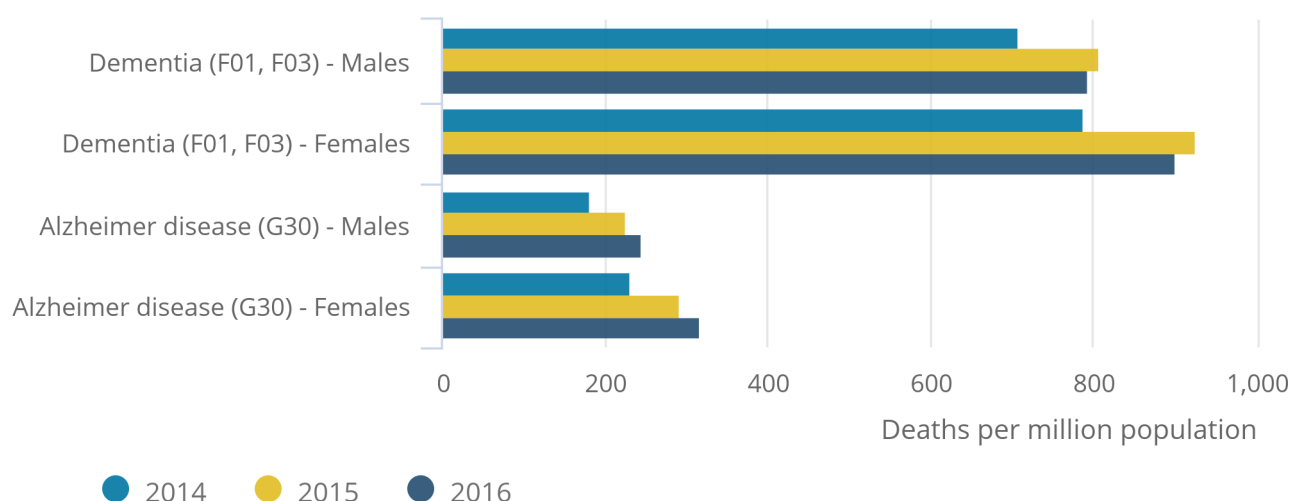
The decrease in the female ASMR for dementia and Alzheimer disease can be explained by looking at dementia and Alzheimer disease separately. ASMRs for dementia decreased for the first time in seven years, to 793 per million population for males and 900 per million population for females (Figure 4). This represents a 1.7% decrease for males and 2.8% decrease for females compared with 2015. In contrast, ASMRs for Alzheimer disease continued to increase in 2016, by 8.4% for males and 7.8% for females; a much smaller increase compared with the previous year (24.2% and 26.3% respectively).

**Figure 4: Age-standardised mortality rates for dementia and Alzheimer disease, 2014 to 2016**

England and Wales

**Figure 4: Age-standardised mortality rates for dementia and Alzheimer disease, 2014 to 2016**

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](#).

There have been recent efforts focussed on reducing the risk of developing dementia such as the [Blackfriars Consensus Statement](#) and national guidance on [mid-life approaches to delay or prevent the onset of dementia](#). [NHS Health Checks](#) also contain a dementia component to raise awareness and help promote a healthy lifestyle; reducing and monitoring risk factors for developing dementia, such as obesity, diabetes, high blood-pressure and raised cholesterol.

## 6 . Number of land transport accidents among males aged 5 to 19 years increased in 2016

Congenital malformations, deformations and chromosomal abnormalities remained the leading cause of death for boys and girls aged 1 to 4 years in 2016 (Figure 5). This cause accounted for 14.9% of male and female deaths in this age group, an increase from 10.9% in 2015.

