

Statistical bulletin

Monthly mortality analysis, England and Wales: July 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 July 2022, there were 42,034 deaths registered in England, 3,898 deaths (10.2%) above the July five-year average (2016 to 2019, and 2021); there were 2,638 deaths registered in Wales, 108 deaths (4.3%) above the July average.
- The leading cause of death in England in July 2022 was dementia and Alzheimer's disease (10.8% of all deaths); in Wales, the leading cause was ischaemic heart diseases (10.8% of all deaths).
- Coronavirus (COVID-19) was the sixth leading cause of death in July 2022 in both England (accounting for 3.8% of all deaths) and Wales (4.0% of all deaths); COVID-19 was the 15th and 19th leading cause in England and Wales respectively in June 2022, but in July had returned to the sixth leading cause in both countries, as observed in May 2022.
- Accounting for the population size and age structure, the age-standardised mortality rate (ASMR) for deaths due to COVID-19 increased significantly between June and July 2022 in England (from 14.0 to 32.6 deaths per 100,000 people) and Wales (from 12.9 to 36.1 deaths per 100,000 people).
- The year-to-date (January to July) ASMR in 2022 was significantly lower than most years since our data time series began in 2001 (except for 2019 in England, and 2014 and 2019 in Wales) in both England (944.3 deaths per 100,000 people) and Wales (1,019.3 deaths per 100,000 people).
- July 2022 saw periods of exceptionally hot weather, which were associated with higher daily death occurrences than other days in July 2022, considering both deaths due to all causes (6.5% higher for England and 12.3% higher for Wales) and due to COVID-19 (31.1% higher for England and 33.6% higher for Wales).

2 . Death registrations and the overall mortality rate for July 2022

Based on provisional data, there were 42,034 deaths registered in England in July 2022. This was 1,449 more deaths than in July 2021 and 3,898 more deaths (10.2%) than the five-year average (2016 to 2019, and 2021). Compared with the previous five-year average (2015 to 2019), there were 4,431 more deaths (11.8%) in July 2022 in England.

In Wales, the provisional number of deaths registered in July 2022 was 2,638. This was 101 fewer deaths than in July 2021 and 108 more deaths (4.3%) than the five-year average for July. Compared with the previous five-year average (2015 to 2019), there were 159 more deaths (6.4%) in July 2022 in Wales.

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 [Section 6: Calculating excess deaths](#).

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.

In England, the highest mortality rate for the month of July within our data time series was in 2002 (1,190.5 deaths per 100,000 people). This was [statistically significantly](#) higher than the July ASMR in all other years since the start of the data time series in 2001.

Following this, overall mortality rates generally decreased to a low of 812.4 deaths per 100,000 people in July 2017, which was significantly lower than the July ASMR for all prior years. In July 2020, the mortality rate was significantly lower (824.7 deaths per 100,000 people) than July 2019 (862.1 deaths per 100,000 people), despite the onset of the coronavirus pandemic in 2020. This could be a [mortality displacement](#) effect, where people's deaths were brought forward to earlier 2020 during the first wave of the coronavirus pandemic, who would have usually died during July.

The ASMR significantly increased between July 2020 and July 2021, to 856.0 deaths per 100,000 people. The ASMR increased again in July 2022 (868.7 deaths per 100,000 people), but this was not statistically significant compared with the year prior. This pattern in ASMRs over time was similar in both males and females (Figure 1).

In Wales, mortality rates for July have generally decreased over time; from a high of 1,273.4 deaths per 100,000 people in July 2002, to 867.6 deaths per 100,000 people in July 2017, the lowest ASMR since the start of the data time series in 2001.

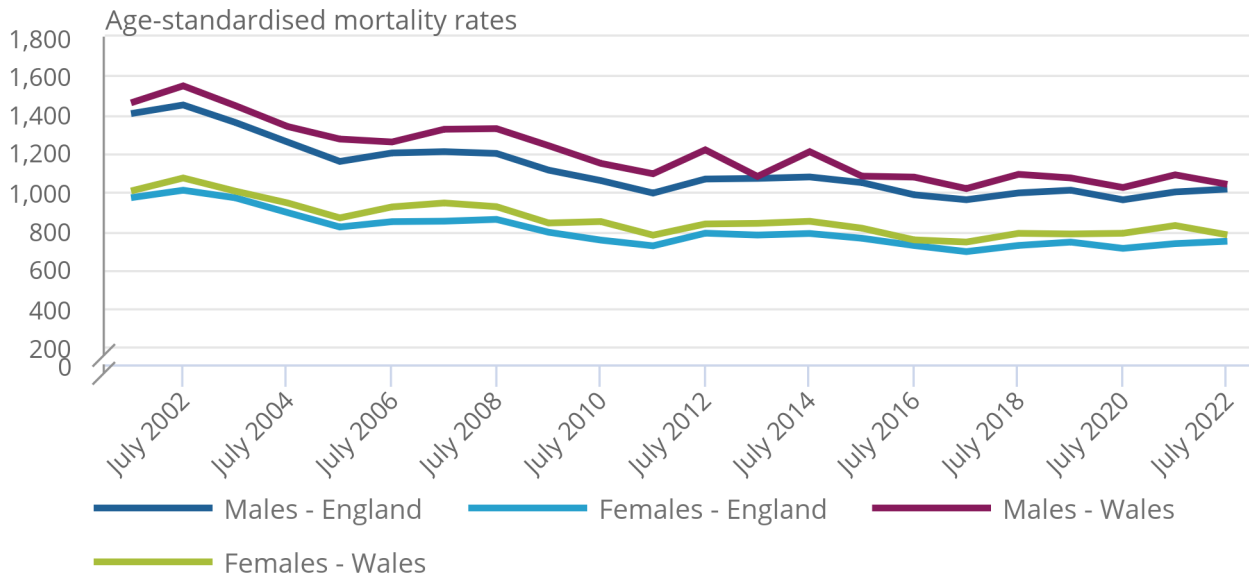
In July 2020, the ASMR in Wales was similar (896.0 deaths per 100,000 people) compared with the previous year. The ASMR increased in July 2021 (948.4 deaths per 100,000 people), and subsequently decreased to 897.0 deaths per 100,000 people in July 2022. However, neither of these changes were significantly different. This pattern in ASMRs over time was similar in both males and females (Figure 1).

