

Statistical bulletin

# Monthly mortality analysis, England and Wales: October 2022

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.

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# 1 . Main points

- In October 2022, there were 45,353 deaths registered in England, 4,006 deaths (9.7%) above the October five-year average (2016 to 2019, and 2021) and there were 2,975 deaths registered in Wales, 176 deaths (6.3%) above the October average.
- The leading cause of death in both England and Wales in October 2022 was dementia and Alzheimer's disease (11.6% of all deaths in England and 10.9% of all deaths in Wales).
- Coronavirus (COVID-19) was the eighth leading cause of death in October 2022 in England (accounting for 3.3% of all deaths) and the seventh leading cause of death in Wales (3.5% of all deaths).
- Accounting for population size and age structure, the year-to-date (January to October) age-standardised mortality rate (ASMR) in 2022 in both England (936.4 deaths per 100,000 people) and Wales (1,010.4 deaths per 100,000 people) was significantly lower than most years since our data time series began in 2001.

## 2 . Death registrations and the overall mortality rate for October 2022

There were 45,353 deaths registered in England in October 2022, based on provisional data. This was 1,921 more deaths than in October 2021 and 4,006 more deaths (9.7%) than the five-year average (2016 to 2019, and 2021).

In Wales, the provisional number of deaths registered in October 2022 was 2,975. This was 17 fewer deaths than in October 2021 and 176 more deaths (6.3%) than the five-year average for October.

The five-year average for 2022 has been provided for 2016 to 2019, and 2021. This moves our five-year average along by a year, but does not include the exceptionally high number of deaths seen in 2020. This is so that deaths in 2022 are compared with a five-year average that is up to date (rather than 2015 to 2019) while still being close to representing a usual (non-coronavirus (COVID-19) pandemic) year. For more information, see our blog, [Understanding excess deaths during a pandemic](#).

Age-standardised mortality rates (ASMRs) are used for comparisons over time rather than numbers of deaths, because ASMRs account for changes to the population size and age structure.

Since the beginning of our time series in 2001, mortality rates have generally been decreasing for the month of October.

In England, the highest mortality rate for the month of October was in 2002, at 1,231.6 deaths per 100,000 people. This was [statistically significantly](#) higher than the October ASMR for most other years in the data time series. The lowest mortality rate for October was in 2016 at 868.0 deaths per 100,000 people. This was significantly lower than the October ASMR in most other years in the data time series.

In 2022, the October ASMR for England was 932.3 deaths per 100,000 people. This was significantly higher than the October 2021 ASMR (911.5 deaths per 100,000 people).

In Wales, the highest mortality rate for October was in 2001 (1,314.2 deaths per 100,000 people), which was statistically significantly higher than most other years in the data time series. Like England, the lowest ASMR was in 2016 (937.6 deaths per 100,000 people). This was significantly lower than the October ASMR in most other years in the data time series.

In October 2022, the ASMR in Wales was 1,004.3 deaths per 100,000 people. This was lower than the October 2021 ASMR (1,030.7 deaths per 100,000 people), however this difference was not significant.

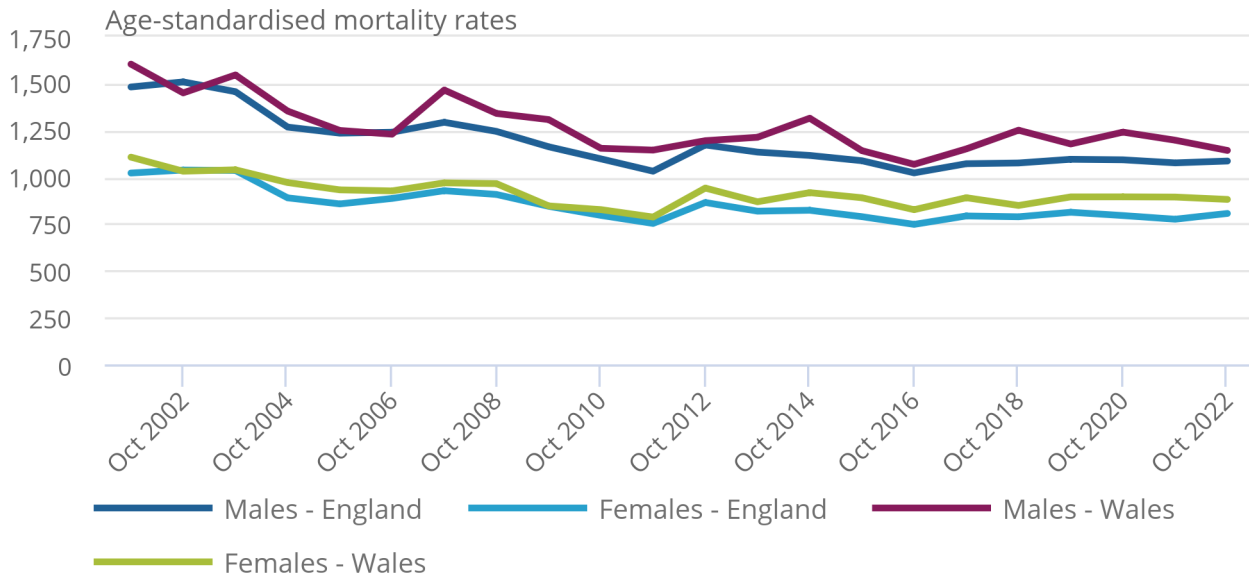
These patterns in ASMRs over time was similar in both males and females (Figure 1).