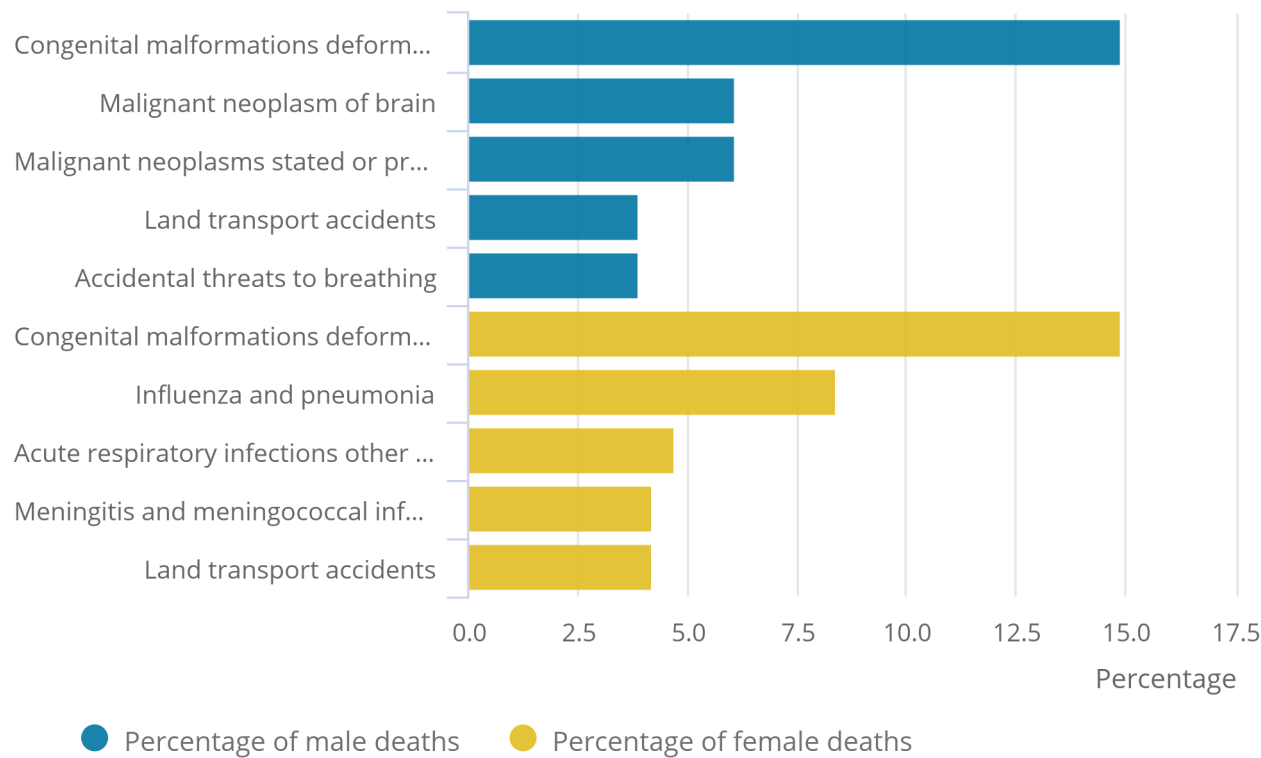


Figure 5: Top five leading causes of death for 1 to 4 year olds, 2016

England and Wales

Figure 5: Top five leading causes of death for 1 to 4 year olds, 2016

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

Suicide and injury or poisoning of undetermined intent remained the leading cause of death for both boys and girls aged 5 to 19 years in 2016, accounting for 15.2% and 9.6% of deaths respectively (Figure 6); a decrease from 2015. (The [National Statistics definition of suicide](#), used here, includes all deaths from intentional self-harm for persons aged 10 and over, and deaths where the intent was undetermined for those aged 15 and over).

