

Statistical bulletin

# Monthly mortality analysis, England and Wales: May 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 May 2022, there were 45,526 deaths registered in England, 6,135 deaths (15.6%) above the May five-year average (2016 to 2019, and 2021); there were 2,992 deaths registered in Wales, 329 deaths (12.4%) above the May average.
- Compared with the 2015 to 2019 five-year average (as opposed to the new five-year average used in the previous main point), in May 2022 there were 5,873 more deaths (14.8%) in England, and 305 more deaths (11.4%) in Wales.
- The leading cause of death in England in May 2022 was dementia and Alzheimer's disease (11.0% of all deaths); in Wales, the leading cause was ischaemic heart diseases (11.0% of all deaths).
- Coronavirus (COVID-19) was the sixth leading cause of death in May 2022 for both England (accounting for 3.3% of all deaths) and Wales (3.3% of all deaths); it was the third leading cause in April 2022.
- The proportion of deaths due to COVID-19 (of all deaths that involved COVID-19) remained similar between April and May 2022 in England (from 64.2% to 63.1%) and in Wales (from 65.1% to 66.7%).
- Accounting for the population size and age structure, the age-standardised mortality rate (ASMR) for deaths due to COVID-19 decreased significantly between April and May 2022 in England (from 56.0 to 31.3 deaths per 100,000 people) and Wales (from 58.4 to 33.3 deaths per 100,000 people).
- The year-to-date (January to May) ASMR in 2022 was significantly lower than all years since our time series began in 2001 (except for 2014 and 2019) in both England (971.4 deaths per 100,000 people) and Wales (1,056.4 deaths per 100,000 people).
- The North East was the English region with the highest ASMR for deaths due to COVID-19 in May 2022 (36.4 deaths per 100,000 people).

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

Based on provisional data, there were 45,526 deaths registered in England in May 2022. This was 10,123 more deaths than in May 2021 and 6,135 more deaths (15.6%) than the five-year average (2016 to 2019, and 2021). Compared with the previous five-year average (2015 to 2019), there were 5,873 more deaths (14.8%) in May 2022 in England.

In Wales, the provisional number of deaths registered in May 2022 was 2,992. This was 575 more deaths than in May 2021 and 329 more deaths (12.4%) than the five-year average for May. Compared with the previous five-year average (2015 to 2019), there were 305 more deaths (11.4%) in May 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 the [Calculating excess deaths section](#).

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, 2001 has the highest mortality rate for the month of May within our time series (1,210.7 deaths per 100,000 people). This was [statistically significantly](#) higher than the May ASMR in all other years. Following this, overall mortality rates generally decreased to 906.2 deaths per 100,000 people in May 2019, before statistically significantly increasing in May 2020 (1,068.9 deaths per 100,000 people). This was statistically significantly higher than all years' May ASMR since 2008 (at 987.4 deaths per 100,000 people), which was likely because of the effects of the coronavirus pandemic. The ASMR for May decreased significantly in 2021 to 749.1 deaths per 100,000 people; this was statistically significantly lower than all other May ASMRs. In May 2022, the ASMR significantly increased again, to 943.0 deaths per 100,000 people. This pattern in ASMRs over time was similar in both males and females (Figure 1).

In Wales, mortality rates for May have generally decreased over time; from a high of 1,271.4 deaths per 100,000 people in May 2001, to 991.6 deaths per 100,000 people in May 2019. The lowest ASMR in this time series was in May 2010, at 930.4 deaths per 100,000 people. In May 2020, the ASMR in Wales increased (1,019.9 deaths per 100,000 people) compared with the previous year, however this was not significant. The ASMR significantly decreased in May 2021 to the lowest of our time series (837.8 deaths per 100,000 people); this was also statistically significantly lower than all other years. In May 2022, the ASMR significantly increased to 1,013.1 deaths per 100,000 people. This pattern in ASMRs over time was similar in both males and females (Figure 1).

## Figure 1: Mortality rates for May 2022 were significantly higher compared with May 2021 in England and Wales

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

### Figure 1: Mortality rates for May 2022 were significantly higher compared with May 2021 in England and Wales

Age-standardised mortality rates by sex, England and Wales, deaths registered in May 2001 to May 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 2021 and 2022 are based on provisional mortality data and projected populations.
4. Figures exclude non-residents.