**Figure 1: Mortality rates for October 2022 were higher compared with October 2021 in England and lower in Wales, but these changes were not significant in Wales**

Age-standardised mortality rates by sex, England and Wales, deaths registered in October 2001 to October 2022

Figure 1: Mortality rates for October 2022 were higher compared with October 2021 in England and lower in Wales, but these changes were not significant in Wales

Age-standardised mortality rates by sex, England and Wales, deaths registered in October 2001 to October 2022



Source: Office for National Statistics – Monthly mortality analysis

Notes:

1. Age-standardised mortality rates per 100,000 people, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see the [Measuring the data section](#).
2. Figures are for deaths registered rather than deaths occurring in each period.
3. Figures for 2022 are based on provisional mortality data and both 2021 and 2022 are based on projected populations.
4. Figures exclude non-residents.

### 3 . Deaths due to COVID-19 registered in October 2022

The doctor certifying a death can list all causes in the chain of events that led to the death, and pre-existing conditions that may have contributed to the death. Using this information, we determine an underlying cause of death. More information on this process can be found in our [User guide to mortality statistics](#).

In this bulletin, we use the term "due to COVID-19" when referring only to deaths with an underlying cause of death of COVID-19. We use the term "involving COVID-19" when referring to deaths that had COVID-19 mentioned anywhere on the death certificate, whether as an underlying cause or not.

For more information on our definition of coronavirus (COVID-19) deaths, see [Section 10: Measuring the data](#).

The first deaths involving COVID-19 were registered in England and Wales in March 2020. Since then, COVID-19 was the underlying cause of death in most deaths that involved COVID-19 (84.9% in England, 83.7% in Wales).

The proportion of deaths due to COVID-19 (of all deaths involving COVID-19) increased between September and October 2022 in both England (from 61.4% to 65.6%) and Wales (from 68.7% to 70.1%) (Figure 2).

#### **Figure 2: The proportion of deaths due to COVID-19, when COVID-19 was mentioned anywhere on the death certificate, increased in both England and Wales in October 2022 compared with September 2022**

Percentage of deaths involving COVID-19 that were due to COVID-19, England and Wales, deaths registered in March 2020 to October 2022

##### Notes:

1. Figures are for deaths registered rather than deaths occurring in each period.
2. Figures for 2022 are based on provisional mortality data.
3. Figures exclude non-residents.
4. Deaths "due to COVID-19" include only deaths where COVID-19 was the underlying cause of death, whereas deaths "involving COVID-19" include deaths where COVID-19 was mentioned anywhere on the death certificate. For more information on our definitions of COVID-19 deaths, see the [Measuring the data section](#).
5. Because of small numbers, the proportions for May 2021 and June 2021 in Wales should be interpreted with caution.

##### Download this data

[.xlsx](#)

Of the 45,353 deaths registered in October 2022 in England, 3.3% (1,512 deaths) were due to COVID-19. This was almost double the number of deaths registered in September 2022 that were due to COVID-19 (781 deaths, 1.8% of all deaths). Including all deaths involving COVID-19 (2,305 deaths), this percentage increased to 5.1% of all deaths in England.

In Wales, 3.5% of the 2,975 deaths registered in October 2022 were due to COVID-19 (103 deaths). This was almost double the number of deaths registered in September 2022 that were due to COVID-19 (57 deaths, 2.1%). Including all deaths involving COVID-19 (147 deaths), this percentage increased to 4.9% of all deaths in Wales in October 2022.

## Mortality rates for deaths due to COVID-19

The age-standardised mortality rate (ASMR) for deaths due to COVID-19 in England [statistically significantly](#) increased to 31.0 deaths per 100,000 people in October 2022, from 16.7 deaths per 100,000 people in September 2022.

In Wales, the ASMR also increased significantly to 34.6 deaths per 100,000 people in October 2022, compared with 19.9 deaths per 100,000 people in October 2022.