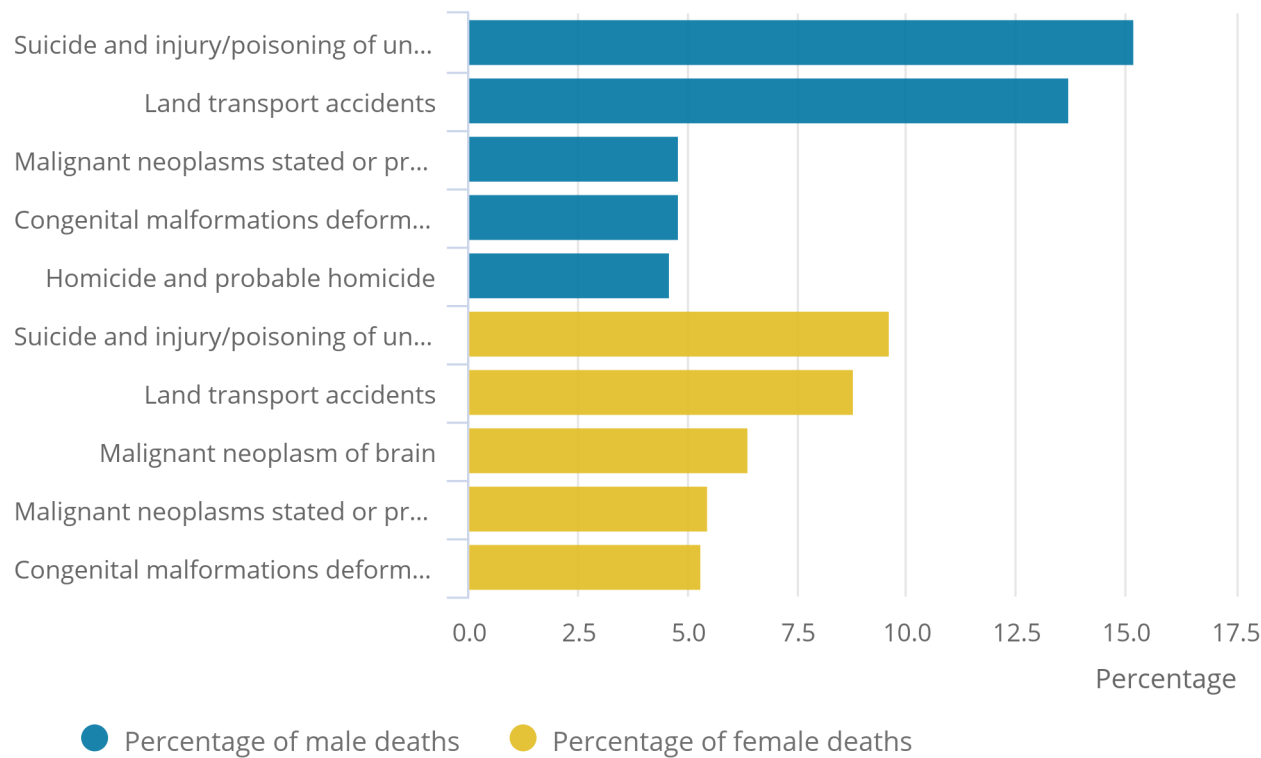
Land transport accidents were the second leading cause of death for boys and girls aged 5 to 19 years (Figure 6). The proportion of female deaths to land transport accidents at this age remained at 8.8% whilst it increased by 15.1% for males, from 11.9% in 2015 to 13.7% in 2016.

Figure 6: Top five leading causes of death for 5 to 19 year olds, 2016

England and Wales

Figure 6: Top five leading causes of death for 5 to 19 year olds, 2016

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. In England and Wales, a conclusion of suicide cannot be returned for children under the age of 10 years.
3. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

## 7 . Proportion of deaths to suicide decreased for males aged 20 to 49 years, but remained the leading cause at this age in 2016

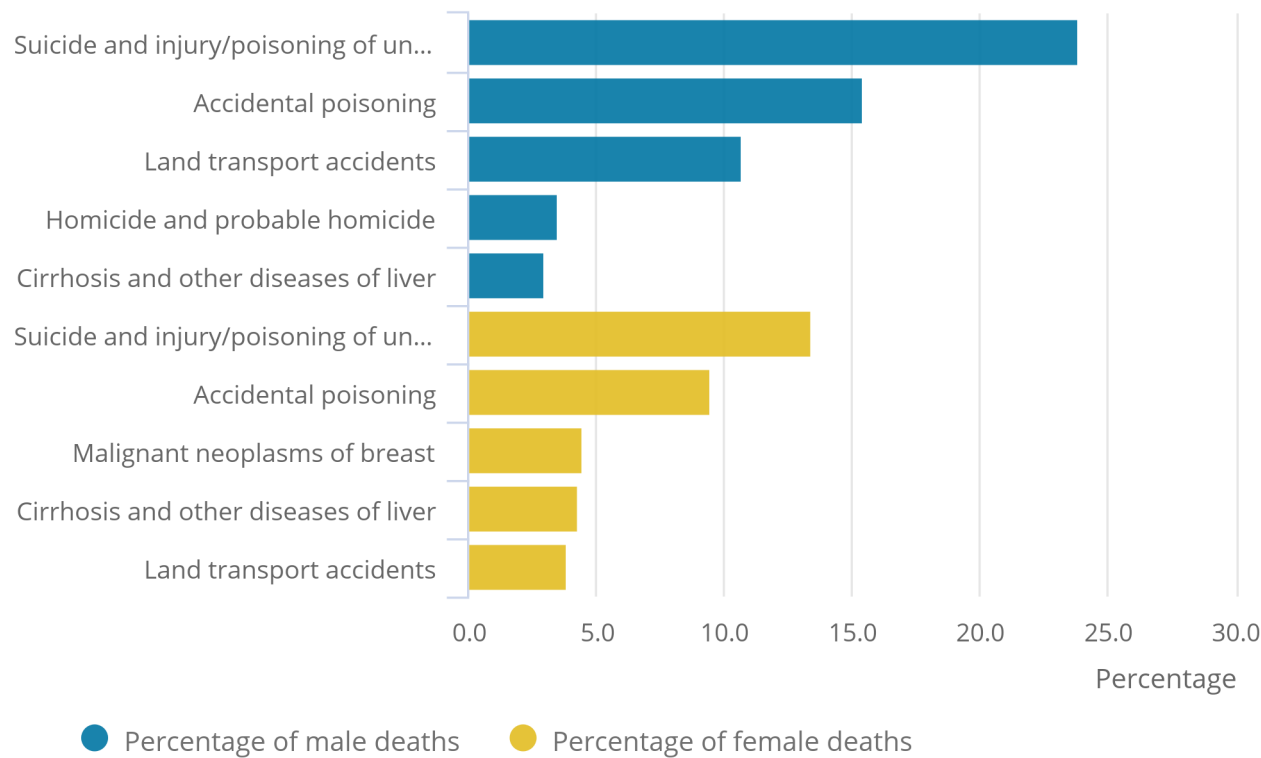
In 2016, there was a 4.2% decrease in the proportion of deaths to suicide and injury or poisoning of undetermined intent at ages 20 to 34 years, but it remained the leading cause of death for both males and females in this age group with 20.5% of all deaths (Figure 7).