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

March 2020 was when the first deaths involving coronavirus (COVID-19) were registered in England and Wales. Since March 2020, when COVID-19 was first mentioned on a death certificate, it was the underlying cause of death in most cases (86.2% in England, 84.9% 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.

In England, April 2020 had the highest proportion of deaths involving COVID-19 that were also due to COVID-19 (95.2%), whereas March 2022 had the lowest proportion (63.0%). In Wales, April 2020 had the highest proportion of deaths involving COVID-19 that were also due to COVID-19 (94.1%), whereas June 2021 had the lowest proportion (42.9%). These proportions generally correspond with periods of low or high numbers of COVID-19 deaths in England and Wales.

The proportion of deaths due to COVID-19 (of all deaths involving COVID-19) remained similar between April and May 2022 in England (from 64.2% to 63.1%) and in Wales (from 65.1% to 66.7%).

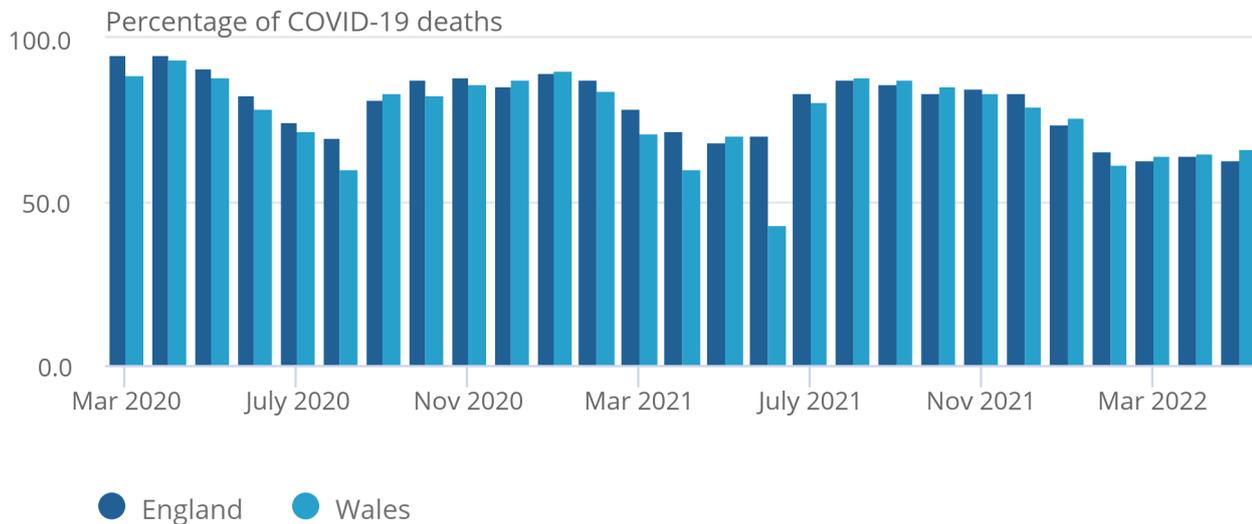
For more information on our definition of COVID-19 deaths, see the [Measuring the data section](#).

**Figure 2: The proportion of deaths due to COVID-19, when COVID-19 was mentioned anywhere on the death certificate, remained similar between April and May 2022 in England and Wales**

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

Figure 2: The proportion of deaths due to COVID-19, when COVID-19 was mentioned anywhere on the death certificate, remained similar between April and May 2022 in England and Wales

Percentage of deaths involving COVID-19 that were due to COVID-19, England and Wales, deaths registered in March 2020 to May 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 2021 and 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 45,526 deaths registered in May 2022 in England, 3.3% (1,516 deaths) were due to COVID-19, a smaller proportion than in April 2022 (6.1%). Including all deaths involving COVID-19 (2,404 deaths), this percentage increased to 5.3% of all deaths in England.