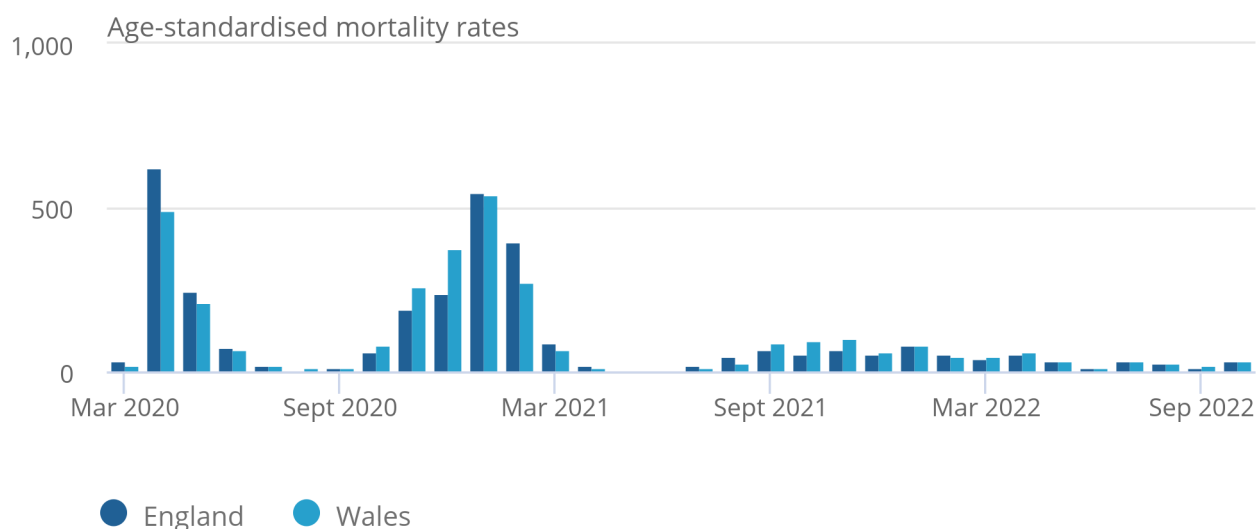
These figures are similar to those seen in previous months, suggesting that the significantly lower deaths in September 2022 may have been an anomaly.

### Figure 3: Mortality rates due to COVID-19 increased significantly in October 2022 compared with September 2022, in both England and Wales

Age-standardised mortality rates for deaths due to COVID-19, per 100,000 people, England and Wales, deaths registered in March 2020 to October 2022

### Figure 3: Mortality rates due to COVID-19 increased significantly in October 2022 compared with September 2022, in both England and Wales

Age-standardised mortality rates for deaths due to COVID-19, per 100,000 people, England and Wales, deaths registered in March 2020 to October 2022



Source: Office for National Statistics – Monthly mortality analysis

#### Notes:

1. Age-standardised mortality rates per 100,000 people, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see the [Measuring the data section](#).
2. Figures for 2022 are based on provisional mortality data and both 2021 and 2022 are based on projected populations.
3. Figures exclude non-residents of England and Wales.
4. Deaths "due to COVID-19" include only deaths where COVID-19 was the underlying cause of death, whereas deaths "involving COVID-19" include deaths where COVID-19 was mentioned anywhere on the death certificate. For more information on our definitions of COVID-19 deaths, see the [Measuring the data section](#).
5. Because of small numbers, the rate for May 2021 in Wales is unreliable (19 deaths) so should be interpreted with caution, and the rate for June 2021 (3 deaths) has not been calculated and is denoted as [x] in the data downloads.

These patterns in ASMRs were similar for males and females in England and in Wales. More information on mortality rates by sex is available in our [accompanying dataset](#).

### **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 . Leading causes of death

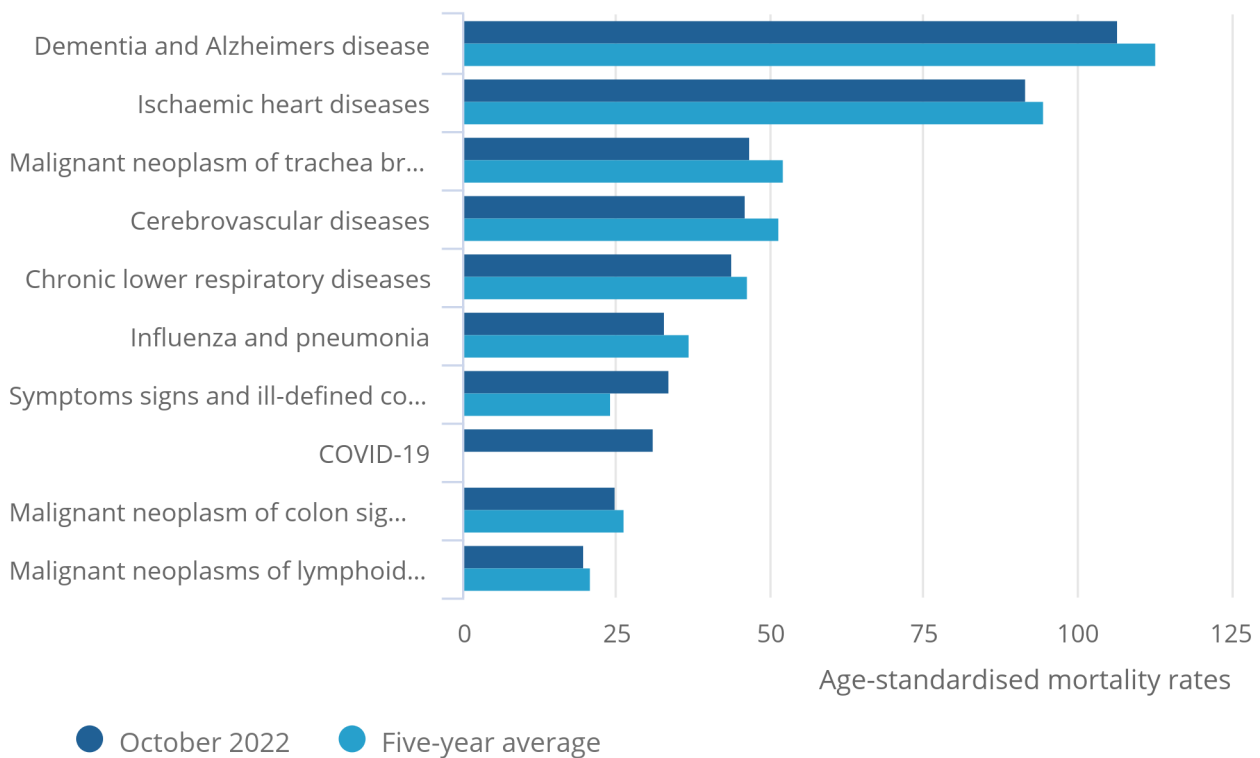
The 10 most common underlying causes of death registered in October 2022, compared with the five-year average for October (2016 to 2019, and 2021), for England and Wales, respectively, are shown in Figures 4 and 5. Causes of death are based on our [leading causes of death groupings](#).