Figure 7: Top five leading causes of death for 20 to 34 year olds, 2016

England and Wales

Figure 7: Top five leading causes of death for 20 to 34 year olds, 2016

England and Wales



Source: Office for National Statistics

Notes:

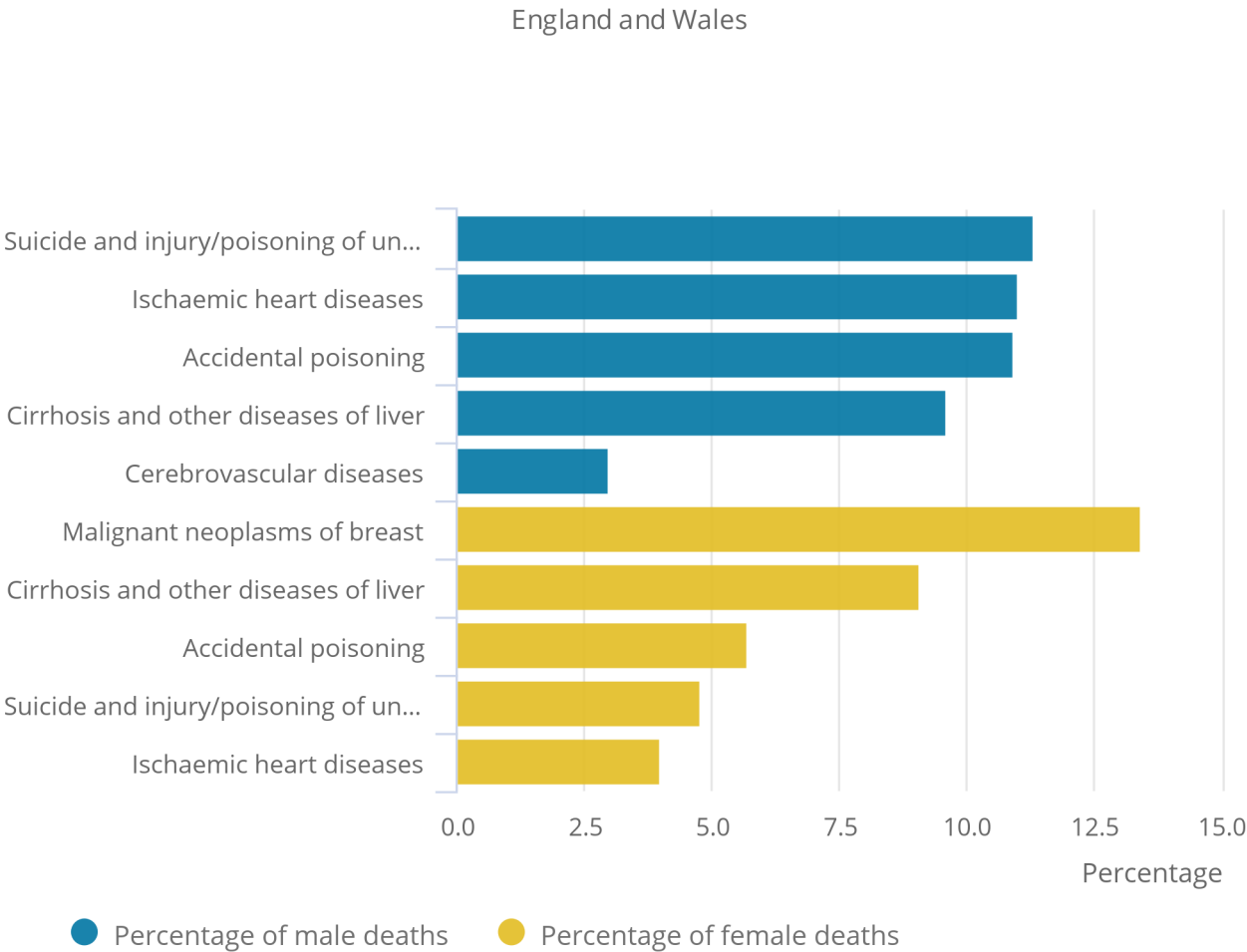
1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