In Wales, 3.3% of the 2,992 deaths registered in May 2022 were due to COVID-19 (100 deaths), a smaller proportion than in April 2022 (5.7%). Including all deaths involving COVID-19 (150 deaths), this percentage increased to 5.0% 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 for May 2022 showed [statistically significant](#) decreases compared with April 2022 (Figure 3). The ASMR for deaths due to COVID-19 in England decreased to 31.3 deaths per 100,000 people in May 2022 (compared with 56.0 deaths per 100,000 people in April 2022). This was the lowest mortality rate for deaths due to COVID-19 in England since July 2021 (20.5 deaths per 100,000 people).

In Wales, the ASMR also statistically significantly decreased to 33.3 deaths per 100,000 people in May 2022 (compared with 58.4 deaths per 100,000 people in April 2022). This was the lowest mortality rate for deaths due to COVID-19 in Wales since August 2021 (24.5 deaths per 100,000 people).

### Figure 3: Mortality rates due to COVID-19 decreased significantly in England and Wales between April and May 2022

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

### Figure 3: Mortality rates due to COVID-19 decreased significantly in England and Wales between April and May 2022

Age-standardised mortality rates for deaths due to COVID-19, per 100,000 people, England and Wales, deaths registered in March 2020 to May 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 2021 and 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.

In England, the ASMR for deaths due to COVID-19 in May 2022 significantly decreased for males (40.9 deaths per 100,000 males), compared with April 2022 (69.5 deaths per 100,000 males). The ASMR for deaths due to COVID-19 also significantly decreased for females in May 2022 (24.6 deaths per 100,000 females) compared with April 2022 (46.4 deaths per 100,000 females).

In Wales, the ASMR for deaths due to COVID-19 in May 2022 significantly decreased for females (25.7 deaths per 100,000 females) compared with April 2022 (55.0 deaths per 100,000 females). The ASMR for deaths due to COVID-19 also decreased for males in May 2022 (43.2 deaths per 100,000 males) compared with April 2022 (65.2 deaths per 100,000 males), but this was not significant.

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](#) from the ONS and other sources.
- All ONS analysis, summarised in our [coronavirus latest insights](#).
- View [all coronavirus data](#).

## 4 . Leading causes of death

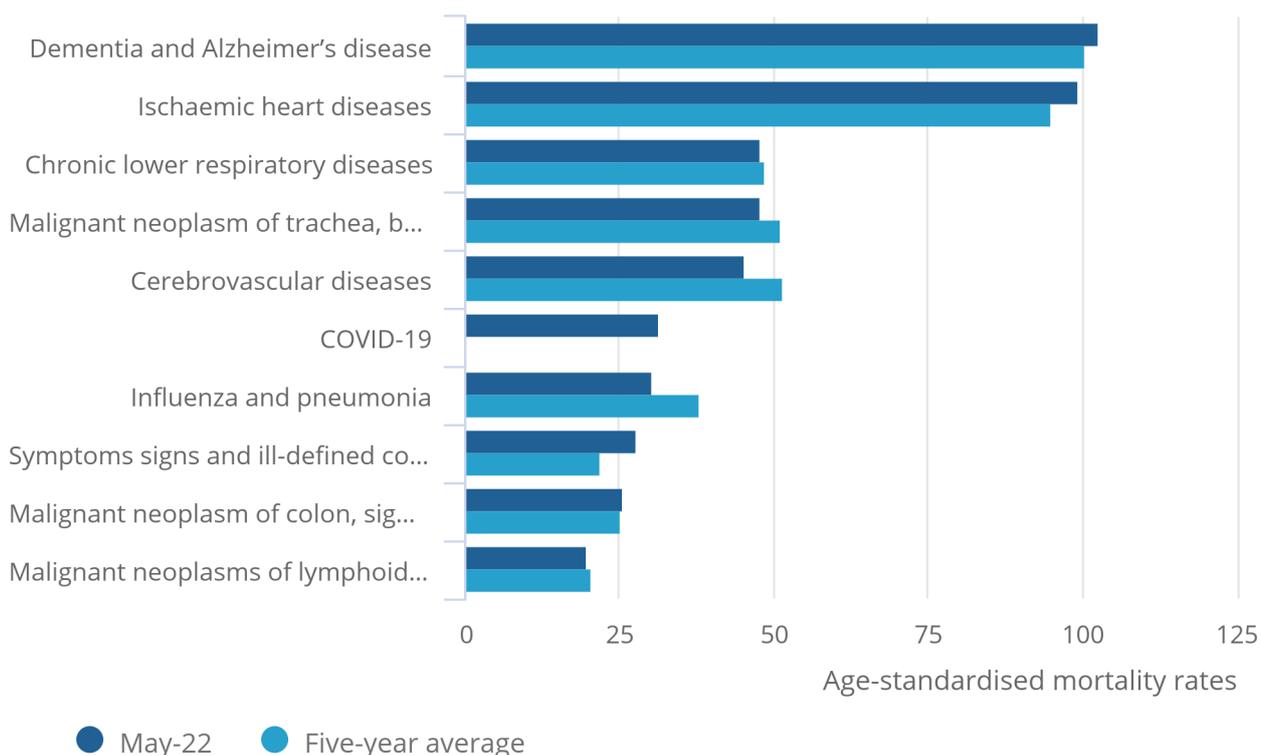
Figures 4 and 5 show the 10 most common underlying causes of death registered in May 2022, compared with the five-year average for May (2016 to 2019, and 2021), for England and Wales respectively. Causes of death are based on our [leading causes of death groupings](#).

