

Statistical bulletin

Deaths registered in England and Wales: 2021 (refreshed populations)

Registered deaths by age, sex, selected underlying causes of death, leading causes of death. Death rates and registrations by residence area, single year of age.



Contact:
Fred Barton and Siôn Ward
health.data@ons.gov.uk
+44 1329 444110

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1 . Main points

- In 2021, there were 586,334 deaths registered in England and Wales, which was a decrease of 3.6% compared with 2020 (607,922 deaths).
- In 2021, there were more male deaths registered than female deaths (297,989 male deaths and 288,345 female deaths); this is the same as 2020 and only the second time this has been the case since 1981.
- Taking into account the population size and age structure, age-standardised mortality rates (ASMRs) in England and Wales decreased significantly, by 3.2% for both males and females.
- The North West was the region of England with the highest age-standardised mortality rate for males, replacing the North East in 2020, and the North East had the highest rate for females for the third consecutive year; the lowest ASMRs for both males and females were in the South West, the same region as in 2020.
- In Wales, the highest ASMR for both males and females was in Blaenau Gwent; the lowest ASMR for males was in Monmouthshire, and in Ceredigion for females.
- As in 2020, the leading cause of death in England and Wales in 2021 was coronavirus (COVID-19), with 67,350 deaths (11.5% of all deaths); the second most common cause of death was dementia and Alzheimer's disease, accounting for 10.4% of all deaths registered in 2021 (61,250 deaths).
- In 2021, the leading cause of death for males was ischaemic heart diseases (37,095 deaths, accounting for 12.4% of all male deaths), and for females was dementia and Alzheimer's disease (40,250 deaths; 14.0% of all female deaths).

2 . Age-standardised mortality rates: the effect of changing the population base

In July 2022, we published our [Deaths registered in England and Wales: 2021 bulletin](#). To allow for a timely release, the original publication used 2018-based population projections (PP) to calculate mortality rates. In this update, the latest mid-year population estimates for 2021 were used, based on [Census 2021 results](#), allowing for more accurate mortality rates and more robust interpretation. There will be no changes to the numbers of deaths registered. As the population change only affects rates, sections based on numbers of deaths (for example, leading causes) have not changed and can be found in the previous bulletin. This section explains some important differences between the two releases.

Overall, the 2018-based PP used in the previous release tend to be higher than the 2021 mid-year estimates (MYPE) used in this release (Table 1). Higher populations are likely to result in lower mortality rates, and this is generally reflected in the data.

Figure 1: Age-standardised mortality rates for England and Wales in 2021 are higher when using 2021 mid-year population estimates, compared with 2018-based population projections

Age standardised mortality rates (ASMRs) by sex, using 2018-based population projections and 2021 mid-year population estimates, England and Wales, deaths registered 2021

Figure 1: Age-standardised mortality rates for England and Wales in 2021 are higher when using 2021 mid-year population estimates, compared with 2018-based population projections

Age standardised mortality rates (ASMRs) by sex, using 2018-based population projections and 2021 mid-year population estimates, England and Wales, deaths registered 2021



Source: Office for National Statistics

Notes:

1. Based on deaths registered rather than deaths occurring in each calendar year.
2. Rates have been calculated using the most up-to-date population estimates when the statistics were published.
3. ASMRs are standardised to the 2013 European Standard Population, expressed per 100,000 population; they allow comparisons between populations with different age structures, including between males and females and over time. For more information on these rates, please see our [User guide to mortality statistics](#)

The overall age-standardised mortality rate (ASMR) for England and Wales is 1,014.3 deaths per 100,000 people when using 2021 mid-year population estimates (MYPE). This was statistically significantly higher than the 990.7 deaths per 100,000 people when using the 2018-based population projections (PP) (see Figure 1).

The ASMRs for people, males and females all showed an increase when using the 2021 MYPE, compared with the 2018-based PP. This was also seen when looking at geography breakdowns. The ASMRs using 2021 MYPE were higher in every English region than when 2018-based PP were used, with the East of England, London and South East all significantly higher among both males and females.

The population was mostly lower using 2021 MYPE compared with 2018-based PP. However, for females, the mid-year estimates for England and Wales, and for England separately, showed a higher population than the 2018-based PP used in the previous release.