This trend was similar for males aged 35 to 49 years, where suicide and injury or poisoning of undetermined intent remained the leading cause, accounting for 11.3% of male deaths in 2016 (Figure 8), compared with 11.8% in 2015. For females at this age, breast cancer remained the leading cause, accounting for 13.4% of female deaths, a slight decrease from 13.5% in 2015.

Figure 8: Top five leading causes of death for 35 to 49 year olds, 2016

England and Wales

Figure 8: Top five leading causes of death for 35 to 49 year olds, 2016



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

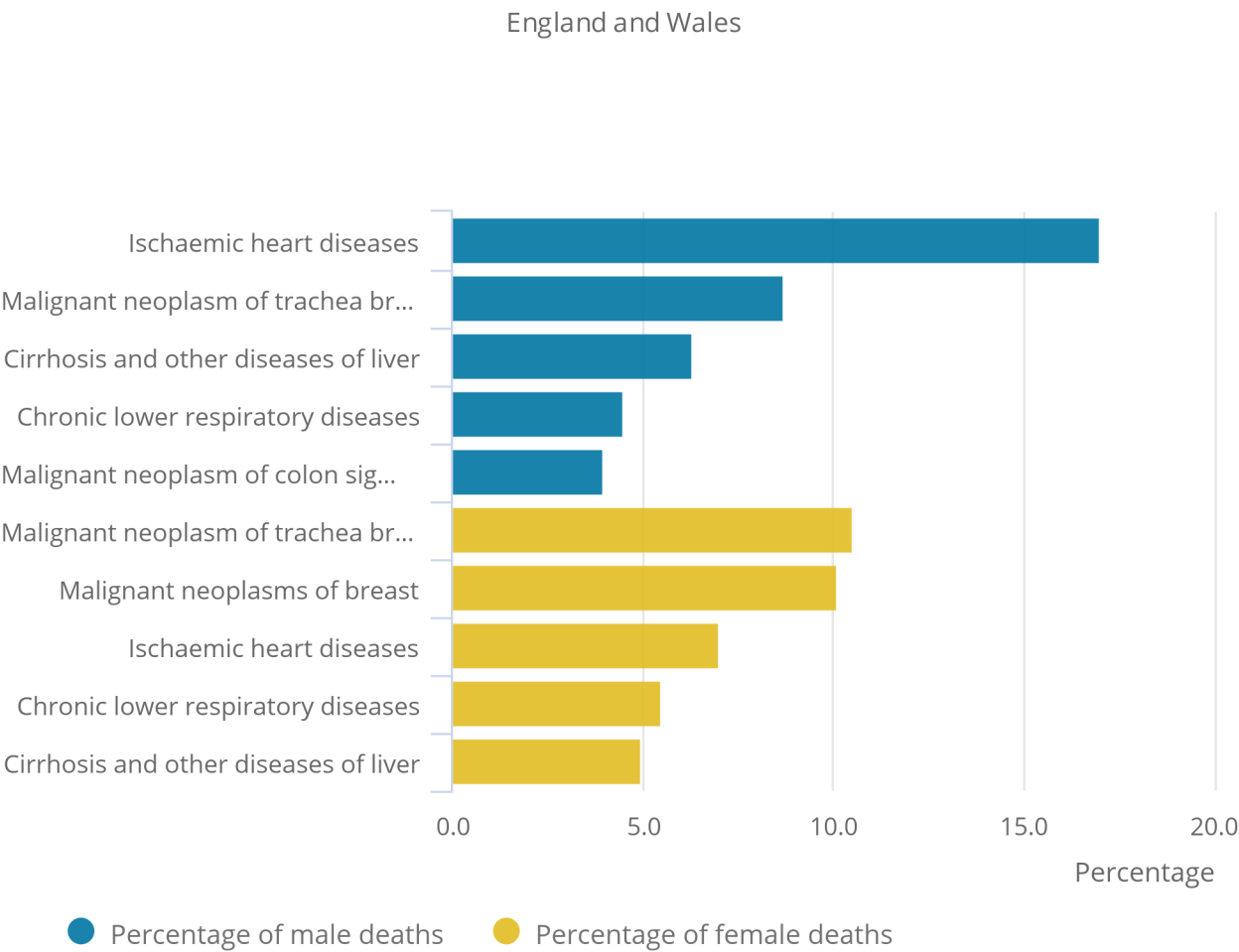
## 8 . Lung cancer remained the leading cause of death for women aged 50 to 79 years in 2016