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

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

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

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



Source: Office for National Statistics – Monthly mortality analysis

Notes:

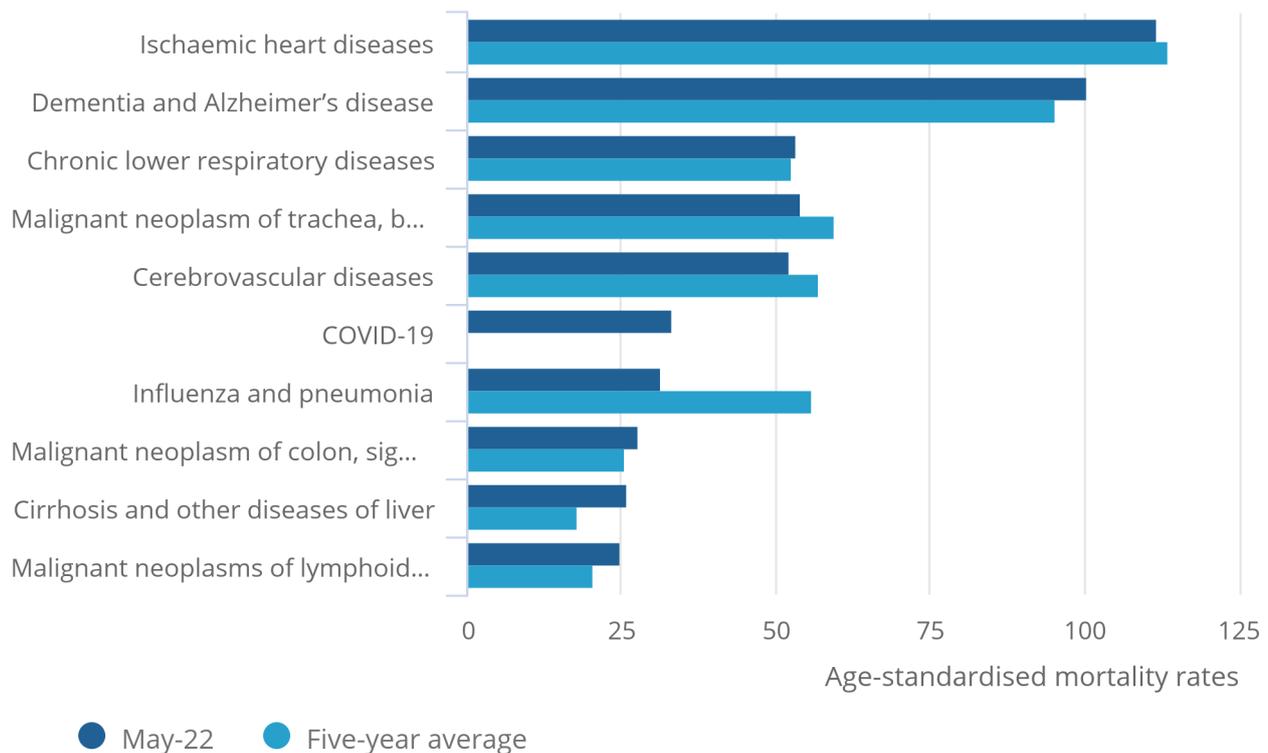
1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see the [Measuring the data section](#).
2. Figures for 2021 and 2022 are based on provisional mortality data and projected populations.
3. COVID-19 includes only deaths where COVID-19 was the 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 May 2022

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

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

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in May 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 2021 and 2022 are based on provisional mortality data and projected populations.
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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 May 2022, with 102.6 deaths per 100,000 people (5,005 deaths). In Wales, ischaemic heart diseases remained the leading cause of death, with 111.9 deaths per 100,000 people (329 deaths).