Table 1: 2021 mid-year population estimates for England and Wales are generally lower than 2018-based population projections
Country-level populations by sex (2018-based projections and 2021 mid-year estimates), England and Wales, 2021

Geography	Population type	Persons	Males	Females
England and Wales 2018-based projection		60,144,476	29,760,427	30,384,049
England and Wales 2021 mid-year estimate		59,641,829	29,202,081	30,439,748
England	2018-based projection	56,989,570	28,203,353	28,786,217
England	2021 mid-year estimate	56,536,419	27,682,345	28,854,074
Wales	2018-based projection	3,174,970	1,566,893	1,608,077
Wales	2021 mid-year estimate	3,105,410	1,519,736	1,585,674

Source: Office for National Statistics

Notes

1. Based on boundaries as of November 2022.

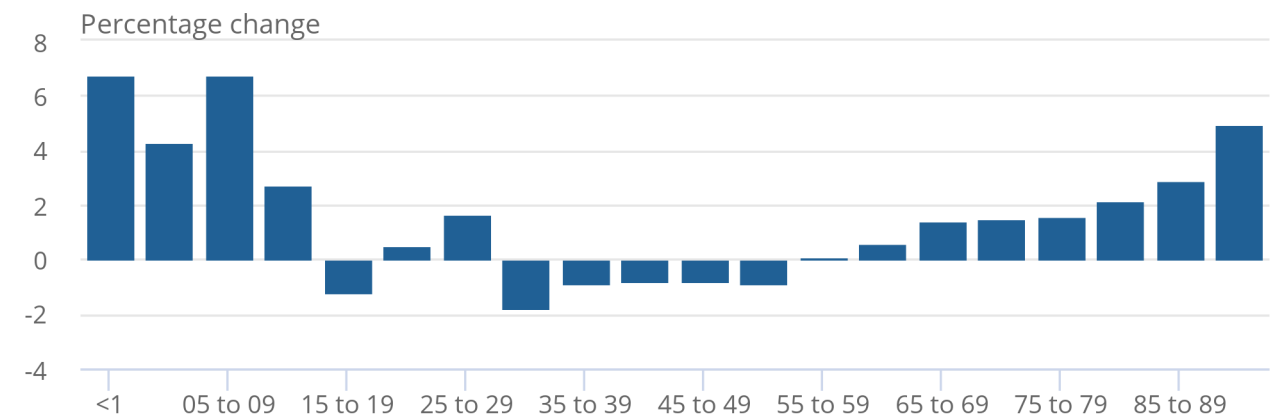
Although it is likely that increased populations will result in decreased ASMRs, this is not always the case. The data in Figure 1 and Table 1 show that an ASMR can still increase, even when calculated from an increased population. This is because ASMRs account not only for population size but also for age structure, using the European Standard Population (ESP) to apply a weight to each age group. For detailed information on the calculation of ASMRs, see our [User guide to mortality statistics](#).

Figure 2: Using the 2021 mid-year population estimates, crude mortality rates have increased in most age groups when compared with the 2018-based population estimates

Percentage change between crude mortality rates (per 100,000 population) using 2018-based population projections and 2021 mid-year population estimates, by age group, England and Wales, deaths registered 2021

Figure 2: Using the 2021 mid-year population estimates, crude mortality rates have increased in most age groups when compared with the 2018-based population estimates

Percentage change between crude mortality rates (per 100,000 population) using 2018-based population projections and 2021 mid-year population estimates, by age group, England and Wales, deaths registered 2021



Source: Office for National Statistics

Notes:

- 1. Based on deaths registered rather than deaths occurring in each calendar year.
- 2. Rates have been calculated using the most up-to-date population estimates when the statistics were published.
- 3. Crude mortality rate is expressed per 100,000 population.

3 . Number of deaths registered in 2021

As this section is based on numbers of deaths and not rates, there is no change compared with the previous release. We have kept this section here as a summary.