The leading causes of death for both males and females aged 50 to 79 years in 2016 were due to long-term diseases and conditions (Figures 9 and 10). For females aged 50 to 79 years, lung cancer remained the leading cause of death, responsible for 10.5% of female deaths at this age group. Ischaemic heart diseases remained the leading cause for males aged 50 to 79 years, accounting for 15.7% of male deaths, followed by lung cancers, accounting for 9.5% of male deaths.

Figure 9: Top five leading causes of death for 50 to 64 year olds, 2016

England and Wales

Figure 9: Top five leading causes of death for 50 to 64 year olds, 2016



Source: Office for National Statistics

Notes:

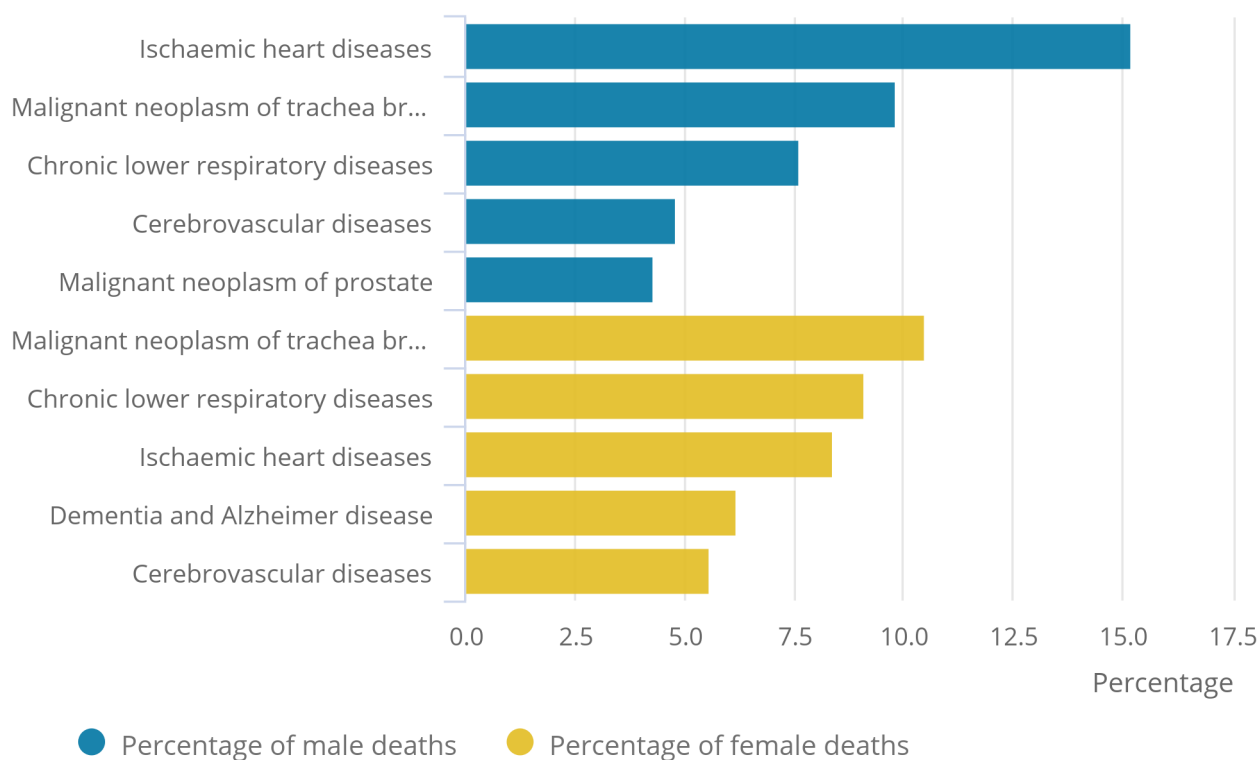
1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