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

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

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

Age-standardised mortality rates by sex, England and Wales, deaths registered in July 2001 to July 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 projected populations.
4. Figures exclude non-residents.

3 . Deaths due to COVID-19 registered in July 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](#).

The first deaths involving coronavirus (COVID-19) were registered in England and Wales in March 2020. Since then, COVID-19 was the underlying cause of death in most cases (85.7% in England, 84.3% in Wales).

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.

The proportion of deaths due to COVID-19 (of all deaths involving COVID-19) increased between June and July 2022 in England (from 59.0% to 64.1%) and in Wales (from 59.7% to 60.2%).

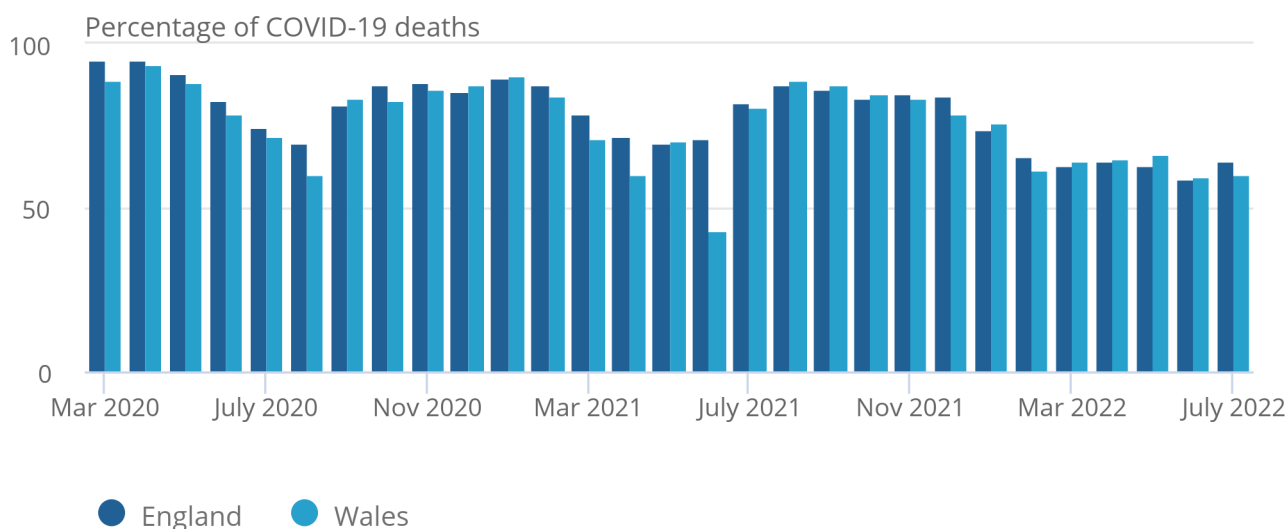
For more information on our definition of COVID-19 deaths, see [Section 11: Measuring the data](#).

Figure 2: The proportion of deaths due to COVID-19, when COVID-19 was mentioned anywhere on the death certificate, increased in England and Wales in July 2022 since June 2022

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

Figure 2: The proportion of deaths due to COVID-19, when COVID-19 was mentioned anywhere on the death certificate, increased in England and Wales in July 2022 since June 2022

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



Source: Office for National Statistics - Monthly mortality analysis

Notes:

1. Figures are for deaths registered rather than deaths occurring in each period.
2. Figures for 2022 are based on provisional mortality data and projected populations.
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.

Of the 42,034 deaths registered in July 2022 in England, 3.8% (1,584 deaths) were due to COVID-19, a larger proportion than in June 2022 (1.6%). Including all deaths involving COVID-19 (2,470 deaths), this percentage increases to 5.9% of all deaths in England.