In 2021, there were 586,334 deaths registered in England and Wales; this was a decrease of 3.6% compared with 2020 (607,922 deaths). A larger decrease in deaths compared with 2020 was seen in females (3.8% lower) than males (3.3% lower) (see Figure 3). In part, this may be explained by the continually higher numbers of coronavirus (COVID-19) deaths in males; the mortality rate for deaths due to COVID-19 was statistically significantly higher in males than females in 2021, as observed in 2020. For further information, please see our [Deaths registered due to COVID-19, in England and Wales, 2021 article](#).

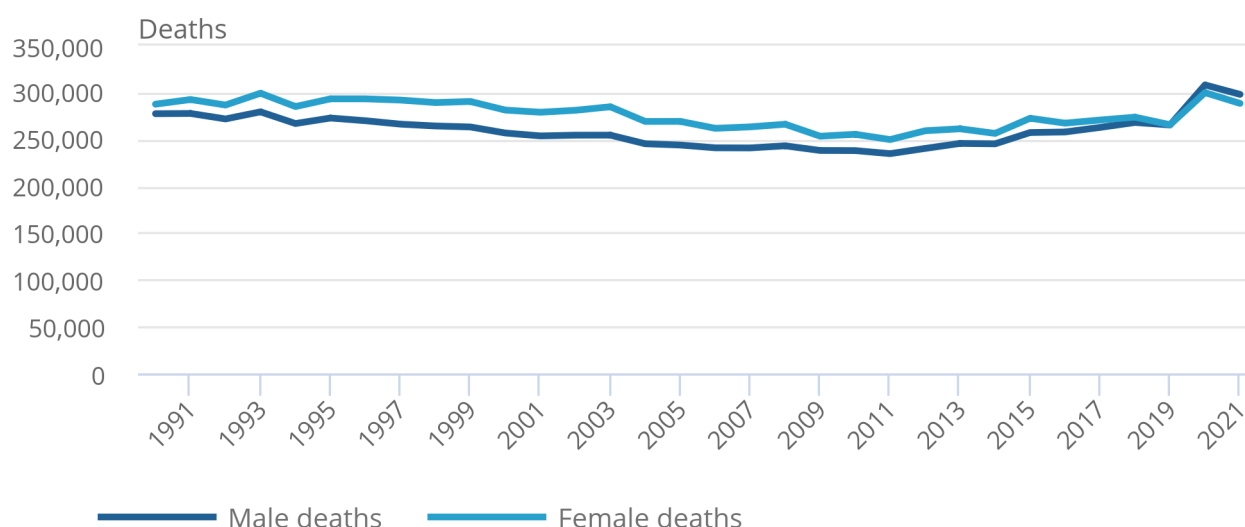
Figure 3 shows that the difference in the number of deaths between males and females had been decreasing, with a difference of 241 deaths between females and males in 2019. In 2020, the pattern reversed, with 8,216 more deaths in males than females; this was the first time that more males died than females in England and Wales since 1981. In 2021, this trend continued, with the gap between male and female deaths widening to 9,644.

Figure 3: In 2021, the number of deaths in England and Wales decreased by 3.6% compared with 2020

Deaths registered in England and Wales, 1990 to 2021

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Deaths registered in England and Wales, 1990 to 2021



Source: Office for National Statistics

Notes:

1. Based on deaths registered in each calendar year.
2. 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 [Section 8: Measuring the data](#).

Looking at our entire data time series back to 1838 (see Figure 4), the number of deaths registered in 2021 was the tenth highest. However, it is important to recognise that the population of England and Wales has grown over this period. For this reason, we have included crude mortality rates per 100,000 people, which provide fairer comparisons between years than numbers of deaths alone. The crude mortality rates showed that rates in 2021 were the joint second highest since 2003. They were lower than those for every year from 1953 (when our time series began) to 2003. These rankings are unchanged from when the 2018-based population projections (PP) were used. For mortality rates taking into account changes in age structure, see [Section 4](#).

Figure 4: The number of deaths in 2021 was the tenth highest in our data time series

Deaths registered and crude mortality rates, England and Wales, 1838 to 2021

Notes:

1. Based on deaths registered rather than deaths occurring in a calendar year.
2. The population estimates used to calculate crude death rates for England, Wales, and England and Wales from 1938 to 1980 are rounded to the nearest hundred for each single year of age. Figures based on these rounded population estimates are of a slightly lower level of accuracy than the figures for 1981 onwards.
3. Figures for England and Wales include deaths of non-residents.
4. Rates have been calculated using the most up-to-date population estimates when the statistics were published.