**Figure 10: Top five leading causes of death for 65 to 79 year olds, 2016**

England and Wales

**Figure 10: Top five leading causes of death for 65 to 79 year olds, 2016**

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

## 9 . Dementia and Alzheimer disease remained the leading cause of death for those aged 80 and over

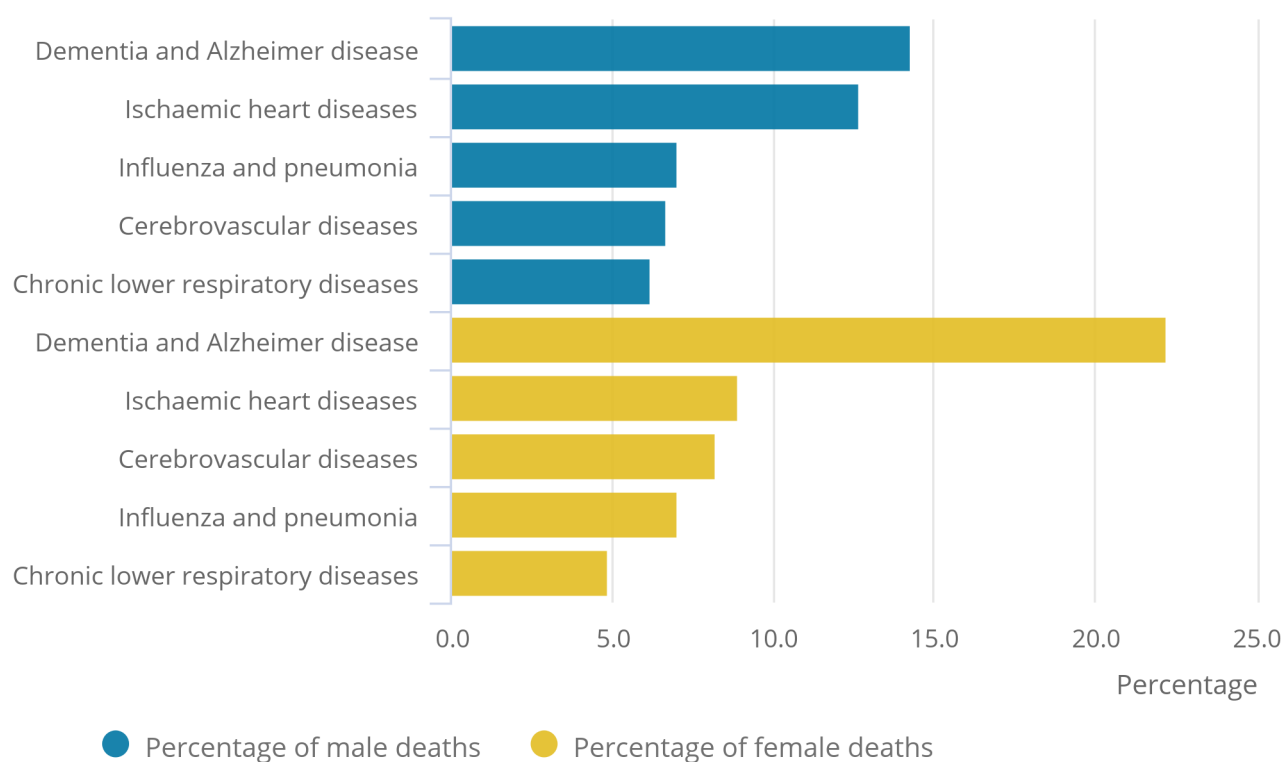
Dementia and Alzheimer disease remained the leading cause of death for both men and women aged 80 and over in 2016, accounting for 14.3% of male deaths and 22.2% of female deaths at this age (Figure 11). For those aged 80 and over, 18.9% deaths in 2016 were caused by dementia and Alzheimer disease, up from 18.1% in 2015.

**Figure 11: Top five leading causes of death for ages 80 and over, 2015**

England and Wales

**Figure 11: Top five leading causes of death for ages 80 and over, 2015**

England and Wales



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. The cause of death groups used here are based on a [list](#) developed by the World Health Organization (WHO), modified for use in England and Wales.