In Wales, 4.0% of the 2,638 deaths registered in July 2022 were due to COVID-19 (106 deaths), a larger proportion than in June 2022 (1.4%). Including all deaths involving COVID-19 (176 deaths), this percentage increases to 6.7% of all deaths in Wales.

Mortality rates for deaths due to COVID-19

When adjusting for the size and age structure of the population, age-standardised mortality rates (ASMRs) for deaths due to COVID-19 in England and Wales for July 2022 showed [statistically significant](#) increases compared with June 2022 (Figure 3). However, June 2022 rates were more than half that of the previous months in 2022, and as such July 2022 rates were not significantly different compared with May 2022.

The ASMR for deaths due to COVID-19 in England increased to 32.6 deaths per 100,000 people in July 2022, from 14.0 deaths per 100,000 people in June 2022.

In Wales, the ASMR also significantly increased to 36.1 deaths per 100,000 people in July 2022 (compared with 12.9 deaths per 100,000 people in June 2022).

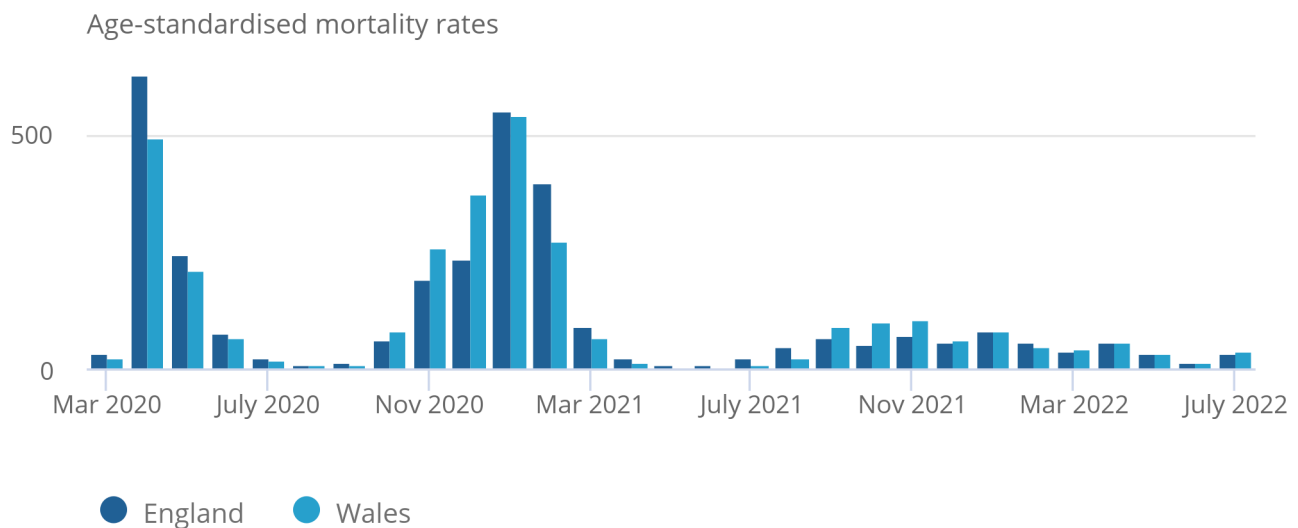
These patterns in ASMRs were similar for males and females, except for females in Wales, for whom the rate in July 2022 (26.8 deaths per 100,000 females) was not significantly higher than June 2022 (13.1 deaths per 100,000 females).

Figure 3: Mortality rates due to COVID-19 in July 2022 returned to similar levels as in May 2022, following a significant decrease in June 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 July 2022

Figure 3: Mortality rates due to COVID-19 in July 2022 returned to similar levels as in May 2022, following a significant decrease in June 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 July 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 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.

More information on mortality rates by sex is available in Tables 3a and 3b of [our accompanying dataset](#).