### Figure 4: In England, dementia and Alzheimers disease remained the leading cause of death in October 2022

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, England, deaths registered in October 2022

#### Figure 4: In England, dementia and Alzheimers disease remained the leading cause of death in October 2022

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, England, deaths registered in October 2022



Source: Office for National Statistics – Monthly mortality analysis

Notes:

1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see the [Measuring the data section](#).
2. Figures for 2022 are based on provisional mortality data and both 2021 and 2022 are based on projected populations.
3. Based on underlying cause of death.
4. Figures exclude deaths of non-residents.
5. The five-year average has been provided for 2016 to 2019 and 2021 because of the impact of the coronavirus pandemic on deaths registered in 2020. This provides an up to date (rather than 2015 to 2019) comparison of the number of deaths expected per month in a usual (non-coronavirus pandemic) year. Where a five-year average cannot be provided, it is denoted as "[z]" in the data downloads.
6. Leading causes are ranked based on number of deaths, not age-standardised mortality rates.

In England, dementia and Alzheimer's disease remained the leading cause of death in October 2022 (for the 16th consecutive month), with 106.7 deaths per 100,000 people (5,249 deaths). Coronavirus (COVID-19) was the eighth leading cause of death in October 2022, at 31.0 deaths per 100,000 people (1,512 deaths), increasing from 12th leading cause of death in September 2022. The COVID-19 mortality rate was [statistically significantly](#) lower than the top five leading causes of death, and significantly higher than all causes ranked lower.

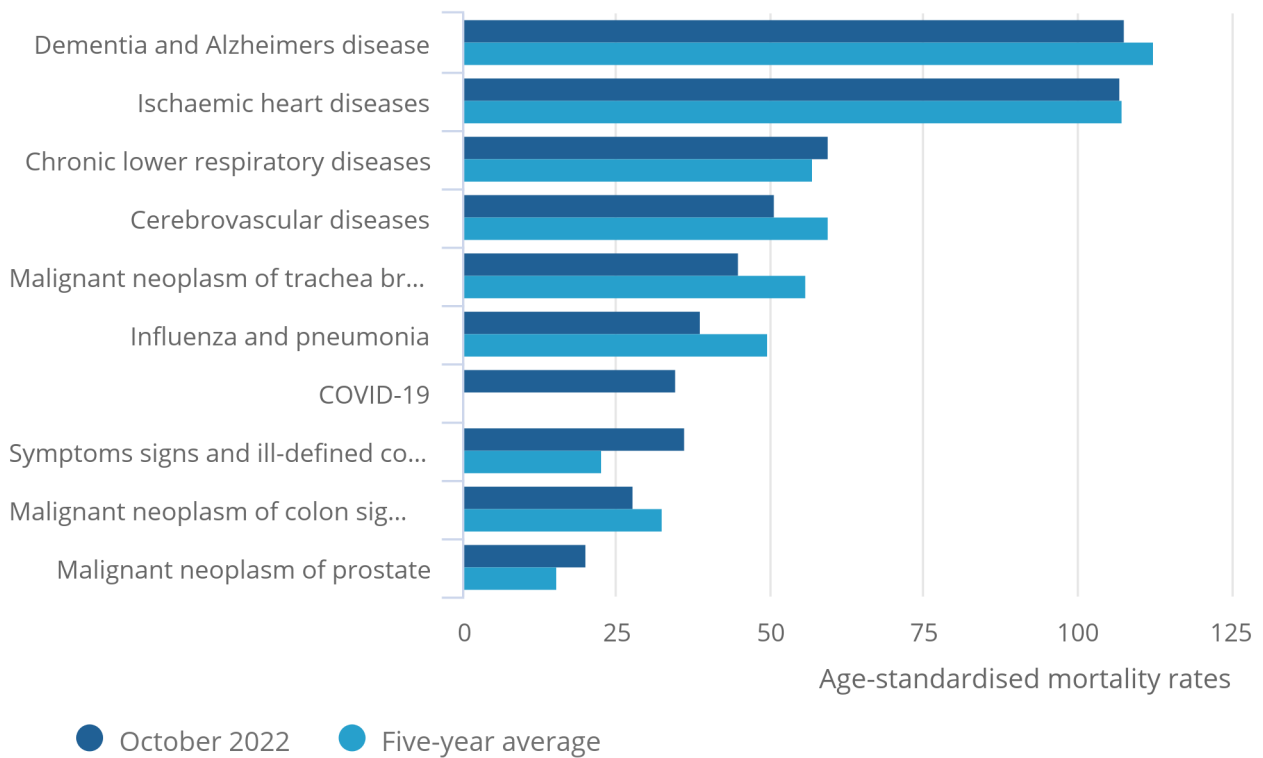
In England in October 2022, mortality rates for 4 of the 10 leading causes of death were significantly lower than the five-year average. The mortality rate for symptoms, signs, and ill-defined (33.5 deaths per 100,000 people) was statistically significantly higher (39.6% higher) than the five-year average in England for the 16th consecutive month. This leading cause group includes mostly deaths with a code for "old age" but is also used for causes such as "frailty".