Download the data

[.xlsx](#)

More about coronavirus

- Find the latest on [coronavirus \(COVID-19\) in the UK](#).
- [Explore the latest coronavirus data](#) from the ONS and other sources.
- View [all coronavirus data](#).

4 . Age-standardised mortality rates by sex

Age-standardised mortality rates (ASMRs) are a better measure of mortality than the number of deaths, as they account for the population size and age structure.

Since 2001, mortality rates had generally been decreasing. However, following the early 2010s, we have seen a significant [slowdown in mortality improvements](#), with ASMRs in recent years declining at a slower rate than before 2010, and increasing in some years (see Figure 5).

In 2020, mortality rates for both males and females significantly increased in comparison with the previous year. This increase was linked to the ongoing coronavirus (COVID-19) pandemic, with the first deaths due to COVID-19 registered in England and Wales in March 2020. In 2021, however, the age-standardised mortality rates for both males and females significantly decreased. There were 1,196.8 deaths per 100,000 males (3.2% lower than in 2020) and 865.6 deaths per 100,000 females (3.2% lower than in 2020). This decrease was seen when using 2018-based population projections (PP), however using 2021 mid-year population estimates (MYPE) has meant that the percentage changes compared with 2020 have narrowed from 6.3% (males) and 5.0% (females).

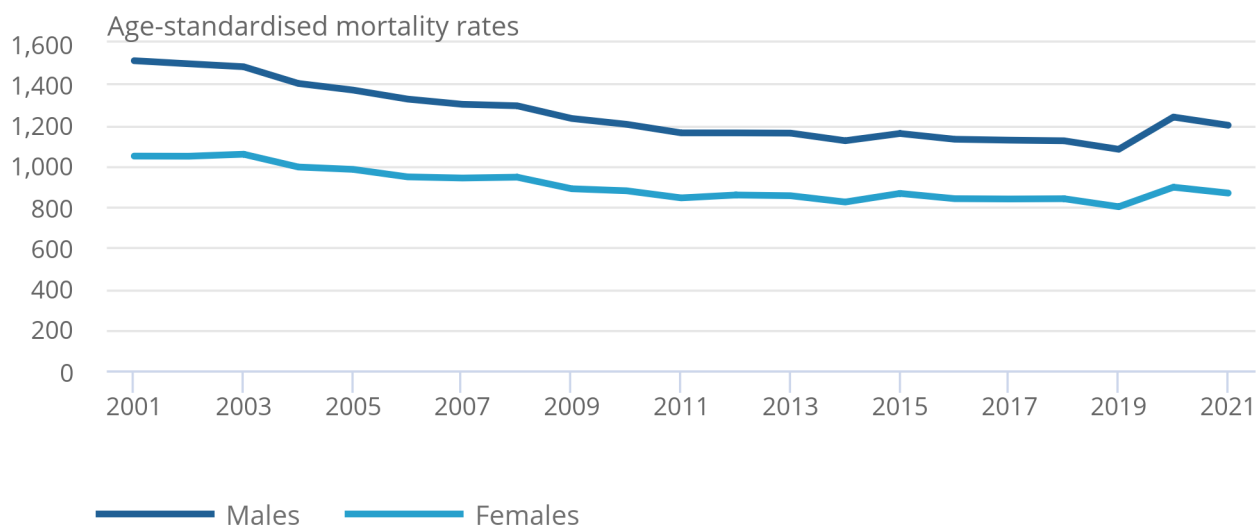
Despite this decrease from 2020, the ASMRs in 2021 remained high relative to other years in the preceding decade; they were statistically significantly higher for both males and females in 2021 than in each year from 2011 to 2019, excluding only 2015 for females.