More about coronavirus

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

4 . Leading causes of death

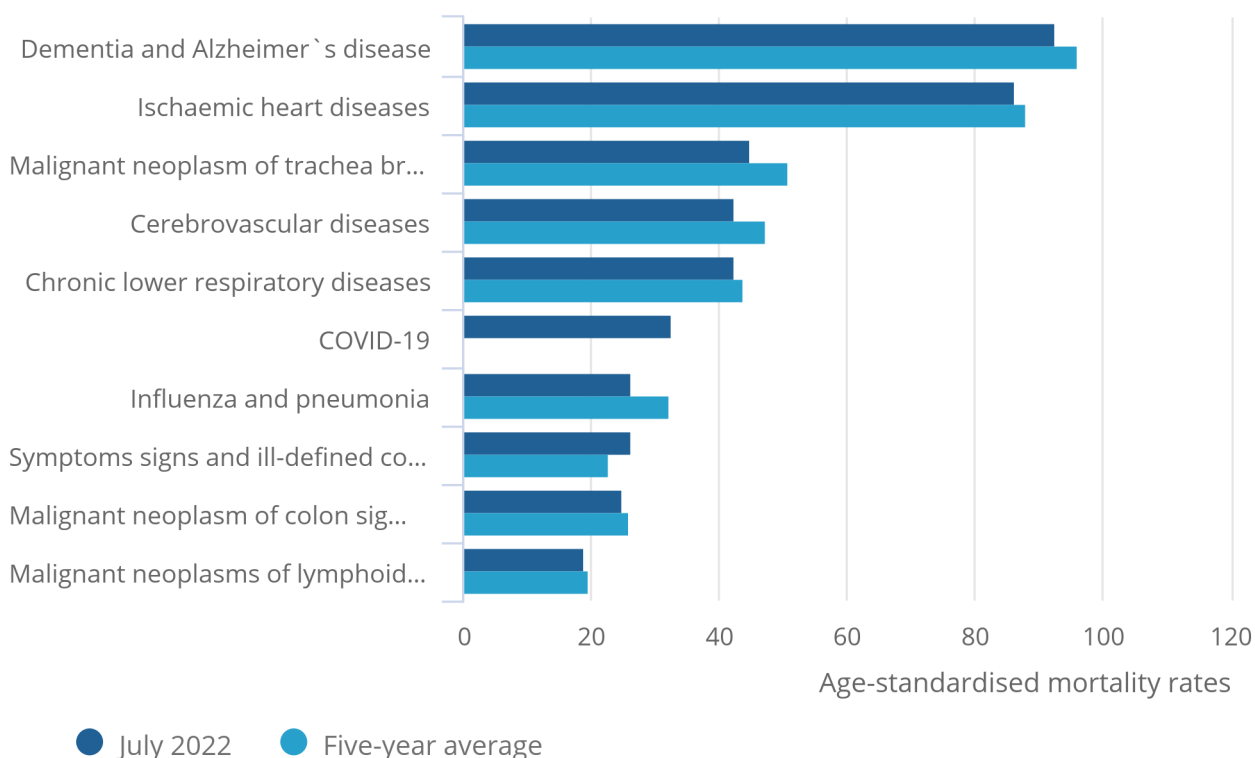
Figures 4 and 5 show the 10 most common underlying causes of death registered in July 2022, compared with the five-year average for July (2016 to 2019, and 2021), for England and Wales respectively. Causes of death are based on our [leading causes of death groupings](#).

Figure 4: In England, dementia and Alzheimer's disease remained the leading cause of death in July 2022

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

Figure 4: In England, dementia and Alzheimer's disease remained the leading cause of death in July 2022

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



Source: Office for National Statistics - Monthly mortality analysis

Notes:

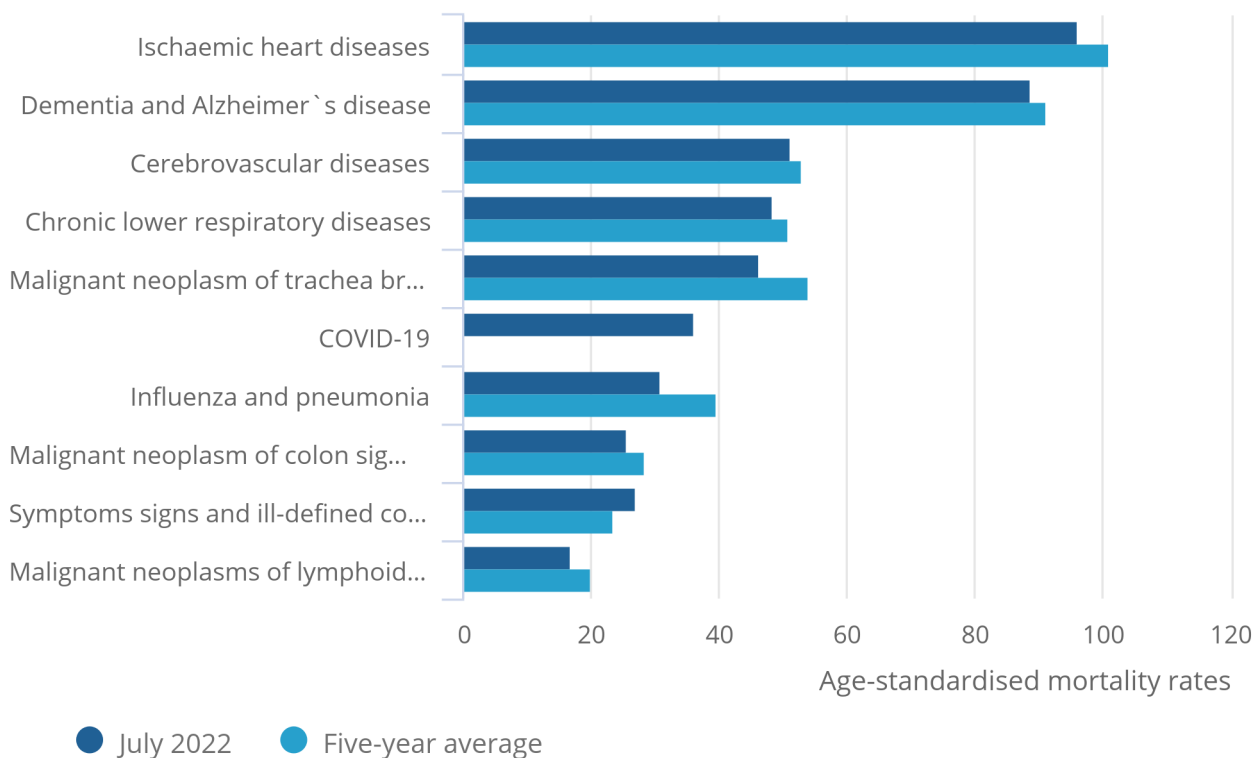
1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see the [Measuring the data section](#).
2. Figures for 2022 are based on provisional mortality data and 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.