**Figure 5: In Wales, dementia and Alzheimers disease remained the leading cause of death in October 2022**

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in October 2022

Figure 5: In Wales, dementia and Alzheimers disease remained the leading cause of death in October 2022

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in October 2022



Source: Office for National Statistics – Monthly mortality analysis

Notes:

1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see the [Measuring the data section](#).
2. Figures for 2022 are based on provisional mortality data and both 2021 and 2022 are based on projected populations.
3. Based on underlying cause of death.
4. Figures exclude deaths of non-residents.
5. The five-year average has been provided for 2016 to 2019 and 2021 because of the impact of the coronavirus pandemic on deaths registered in 2020. This provides an up-to-date comparison (rather than 2015 to 2019) of the number of deaths expected per month in a usual (non-coronavirus pandemic) year. Where a five-year average cannot be provided, it is denoted as "[z]" in the data downloads.
6. Leading causes are ranked based on number of deaths, not age-standardised mortality rates.

In Wales, the leading cause of death was also dementia and Alzheimer's disease (for the third consecutive month), with 108.0 deaths per 100,000 people (324 deaths). COVID-19 was the seventh leading cause of death in October 2022 at 34.6 deaths per 100,000 (103 deaths), increasing from the 10th leading cause in September 2022. This was statistically significantly lower than the top four leading causes of death, and significantly higher than causes ranked 10th and lower.

In Wales in October 2022, 8 out of the 10 leading causes of death were not significantly different than the five-year average. The mortality rate for symptoms, signs, and ill-defined conditions (36.1 deaths per 100,000 people) was statistically significantly higher (58.3% higher) than the five-year average.

## Leading causes of death registered in the year-to-date

In the first 10 months (January to October) of 2022, the leading cause of death in England was dementia and Alzheimer's disease (105.5 deaths per 100,000 people). In Wales, the year-to-date leading cause of death was ischaemic heart diseases (110.6 deaths per 100,000 people).

In England, the year-to-date COVID-19 mortality rate remained the sixth leading cause of death (39.3 deaths per 100,000 people). This was statistically significantly lower than the top five leading causes of death, and significantly higher than all causes ranked lower.

In Wales, deaths due to COVID-19 also remained the sixth leading cause of death in the year-to-date (40.3 deaths per 100,000 people). This was significantly lower than the top five leading causes of death, and significantly higher than all leading causes ranked eighth and lower.

More information on the 2022 year-to-date leading causes of death is available in Tables 12a and 12b of our [accompanying dataset](#). More in-depth [analysis of leading causes of death](#) is available in our annual publication, based on finalised mortality data.

## 5 . Deaths registered in the year-to-date

There were 443,395 deaths registered in England and 29,147 in Wales during the first 10 months (January to October) of 2022.

To gain a better idea of year-to-year differences in mortality rates, we calculated year-to-date age-standardised mortality rates (ASMRs) based on deaths registered in January to October of each year from 2001 to 2022 (Figure 6).

For England, the year-to-date ASMR for 2022 (936.4 deaths per 100,000 people) was [statistically significantly](#) lower than most years since our data time series started in 2001, except for 2019 (912.2 deaths per 100,000 people), which was significantly lower than 2022, and 2014 (936.5 deaths per 100,000 people) which was not significantly different to 2022.