Figure 5: Age-standardised mortality rates for males and females remained relatively high in 2021, but significantly decreased from 2020

Age-standardised mortality rates (ASMRs), England and Wales, 2001 to 2021

Figure 5: Age-standardised mortality rates for males and females remained relatively high in 2021, but significantly decreased from 2020

Age-standardised mortality rates (ASMRs), England and Wales, 2001 to 2021



Source: Office for National Statistics

Notes:

1. Based on deaths registered rather than deaths occurring in each calendar year.
2. ASMRs are standardised to the 2013 European Standard Population, expressed per 100,000 population; they allow comparisons between populations with different age structures, including between males and females and over time. For more information on these rates, please see our [User guide to mortality statistics](#).
3. Rates have been calculated using the most up-to-date population estimates when the statistics were published.

5 . Age-standardised mortality rates by area

In 2021, there were 549,349 deaths from all causes in England and 36,135 deaths in Wales. As previously reported, in both countries, the age-standardised mortality rates (ASMRs) using 2018-based population projections (PP) were significantly higher for males (1,190.3 deaths per 100,000 males in England, and 1,272.4 deaths per 100,000 males in Wales) than for females (860.2 deaths per 100,000 females in England, and 935.2 deaths per 100,000 females in Wales).

Another trend that held across the different populations was that the ASMRs in Wales were higher than in England for both males and females, as seen in previous years. ASMRs for males and females in both countries significantly decreased in 2021 compared with 2020.

Among males in 2021, the ASMRs were significantly lower than in 2020 in the North East, North West, Yorkshire and the Humber, East Midlands and West Midlands regions. No significant difference in rates was observed in the East of England, London, South East and South West regions. This trend was almost identical for females, excluding the South East, where a significant decrease was observed. This represents a noticeable difference from the rates calculated from 2018-based PP. When such projections were used, the ASMRs were significantly lower among males in every English region, when compared with 2020. Among females, they were significantly lower in all regions other than the East of England and South West, where no significant differences were observed.

Using the 2018-based PP, the region with the highest male ASMR in 2021 was the North East. Using 2021 mid-year populations estimates (MYPE), this changed to the North West, which had a mortality rate of 1314.0 deaths per 100,000 males, replacing the North East in 2020. The region with the lowest male ASMR also changed when the MYPE were used. London had the lowest male ASMR using 2018-based PP, whereas using MYPE three regions had a lower ASMR than London: the East of England, South East, and South West. The lowest ASMR was observed in the South West with 1079.4 deaths per 100,000 males, the same trend observed in 2020.

The highest ASMR for females was in the North East (971.3 deaths per 100,000 females), the same as when 2018-based PP were used. Although London showed the lowest female ASMR with 2018-based PP, when 2021 MYPE were used the lowest ASMR was again in the South West (782.5 deaths per 100,000 females) (see Table 2).

Table 2: The North West was the English region with the highest age-standardised mortality rate for males, whereas the North East had the highest rate for females

Age-standardised mortality rates (ASMRs) by sex, in English regions and Wales, 2021

Region	Age-standardised mortality rate per 100,000 males	Age-standardised mortality rate per 100,000 females
North East	1300.7	971.3
North West	1314.0	954.3
Yorkshire and The Humber	1229.2	907.9
East Midlands	1223.2	892.1
West Midlands	1248.6	894.9
East of England	1136.5	831.0
London	1190.6	821.9
South East	1107.0	791.6
South West	1079.4	782.5
Wales	1272.4	935.2

Source: Office for National Statistics

Notes

1. Figures by region exclude deaths of non-residents; geographical boundaries are correct as of November 2022.
2. Rates have been calculated using the most up-to-date population estimates when the statistics were published.
3. ASMRs are standardised to the 2013 European Standard Population, expressed per 100,000 population; they allow comparisons between populations with different age structures, including between males and females and over time. For more information on these rates, please see our User guide to mortality statistics.

The difference between the regions with the highest and lowest mortality rates had increased in recent years, but it narrowed in 2021 compared with 2020. For all people in 2021, there was a difference of 204.2 deaths per 100,000 population between the region with the highest (the North East) and lowest (London) mortality rate, compared with a difference of 277.1 deaths in 2020 between the North East and South West.