Figure 5: In Wales, ischaemic heart diseases remained the leading cause of death in July 2022

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

Figure 5: In Wales, ischaemic heart diseases remained the leading cause of death in July 2022

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in July 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 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 England, dementia and Alzheimer's disease remained the leading cause of death in July 2022 (for the 13th consecutive month), with 92.6 deaths per 100,000 people (4,519 deaths). In Wales, ischaemic heart diseases remained the leading cause of death (for the seventh consecutive month), with 96.1 deaths per 100,000 people (286 deaths).

In England, coronavirus (COVID-19) was the sixth leading cause of death in July 2022 (1,584 deaths), increasing from the 15th leading cause in June 2022. In Wales, COVID-19 was the sixth leading cause of death in July 2022 (106 deaths), increasing from the 19th leading cause in June 2022. COVID-19 was previously the sixth leading cause of death in both England and Wales in May 2022. Mortality rates due to COVID-19 typically increase shortly after infections increase.

In England in July 2022, 3 of the 10 leading causes of death were [statistically significantly](#) lower than the five-year average, and 5 of the 10 leading causes were not statistically significantly different than the five-year average. The mortality rate for symptoms, signs, and ill-defined conditions was statistically significantly higher than the five-year average for the 13th consecutive month in England (15.4% higher). This leading cause group includes mostly deaths with a code for "old age" but is also used for causes such as "frailty".

In Wales in July 2022, 9 of the top 10 leading causes were not significantly different from the five-year average, including deaths due to influenza and pneumonia. The other remaining leading cause, COVID-19, is only included in one year that makes up our five-year average (2021) and therefore an average cannot be made and compared with.

This is the second time that the mortality rate for influenza and pneumonia has not been significantly below the average since October 2020. This could be a [mortality displacement effect](#), where these deaths have previously been below average as people are dying due to other causes, such as COVID-19, but deaths are now returning to pre-coronavirus pandemic trends.

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

In the first seven months (January to July) of 2022, the leading cause of death in England was dementia and Alzheimer's disease (105.6 deaths per 100,000 people). In Wales, the year-to-date leading cause of death was ischaemic heart diseases (114.3 deaths per 100,000 people).

In England, the year-to-date COVID-19 mortality rate decreased to the sixth leading cause of death (44.8 deaths per 100,000 people) from the fifth in June 2022. This was statistically significantly lower than the top five leading causes of death, and statistically higher than all causes ranked lower.

In Wales, deaths due to COVID-19 remained the sixth leading cause of death in the year-to-date (45.1 deaths per 100,000 people). This was significantly lower than the top two leading causes of death, and significantly higher than all leading causes ranked lower.

More information on the 2022 year-to-date leading causes of death is available in Tables 11a and 11b 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 311,046 deaths registered in England and 20,462 in Wales during the first seven months (January to July) 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 July of each year from 2001 to 2022 (Figure 6).

For England, the year-to-date ASMR for 2022 (944.3 deaths per 100,000 people) was [statistically significantly](#) lower than most years since our data time series started in 2001. This is except for 2019 (936.6 deaths per 100,000 people), which was significantly lower.