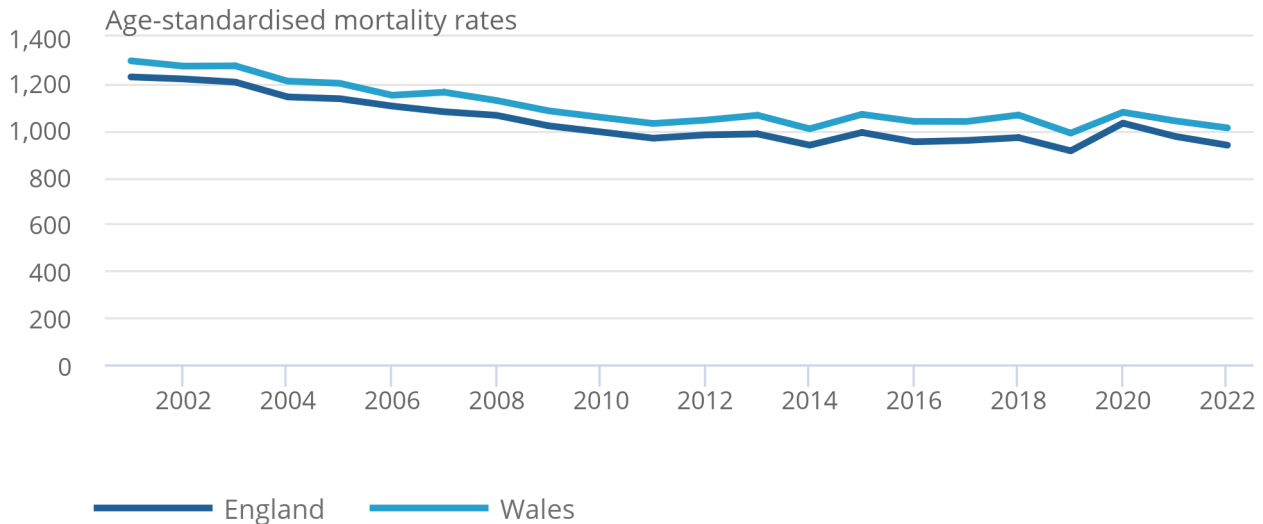
For Wales, the year-to-date ASMR for 2022 was 1,010.4 deaths per 100,000 people. This was statistically significantly lower than most years since our data time series began, except for 2019 (987.9 deaths per 100,000 people), 2014 (1,006.4 deaths per 100,000 people) and 2011 (1,029.1 deaths per 100,000 people) which were not significantly different to 2022.

**Figure 6: Year-to-date mortality rates in 2022 were significantly lower than most other years in both England and Wales**

Age-standardised mortality rates, England and Wales, deaths registered in January to October, 2001 to 2022

Figure 6: Year-to-date mortality rates in 2022 were significantly lower than most other years in both England and Wales

Age-standardised mortality rates, England and Wales, deaths registered in January to October, 2001 to 2022



Source: Office for National Statistics – Monthly mortality analysis

Notes:

1. Age-standardised mortality rates per 100,000 people, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see the [Measuring the data section](#).
2. Figures are for deaths registered rather than deaths occurring in each period.
3. Figures for 2022 are based on provisional mortality data and both 2021 and 2022 are based on projected populations.
4. Figures exclude non-residents.

## 6 . Death occurrences in October 2022 and year-to-date

This section is based on the date a death occurred, rather than the date of registration used in the previous sections, to monitor current mortality trends. Further information can be found in [Section 10: Measuring the data](#).

In England, 40,654 deaths occurred in October 2022 (and were registered by 7 November 2022). This was 1,447 fewer deaths than the five-year average (2016 to 2019, and 2021) for October (3.4% lower). In October 2022, of all deaths that occurred, 1,583 deaths (3.9%) were due to coronavirus (COVID-19). This is over double the number of deaths due to COVID-19 occurring in September 2022 (687 deaths).

In Wales, 2,752 deaths occurred in October 2022 (and were registered by 7 November 2022). This was 110 fewer deaths than the five-year average (3.8% lower). Of all deaths that occurred in October 2022, 103 deaths (3.7%) were because of COVID-19. Like England, this was over double the number of deaths due to COVID-19 that occurred in September 2022 (51 deaths).

The first death due to COVID-19 occurred on 30 January 2020 in England and 15 March 2020 in Wales. Figures 7 and 8 show the trends in COVID-19 death occurrences from March 2020 onwards for England and Wales, respectively.

### **Figure 7: In England, the number of deaths due to COVID-19 occurring in October 2022 was over double that of September 2022**

Number of deaths occurring on each day from March 2020 to October 2022, five-year average and range, England

#### Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 7 November 2022. Death occurrences will increase as more deaths are registered, particularly for later dates.
2. Figures for 2022 (including deaths that occurred in previous years but were registered in 2022) are based on provisional mortality data.
3. Figures exclude non-residents.
4. "COVID-19" includes only deaths where COVID-19 was the underlying cause.
5. This chart includes deaths from 1 March 2020. Three deaths due to COVID-19 occurred prior to this in England (one death in January 2020 and two deaths in February 2020), but are not included here.
6. For deaths occurring in 2020 and 2021, the five-year average consists of deaths occurring between 2015 to 2019, whereas for deaths occurring in 2022 the five-year average consists of deaths occurring between 2016 to 2019 and 2021.
7. The five-year average for 2022 has been provided for 2016 to 2019 and 2021, because of the impact of the coronavirus pandemic on deaths occurring in 2020. This provides an up-to-date comparison (rather than 2015 to 2019) of the number of deaths expected per day in a usual (non-coronavirus pandemic) year.