In both England and Wales, coronavirus (COVID-19) was the sixth leading cause of death in May 2022 (1,516 deaths in England and 100 deaths in Wales). This was a decrease from third leading cause of death in both England and Wales in April 2022.

In England in May 2022, 3 of the 10 leading causes of death were [statistically significantly](#) lower than the five-year average, and 4 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 11th consecutive month in England (25.3% higher). This leading cause group includes mostly deaths with a code for "old age" but is also used for causes such as "frailty".

The age-standardised mortality rate (ASMR) for deaths due to ischaemic heart diseases was also statistically significantly higher than the five-year average (4.6% higher) for the first time since our time series began in July 2020. This could be because this cause was significantly lower in May 2021 (19.2% lower than the 2015 to 2019 five-year average). It is likely that this was on account of a [mortality displacement effect](#) because of the pandemic, which has decreased the overall five-year average (when the 2016 to 2019 and 2021 five-year average is used).

As in previous months, the mortality rate for deaths with an underlying cause of influenza and pneumonia was significantly lower in May 2022 than the five-year average for May (19.7% lower). This is likely, in part, owing to people continuing to follow coronavirus guidance, such as social distancing. These measures reduced the spread of infections such as influenza.

In Wales in May 2022, cirrhosis and other disease of liver was the only leading cause of death that was statistically significantly higher than the five-year average (44.7% higher). Of the other remaining leading causes, seven were not significantly different from the five-year average. As in England, the mortality rate for influenza and pneumonia was significantly lower than the five-year average for May 2022 (44.0% lower) in Wales.

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

In the first five months (January to May) of 2022, the leading cause of death in England was dementia and Alzheimer's disease (110.1 deaths per 100,000 people). In Wales, the year-to-date leading cause of death was ischaemic heart diseases (119.4 deaths per 100,000 people).

In England, the year-to-date COVID-19 mortality rate was statistically significantly lower than the top two leading causes of death (dementia and Alzheimer's disease and ischaemic heart diseases), and statistically significantly higher than all other leading causes.

In Wales, deaths due to ischaemic heart diseases, and dementia and Alzheimer's disease, were also the top two leading causes of deaths. They were statistically significantly higher than any other cause of death. For the first time in the year-to-date in 2022, COVID-19 decreased to the fourth leading cause of death, being overtaken by chronic lower respiratory diseases. However, the difference in year-to-date mortality rate between these two causes was not significantly different.

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 227,570 deaths registered in England and 15,084 in Wales during the first five months (January to May) 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 May of each year from 2001 to 2022 (Figure 6).

For England, the year-to-date ASMR for 2022 (971.4 deaths per 100,000 people) was [statistically significantly](#) lower than all years since our time series started in 2001. This is except for 2014 and 2019 (976.4 and 976.3 deaths per 100,000 people respectively).