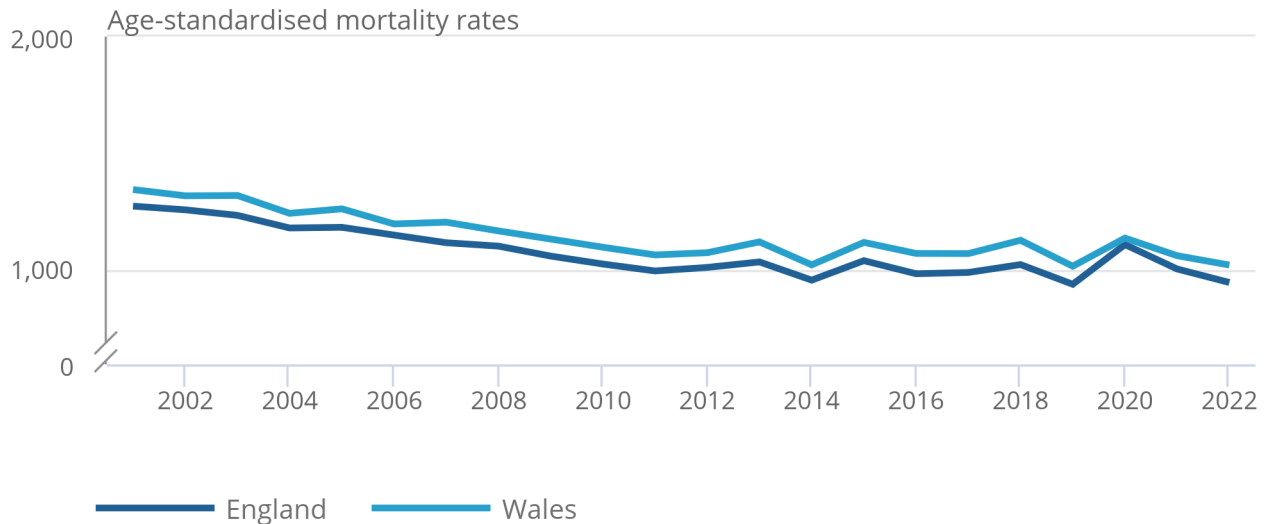
For Wales, the year-to-date ASMR for 2022 was 1,019.3 deaths per 100,000 people. This was statistically significantly lower than most years since our data time series began, except for 2014 and 2019 (1,020.0 and 1,014.1 deaths per 100,000 people respectively), which were not significantly different to 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 July, 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 July, 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 projected populations.
4. Figures exclude non-residents.

6 . Calculating excess deaths

This bulletin predominantly analyses age-standardised mortality rates (ASMRs) as it enables us to make comparisons across areas and time. This is because ASMRs account for changes in the population and its age structure.

Another useful measure is the number of excess deaths in a particular year. For excess deaths, we compare numbers and rates with a five-year average. This ensures that we are comparing like for like in terms of life expectancy, advances in healthcare, population size and age structure. Averaging over five years removes the fluctuations seen year-on-year. Usually, we use the most recent five years; for example, we compared deaths in 2020 with the five-year average for 2015 to 2019.

Because of the coronavirus (COVID-19) pandemic, 2020 saw the second highest number of deaths since 1838. If this was used to calculate the five-year average, then the number of deaths in the five-year average would be abnormally high and would not be comparable with a "normal" (non-coronavirus pandemic) year.

The further we move away from 2019, the less robust the 2015 to 2019 five-year average becomes. The decision was made, in collaboration with colleagues across government including the devolved administrations, for 2022 to move to an average of the following five years: 2016, 2017, 2018, 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. It allows deaths in 2022 to be compared with a five-year average that is as up to date as possible, while still being close to representing a "normal" year. However, this does include some COVID-19 deaths, especially at the start of 2021 when there was a COVID-19 wave.

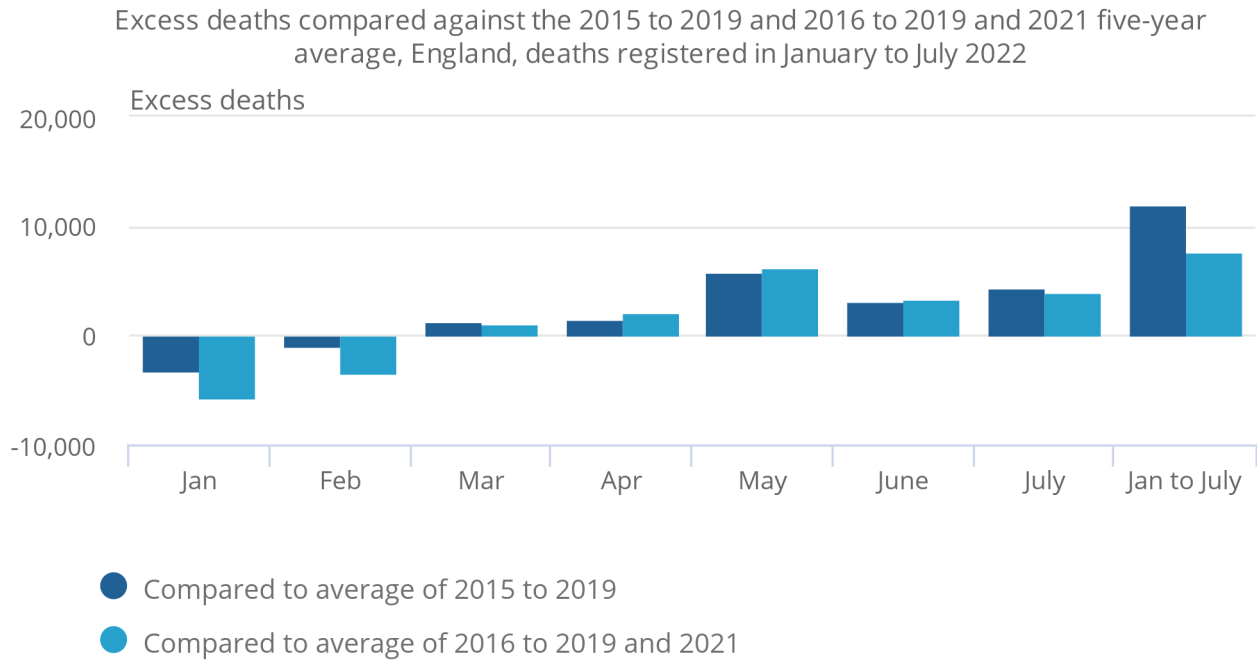
In July 2022, when considering the 2016 to 2019 and 2021 five-year average, excess deaths in England were 3,898 above what we would expect in a "normal" year (Figure 7). This is compared with 4,431 when using the 2015 to 2019 average. The year-to-date (January to July) excess in England, when using the 2016 to 2019 and 2021 five-year average, was 7,653 above what we would expect. This increases to 11,977 deaths above what we would expect when the 2015 to 2019 average is used.