Alzheimer disease is the most common cause of dementia. Dementia and Alzheimer disease are more likely to [occur at older ages](#) with [Alzheimer disease affecting more women than men](#).

## 10 . Links to related statistics

More data on [deaths in England and Wales in 2016](#) are available.

More detailed data on underlying cause of death, area of usual residence, age and sex are available as an [explorable dataset](#). Data are available for 2013 to 2016 and are based on the year the death was registered. This dataset can also be used to extract mortality rates and the corresponding confidence intervals.

The number of deaths and death rates for the UK and constituent countries can be found in the [Vital Statistics: Population and Health Reference tables](#); an international comparison of numbers of deaths and death rates is also available. The [World Health Organization \(WHO\)](#) provides data on the leading causes of death in the world.

Further 2016 death statistics will be published later in 2017, see the [GOV.UK release calendar](#) for more details.

To meet user needs, very timely but provisional counts of death registrations are published:

- [provisional counts of weekly death registrations by sex, age group and region](#)
- [provisional counts of monthly death registrations by local authority](#)

Figures for 2017 have not been subject to the full quality assurance process so are considered provisional.

Special extracts and tabulations of deaths data for England and Wales are available to order (subject to legal frameworks, disclosure control, resources and the ONS charging policy, where appropriate). Enquiries should be made to Vital Statistics Outputs Branch ([vsob@ons.gsi.gov.uk](mailto:vsob@ons.gsi.gov.uk) or telephone: +44 (0)1329 444110). [User requested data](#) will be published onto our website.

## 11 . Quality and methodology



1. Mortality statistics are used for producing population estimates and projections and to quality assure the census estimates. They are also used to carry out further analysis on, for example: life expectancy; health expectancy; causes of death; and to further analyse infant mortality. They also enable the analysis of social and demographic trends.
2. The [Mortality Statistics Quality and Methodology Information](#) report contains important information on:
  - the strengths and limitations of the data and how it compares with related data
  - uses and users of the data
  - how the output was created
  - the quality of the output including the accuracy of the data
3. Our [User Guide to Mortality Statistics](#) provides further information on data quality, legislation and procedures relating to mortality and includes a glossary of terms. Information on how age-standardised mortality rates (ASMRs) are calculated is included.
4. Death figures reported here are based on deaths registered in the data year. This includes some deaths that occurred in the years prior to 2016 (23,166 deaths). ONS also take an annual extract of death occurrences in the autumn following the data year to allow for late registrations. Further information on the [impact of registration delays for a range of causes is available](#).
5. 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 the [Mortality Statistics Quality and Methodology Information](#) document.
6. The [Revisions policy for population statistics \(including mortality statistics\)](#) is available.
7. Deaths are cause coded using the World Health Organization's (WHO) International Classification of Diseases (ICD). Deaths are coded to ICD-10 using [IRIS](#) software (version 2013). Cause of death reported here represents the final underlying cause of death for ages 28 days and over. This takes account of additional information received from medical practitioners or coroners after the death has been registered.
8. Office for National Statistics (ONS) uses a [grouping](#) based on that developed by the World Health Organization (WHO), which allows mortality patterns in England and Wales to be analysed. A small amendment was made to this grouping in 2016, removing five ICD codes from the vaccine preventable diseases category to ensure mutual exclusivity within the list. Vaccine preventable diseases were not a leading cause in 2016 so this has had minimal effect on comparability with previous years. The [previous grouping](#) developed in 2015 is available.
9. The infant, neonatal and postneonatal mortality rates have been calculated using the number of deaths registered in the data year. These rates can also be calculated using the number of deaths occurring in the data year; such rates are less timely since the occurrences dataset can only be taken some nine months after the end of the data year to ensure it is acceptably complete.
10. In 2011, there was an update to the coding framework (detailed in the [bridge coding study](#)), used to code cause of death. This meant that deaths to vascular dementia that were previously coded to cerebrovascular disease (I60 to I69) would be coded to vascular dementia (F01). There were further changes to the framework in 2014 (detailed in the [dual coding study](#)), where deaths that were coded to chest infection (J98) would be now coded to chest infection (J22), but those with a mention of dementia (F01 or F03), would now be coded to dementia (F01 or F03). In addition to this, deaths that were previously coded to aspiration pneumonia (I69) where dementia was mentioned on the death certificate, would now be coded to dementia (F01 or F03).