Download this chart

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### **Figure 8: In Wales, the number of daily deaths due to COVID-19 occurring in October 2022 was over double that of September 2022**

Number of deaths occurring on each day from March 2020 to October 2022, five-year average and range, Wales

#### Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 7 November 2022. Death occurrences will increase as more deaths are registered, particularly for later dates.
2. Figures for 2022 (including deaths that occurred in previous years but were registered in 2022) are based on provisional mortality data.
3. Figures exclude non-residents.
4. "COVID-19 deaths" include only deaths where COVID-19 was the underlying cause.
5. For deaths occurring in 2020 and 2021 the five-year average consists of deaths occurring between 2015 to 2019, whereas for deaths occurring in 2022 the five-year average consists of deaths occurring between 2016 to 2019 and 2021.
6. The five-year average for 2022 has been provided for 2016 to 2019 and 2021, because of the impact of the coronavirus pandemic on deaths occurring in 2020. This provides an up-to-date comparison (rather than 2015 to 2019) of the number of deaths expected per day in a usual (non-coronavirus pandemic) year.

**Download this chart**

[.xlsx](#)

The number of death occurrences is incomplete because it is likely that more deaths need to be registered. Therefore, comparisons should be treated with caution.

Instances where the number of death occurrences on each day in October was below the range of the last five years are likely to be a result of when the data extract was created. Specifically, deaths that occurred towards the end of the month may not have been registered by the time the data extract was created. We would therefore expect the number of death occurrences to be higher in future releases.

## **7 . Pre-existing conditions of people whose death was due to COVID-19, deaths registered in July to September 2022**

Data on pre-existing conditions of people who died due to coronavirus (COVID-19) in England and Wales between January 2020 to October 2022 can be found in the [accompanying dataset](#). Quarter 3 (Jul to Sept) 2022 analysis is available in our [Monthly mortality analysis, England and Wales: September 2022 bulletin](#). We will publish analysis for Quarter 4 (Oct to Dec) 2022 in our December 2022 edition of this bulletin.



## 8 . Monthly mortality data

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

Dataset | Released 23 November 2022

Provisional data on death registrations and death occurrences in England and Wales, broken down by sex and age. Includes deaths due to coronavirus (COVID-19) by date of death occurrence, and comparisons of COVID-19 with the leading causes of death.

### [Deaths due to COVID-19 by English region and Welsh health board](#)

Dataset | Released 23 November 2022

Provisional age-standardised mortality rates for deaths due to COVID-19 by sex, English regions and Welsh health boards.

### [Deaths involving COVID-19 by month of registration, UK](#)

Dataset | Released 23 November 2022

Provisional age-standardised mortality rates for deaths involving COVID-19 by sex and month of death registration, for England, Wales, Scotland and Northern Ireland.

### [Deaths registered monthly in England and Wales](#)

Dataset | Released 23 November 2022

Number of deaths registered each month by area of usual residence for England and Wales, by region, county, local and unitary authority, and London borough.

### [Single year of age and average age of death of people whose death was due to or involved COVID-19](#)

Dataset | Released on 23 November 2022

Provisional deaths registration data for single year of age and average age of death (median and mean) of persons whose death involved coronavirus (COVID-19), England and Wales. Includes deaths due to COVID-19 and breakdowns by sex.

### [Pre-existing conditions of people who died due to COVID-19, England and Wales](#)

Dataset | Released 21 October 2022

Pre-existing conditions of people who died due to COVID-19, broken down by country, broad age group, and place of death occurrence, usual residents of England and Wales.

## 9 . Glossary

### Age-specific mortality rates

Age-specific mortality rates are used to allow comparisons between specified age groups.

### 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. In this bulletin, we have adjusted the monthly ASMRs to allow for comparisons with annual rates. For more information see [Section 10: Measuring the data](#).

### 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 about coronavirus \(COVID-19\) disease is available from the WHO](#).

### Pre-existing condition

A pre-existing condition is defined as any condition that either preceded the disease of interest (for example, COVID-19) in the sequence of events leading to death or was a contributory factor in the death but not part of the causal sequence.

More information on the pre-existing conditions methodology is available in our [accompanying dataset, Pre-existing conditions of people who died due to COVID-19, England and Wales](#).

### Registration delay

Mortality statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, 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.

### 95% confidence intervals

A confidence interval is a measure of the uncertainty around a specific estimate. If a confidence interval is 95%, it is expected that the interval will contain the true value on 95 occasions if repeated 100 times. As intervals around estimates widen, the level of uncertainty about where the true value lies increases. The size of the interval around the estimate is strongly related to the number of deaths, prevalence of health states and the size of the underlying population. At a national level, the overall level of error will be small compared with the error associated with a local area or a specific age and sex breakdown. More information is available on our [uncertainty pages](#).

## 10 . Measuring the data

This bulletin provides timely surveillance of mortality in England and Wales, based on the best available provisional data, including all-cause mortality and coronavirus (COVID-19) deaths.

Analysis contains deaths registered in October 2022 by age and sex, and includes deaths that occurred in October 2022 by date of death. Non-residents of England and Wales are excluded. In October 2022, there were 88 deaths of non-residents that were registered in England and Wales.