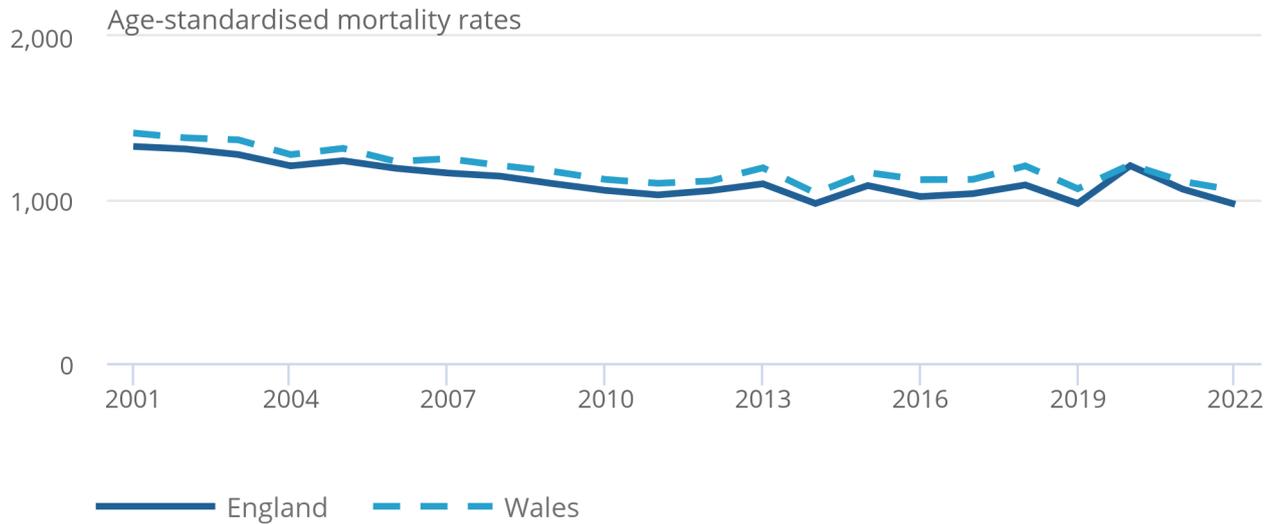
For Wales, the year-to-date ASMR for 2022 was 1,056.4 deaths per 100,000 people. Similar to England, this was statistically significantly lower than all years since our time series began, except 2014 and 2019 (1,040.6 and 1,066.7 deaths per 100,000 people respectively).

**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 May, 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 May, 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](#).
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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 to 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 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 the year when there was a COVID-19 wave.

In May 2022, when considering the 2016 to 2019 and 2021 five-year average, excess deaths in England were 6,135 above what we would expect in a "normal" year. This is compared with 5,873 when using the 2015 to 2019 average. The year-to-date (January to May) excess in England, when using the 2016 to 2019 and 2021 five-year average, was 493 above what we would expect. This increases to 4,405 deaths above what we would expect when the 2015 to 2019 average is used.

This is the first time that the 2022 year-to-date excess deaths have been above average regardless of which five-year average is used for England. However, the difference in excess deaths remains similar in the year-to-date excess in May (3,912 deaths difference) and April (4,174 deaths difference).

In Wales in May 2022, there were 329 deaths above what we would expect in a "normal" year, when considering the 2016 to 2019 and 2021 five-year average. This decreases to 305 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 86 deaths below what we would expect. This is compared with 34 deaths above when using the 2015 to 2019 average.

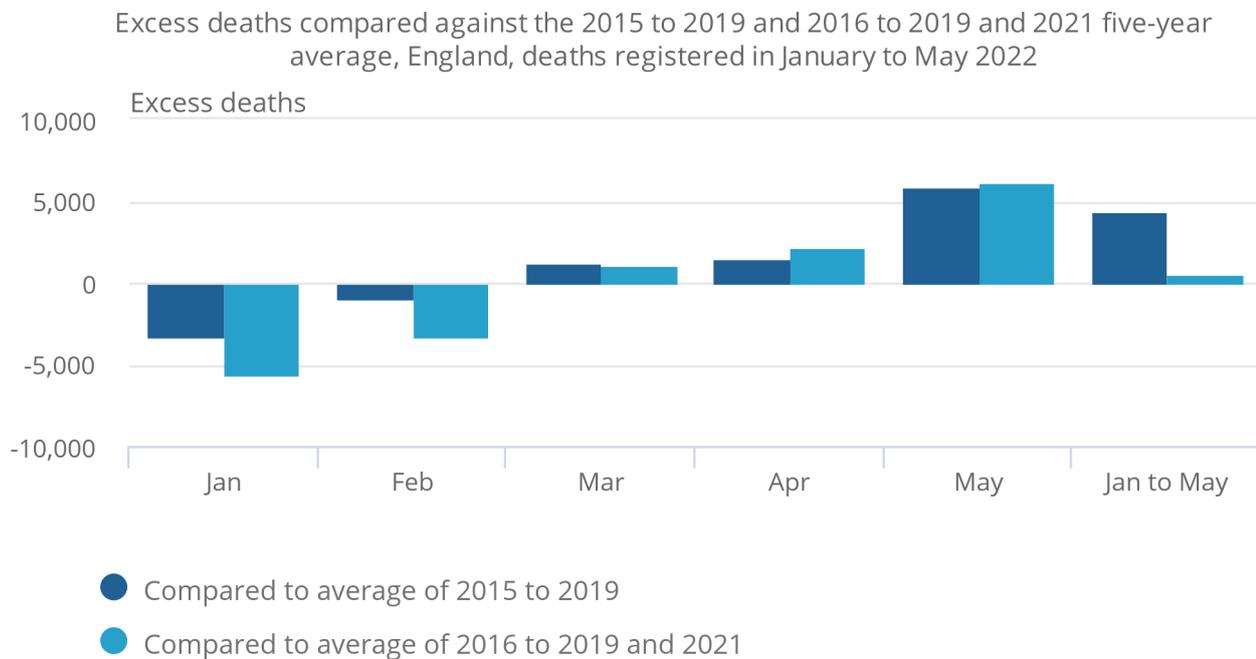
Similar to England, the difference in excess deaths in Wales remains similar in the year-to-date excess in May (120 deaths difference) and April (144 deaths difference). However, year-to-date excess deaths are only above average when the 2015 to 2019 average is used.