Figure 6: Age-standardised mortality rates by sex and area of usual residence, England and Wales, deaths registered 2021

Notes:

1. Figures by local authority exclude deaths of non-residents; geographical boundaries are correct as of November 2022.
2. Rates have been calculated using the most up-to-date population estimates when the statistics were published.
3. The Isles of Scilly (E06000053) has been grouped with Cornwall (E06000052) because of the very small number of deaths in this area.
4. Age-standardised mortality rates (ASMRs) are standardised to the 2013 European Standard Population, expressed per 100,000 population; they allow comparisons between populations with different age structures, including between males and females and over time. For more information on these rates, please see our [User guide to mortality statistics](#).

Download the data

[.xlsx](#)

Among English local authorities, and similarly to when 2018-based PP were used, Blackpool had the highest overall mortality rate for males (1,677.6 deaths per 100,000 males, replacing Manchester in 2020). Whereas the lowest male mortality rate was observed in Westminster when 2018-based PP were used, using MYPE, Hart had the lowest mortality rate for males (791.6 deaths per 100,000 males, replacing the City of London in 2020).

Using 2018-based PP, Middlesbrough had the highest ASMR for females of all English local authorities. With 2021 MYPE, though, this changed to Knowsley (1,232.8 deaths per 100,000 females, replacing Middlesbrough in 2020). The local authority with the lowest ASMR for females also changed when MYPE were used, from the City of London to Horsham (619.8 deaths per 100,000 females, replacing the City of London in 2020).

There were also changes observed in Welsh local authorities when 2021 MYPE were used. Instead of Neath Port Talbot, Blaenau Gwent had the highest overall male ASMR, at 1498.8 deaths per 100,000 males, replacing Merthyr Tydfil in 2020. The lowest male mortality rate in Wales remained in Monmouthshire (1,039.1 deaths per 100,000 males).

Among females, these local authority rankings remained the same across the different populations used. The lowest overall female mortality rate was in Ceredigion (769.6 deaths per 100,000 females, replacing Monmouthshire in 2020). As in 2020, Blaenau Gwent had the highest rate for females (1,235.3 deaths per 100,000 females).

Information regarding deaths due to COVID-19, by local authority, is available in our [Deaths due to COVID-19, registered in England and Wales: 2021 article](#).

6 . Deaths registered in England and Wales data

[Deaths registered in England and Wales: 2021 \(refreshed populations\)](#)

Dataset | Released 27 January 2023

Annual data on deaths registered by age, sex and selected underlying cause of death. Tables also provide both mortality rates and numbers of deaths over time.

[Deaths registered in England and Wales – 21st century mortality](#)

Dataset | Released 1 July 2022

Annual data on the number of deaths registered in England and Wales by age group, sex, year and underlying cause of death, as defined using the International Classification of Diseases, Tenth Revision.

[Explorable dataset of deaths registered in England and Wales](#)

Dataset | Released July 2022

Mortality statistics for deaths registered in 2013 to 2021. Numbers of deaths and age-standardised rates by age, sex, year, geography, and cause of death International Classification of Diseases, tenth edition (ICD-10) classification and leading causes of death. Deaths by deprivation indices in England and Wales, sex and single year of age, deaths registered in 2021.

[Deaths registered in England and Wales by deprivation](#)

Dataset | Released 1 July 2022

Number of deaths registered by deprivation decile, by sex and single year of age.

7 . Glossary

Age-standardised mortality rates

Age-standardised mortality rates (ASMRs) are used to allow comparisons between populations that may contain different proportions of people of different ages. The 2013 European Standard Population is used to standardise rates; more information is available in our [User guide to mortality statistics](#).

Coronaviruses

The World Health Organization (WHO) defines coronaviruses as "a large family of viruses that are known to cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS)". Between 2001 and 2018, there were 12 deaths in England and Wales due to a coronavirus infection, with a further 13 deaths mentioning the virus as a contributory factor on the death certificate.

Coronavirus (COVID-19)

COVID-19 refers to the "coronavirus disease 2019" and is a disease that can affect the lungs and airways. It is caused by a type of coronavirus. Further information is available from the [World Health Organization \(WHO\)](#).

Registration delay

Mortality statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, which is a legal requirement. According to the [Births and Deaths Registration Act 1953](#), a death should be registered within five days unless it is referred to a coroner for investigation. Mortality statistics for a given time period can be based on occurrence (death date) or registration (registration date); registration delay is the difference between date of occurrence and date of registration.