In Wales in July 2022, there were 108 deaths above what we would expect in a "normal" year, when considering the 2016 to 2019 and 2021 five-year average (Figure 8). This increases to 159 excess deaths when the 2015 to 2019 five-year average is used. The year-to-date excess in Wales, when using the 2016 to 2019 and 2021 five-year average, was 257 deaths above what we would expect. This is compared with 399 deaths above when using the 2015 to 2019 average.

Figure 7: In England, year-to-date excess deaths in 2022 were lower using the 2016 to 2019 and 2021 average than the 2015 to 2019 average, because of the second wave of COVID-19 in 2021

Excess deaths compared against the 2015 to 2019 and 2016 to 2019 and 2021 five-year average, England, deaths registered in January to July 2022

Figure 7: In England, year-to-date excess deaths in 2022 were lower using the 2016 to 2019 and 2021 average than the 2015 to 2019 average, because of the second wave of COVID-19 in 2021



Source: Office for National Statistics - Monthly mortality analysis

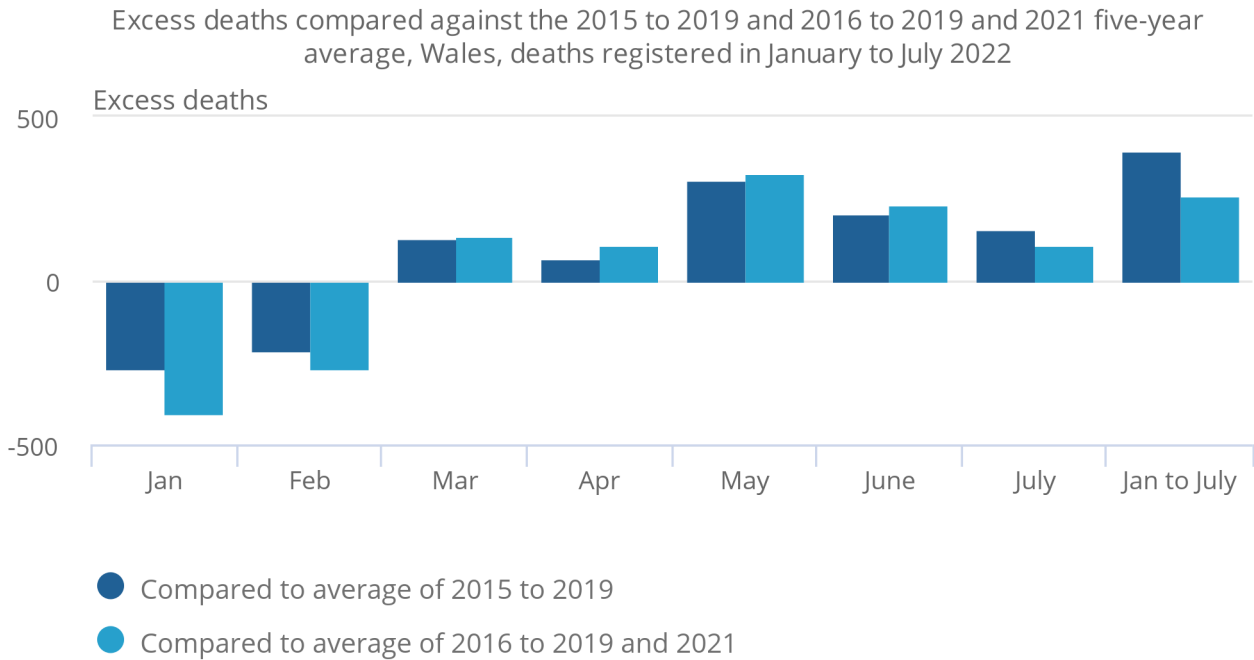
Notes:

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. The 2016 to 2019 and 2021 five-year average 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.
5. The individual months figures are not refreshed each month and therefore may not sum to the year-to-date figure, which is updated every month.