### Data sources

This bulletin is based primarily on death registrations. Analysis by month of death registration is consistent with our [weekly death registrations bulletin](#) and allows for a more timely analysis than would be possible using death occurrences. There is a section on death occurrences for surveillance of recent mortality trends. Death occurrences show the number of deaths that occurred within a calendar period and give a better indication of exactly when deaths were at their highest. This allows mortality to be related to other factors such as weather patterns.

A provisional extract of death registrations and death occurrences data is taken on the first working day after the eighth of the month, to allow time for deaths to be registered. For more detail on the data sources used, see our [methodology article](#).

## Definition of COVID-19 deaths

We use the term "due to COVID-19" when referring only to deaths with an underlying cause of death of COVID-19. When considering all the deaths that had COVID-19 mentioned anywhere on the death certificate, whether as an underlying cause or not, we use the term "involving COVID-19". The International Classification of Diseases (ICD-10) codes used to define COVID-19 are:

- U07.1: COVID-19, virus identified
- U07.2: COVID-19, virus not identified
- U09.9: post-COVID condition, unspecified (this cannot be assigned to the underlying cause of death so is not included in the "deaths due to COVID-19" definition)
- U10.9: multisystem inflammatory syndrome associated with COVID-19, unspecified

Our definition of COVID-19 (regardless of whether it was the underlying cause or mentioned elsewhere on the death certificate) includes some cases where the certifying doctor suspected the death involved COVID-19 but was not certain (U07.2). For example, a doctor may have clinically diagnosed COVID-19 based on symptoms but this diagnosis may not have been confirmed with a test, so they may write "suspected COVID-19" on the death certificate. Of the 160,707 deaths due to COVID-19, 4,157 (2.6%) were classified as "suspected" COVID-19. Including all 189,654 deaths involving COVID-19, "suspected" COVID-19 was recorded on 4,793 deaths (2.5%) of all deaths involving COVID-19 in England and Wales (excluding non-residents). For more information on the ICD-10 definition of COVID-19, see our [methodology article](#).

There are several ICD-10 codes not included in our definitions of deaths due to COVID-19 and deaths involving COVID-19. These are:

- U08.9: personal history of COVID-19, unspecified
- U11.9: need for immunisation against COVID-19, unspecified
- U12.9: COVID-19 vaccines causing adverse effects in therapeutic use, unspecified

Tables 13 and 14 of our [accompanying dataset](#) provide figures of each COVID-19 ICD-10 code registered since March 2020. Our figures usually consist of first registrations only. On occasion, and after further investigation, a death can be re-registered as a different cause of death. For transparency of our statistics, these tables include re-registrations as well as initial registrations. All the other figures remain as first registration only.

## Monthly mortality rates

To calculate monthly mortality rates that are comparable with annual rates, adjustments must be made to annual population estimates to account for the time covered. Our [methodology article](#) provides more detail on how this is calculated.

## Acknowledgement

We would like to thank Anisah Saib, Heidi Wilson, Fred Barton and Paul Brown for their valued contribution to this bulletin.

# 11 . Strengths and limitations

## Provisional data are used

Provisional death registrations and death occurrences data are used in this bulletin. This enables timely analysis to be completed to monitor mortality trends. However, as the data for 2022 are provisional, they are subject to change.

## Data coverage, timeliness, and registration delays

Mortality data give complete population coverage. They ensure the estimates are of high precision and representative of the underlying population at risk. However, because of [registration delays](#), monthly death occurrence data are always somewhat incomplete. This is especially true for deaths that occurred towards the end of the month.

More quality and methodology information on strengths, limitations, appropriate uses and how the data were created is available in our [Mortality statistics in England and Wales Quality and Methodology Information](#) and our [User guide to mortality statistics](#).

## 12 . Related links

### [Deaths registered weekly in England and Wales](#)

Bulletin | Released weekly

Provisional counts of the number of deaths registered in England and Wales, including deaths involving coronavirus (COVID-19), in the latest weeks for which data are available.

### [Death registration summary statistics, England and Wales: 2021](#)

Article | Released 9 June 2022

Number of deaths registered by year, sex, area of usual residence and selected underlying cause of death.

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

Bulletin | Released 1 July 2022

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

### [Deaths due to COVID-19, registered in England and Wales: 2021](#)

Article | Released 1 July 2022

Deaths registered in England and Wales due to coronavirus (COVID-19) by age, sex, region, indices of deprivation, place of death and pre-existing condition.

### [Coronavirus \(COVID-19\) latest data and analysis](#)

Web page | Updated as and when new data become available

Brings together the latest data and analysis on the coronavirus (COVID-19) pandemic in the UK and its effect on the economy and society.

### [Excess mortality and mortality displacement in England and Wales: 2020 to mid-2021](#)

Article | Released 15 October 2021

Deaths registered in England and Wales by week, from 28 December 2019 to 2 July 2021. Breakdowns include country, sex, age group, region, place of death and leading cause. Includes analysis of excess deaths and relative cumulative age-standardised mortality rates.

### [Excess deaths in England and Wales: March 2020 to June 2022](#)

Article | Released 20 September 2022

Number of excess deaths, including deaths due to coronavirus (COVID-19) and due to other causes. Including breakdowns by age, sex and geography.

## 13 . Cite this statistical bulletin

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