Statistical significance

The term "significant" refers to statistically significant changes or differences. Significance has been determined using the 95% confidence intervals, where instances of non-overlapping confidence intervals between estimates indicate the difference is unlikely to have arisen from random fluctuation. More information is available on our [uncertainty pages](#).

Crude mortality rates

Crude mortality rates are used to allow comparisons between populations of different sizes, so are a better measure to compare across time than numbers of deaths alone. However, crude rates do not take account of differences in the structure of populations such as the age and sex distribution (see "age-standardised mortality rates" in this glossary). More information is available in our [User guide to mortality statistics](#).

8 . Measuring the data

This publication provides information concerning mortality rates and causes of death registered in 2021; this includes deaths where coronavirus (COVID-19) was the underlying cause of death.

When interpreting these mortality statistics, please note that:

- death statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, which is a legal requirement
- this release provides both summary figures and more detail on both individual causes of death and [selected 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 – deaths where COVID-19 was the underlying cause have been included in this release using the ICD-10 definition U07.1, U07.2 and U10.9
- summary figures published in the [accompanying dataset](#) include analysis of causes of death by broad disease groupings (a list of these is available in [Section 10 of our User guide to mortality statistics](#))

Methodology guides

More quality and methodology information (QMI) on strengths, limitations, appropriate uses, and how the data were created is available in our [Mortality statistics in England and Wales QMI](#).

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 also included.

Our [Revisions policy for population statistics \(including mortality statistics\)](#) is also available.

Coding of deaths

Deaths are cause coded using the World Health Organization's (WHO) [International Classification of Diseases, tenth edition \(ICD-10\)](#). 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.

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 from 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 now be coded to chest infection (J22), but those with a mention of dementia (F01 or F03) would now be coded to dementia (F01 or F03). Additionally, 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).

On 1 January 2020, we updated the software used to code causes of death and derive a single underlying cause. This is known as Multicausal and Unicausal Selection Engine (MUSE) (IRIS version 5.5). More information is available on the [differences caused by the change of software](#).

Populations

In this release, mortality rates for 2021 were calculated using provisional mid-year 2021 population estimates. These are the latest population estimates at the time of production and are Census 2021-based estimates. These estimates are due to be revised again in 2023, along with the back series to 2012, in line with normal practice following the decennial census. Care should be taken when comparing rates from 2021 with previous years until the back series has been revised.

Mid-2021 population estimates were not available at the time of publication of our [Deaths registered in England and Wales: 2021 bulletin](#), so mortality rates for 2021 were calculated using 2018-based population projections. We have now revised the 2021 mortality rates using the provisional 2021 mid-year estimates. We will update time series data tables in our next releases when the revised 2012 to 2021 mid-year estimates become available.

9 . Strengths and limitations

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 effect on the comparability of the statistics. These differences are outlined in our [Mortality statistics in England and Wales QMI](#).

Death figures reported here are based on deaths registered in the data year. These include some deaths that occurred in the years prior to 2021 (32,593 out of 586,334 deaths). The Office for National Statistics (ONS) also takes 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.

Figures in this release only represent deaths that were registered in England and Wales; these include some deaths of individuals whose usual residence was outside England and Wales (850 of the 586,334 deaths registered in 2021), while any deaths of residents that happened abroad are not included.

10 . Related links

[Monthly mortality analysis, England and Wales: December 2022](#)

Bulletin | Released 20 January 2023

Provisional death registration data for England and Wales, broken down by sex, age and country. Includes deaths due to coronavirus (COVID-19) and leading causes of death.

[Where to find statistics on UK deaths involving the coronavirus \(COVID-19\) and infection rates by country](#)

Article | Released 19 May 2020

Links to statistics on coronavirus (COVID-19) deaths and infection rates published by the different constituent countries of the UK.

[The top 10 causes of death](#)

Web page | Released 9 December 2020

The World Health Organization (WHO) provides data on the leading causes of death in the world.

[Births in England and Wales: 2021](#)

Bulletin | Released 9 August 2022

Live births, stillbirths and the intensity of childbearing, measured by the total fertility rate.

11 . Cite this statistical bulletin

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