Figure 8: Year-to-date excess deaths in 2022, in Wales, were lower using the 2016 to 2019 and 2021 average than the 2015 to 2019 average, because of the second wave of COVID-19 in 2021

Excess deaths compared against the 2015 to 2019 and 2016 to 2019 and 2021 five-year average, Wales, deaths registered in January to July 2022

Figure 8: Year-to-date excess deaths in 2022, in Wales, were lower using the 2016 to 2019 and 2021 average than the 2015 to 2019 average, because of the second wave of COVID-19 in 2021



Source: Office for National Statistics - Monthly mortality analysis

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. The 2016 to 2019 and 2021 five-year average provides an up-to-date comparison (rather than 2015 to 2019) of the number of deaths expected per month in a usual (non-pandemic) year.
5. The individual months figures are not refreshed each month and therefore may not sum to the year-to-date figure, which is updated every month.

7 . Death occurrences in July 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 11: Measuring the data](#).

In England, 36,967 deaths occurred in July 2022 (and were registered by 7 August 2022). This was 1,702 fewer deaths than the five-year average (2016 to 2019, and 2021) for July (4.4% lower). In July 2022, of all deaths that occurred, 1,681 deaths (4.5%) were due to coronavirus (COVID-19).

In Wales, 2,463 deaths occurred in July 2022 (and were registered by 7 August 2022). This was 104 fewer deaths than the five-year average (4.1% lower). Of all deaths that occurred in July 2022, 114 deaths (4.6%) were due to COVID-19.

The [UK Health Security Agency \(UKHSA\) and the Met Office issued Level 3 and Level 4 heatwave warnings](#) between 11 and 21 July 2022. England and Wales saw extreme heat during this period, including temperatures recorded of over 40°C at a number of locations across England. The UKHSA (previously Public Health England) defines a heat period in their [mortality monitoring reports](#) as either:

- day(s) on which a Level 3 Heat Health Alert (HHA) is issued
- day(s) when the mean Central England Temperature (CET) is greater than 20°C

In addition, the preceding and subsequent days to those identified using these threshold(s) are also included as part of the heat period. In July 2022, there were three periods that match this criteria:

- 10 to 22 July
- 23 to 25 July
- 30 to 31 July

Average daily death occurrences during these dates (1,224 deaths for England and 83 deaths for Wales) were higher than the rest of July (1,149 deaths for England and 74 deaths for Wales; a 6.5% and 12.3% excess, respectively). This was even more pronounced for deaths due to COVID-19, which were 31.1% higher in England (60 deaths during heat-period days and 46 deaths on other days) and 33.6% higher in Wales (4 deaths on heat-period days and 3 deaths on other days).

Excess deaths during this period could be because of a combination of factors, not just the increase in heat. Further investigation is required to understand this fully, including more deaths being registered. Further analysis relating to deaths during heat periods, in collaboration with UKHSA, will be published in due course.

The first death due to COVID-19 occurred on 30 January 2020 in England and 15 March 2020 in Wales. Figures 9 and 10 show the trends in COVID-19 death occurrences from March 2020 onwards for England and Wales, respectively.

Figure 9: In England, the number of daily deaths due to COVID-19 increased in July 2022

Number of deaths occurring on each day from March 2020 to July 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 August 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 the data[.xlsx](#)**Figure 10: In Wales, the number of daily deaths due to COVID-19 increased in July 2022****Number of deaths occurring on each day from March 2020 to July 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 August 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 the data[.xlsx](#)

It is important to note that 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.

In particular, instances where the number of death occurrences on each day in July 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.

8 . Pre-existing conditions of people whose death was due to COVID-19, deaths registered in April to June 2022

Data on pre-existing conditions of people who died due to coronavirus (COVID-19) in England and Wales between January 2020 to June 2022 can be found in the [accompanying dataset](#). Quarter 2 (Apr to Jun) 2022 analysis is available in [our Monthly mortality analysis, England and Wales: June 2022 bulletin](#). We will publish analysis for Quarter 3 (Jul to Sep) 2022 in our September 2022 edition of this bulletin.

9 . Monthly mortality data

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

Dataset | Released 23 August 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 August 2022

Provisional age-standardised mortality rates for deaths due to COVID-19 by age, sex, local authority and deprivation indices, and numbers of deaths by Middle layer Super Output Area.

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

Dataset | Released 23 August 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 August 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 August 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 25 July 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.

10 . 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 11: 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](#).

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](#).

11 . 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 July 2022 by age and sex, and also includes deaths that occurred in July 2022 by date of death. Non-residents of England and Wales are excluded. In July 2022, there were 118 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 [the 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 of 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 156,595 deaths due to COVID-19, 4,156 (2.7%) were classified as "suspected" COVID-19. Including all 183,111 deaths involving COVID-19, "suspected" COVID-19 was recorded on 4,790 deaths (2.6%) 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

Table 12 and 13 of [our accompanying datasets](#) 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 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 period covered. [Our methodology article](#) provides more detail on how this is calculated.

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12 . 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](#).

13 . 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), by age, sex and region, 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 usual 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 December 2021](#)

Article | Released 22 March 2022

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