Figures 7 and 8 look at the excess deaths in January to May and year-to-date when using the 2015 to 2019 five-year average and the new 2016 to 2019 and 2021 five-year average, respectively.

**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 May 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

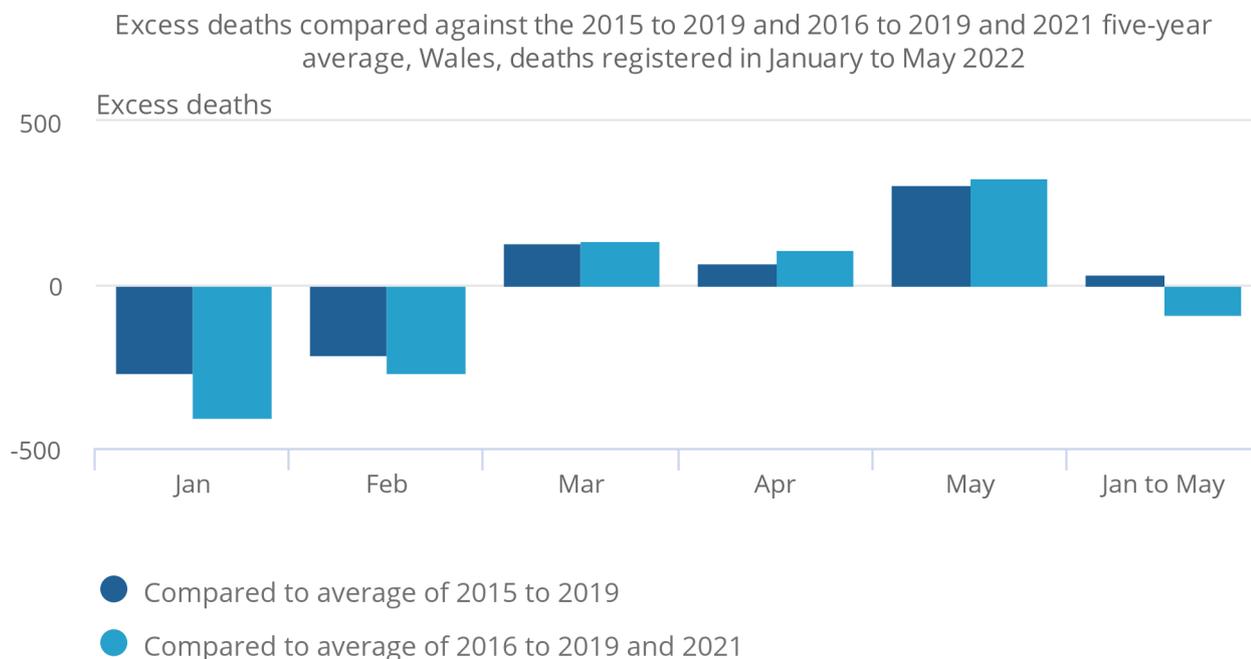
Notes:

1. Figures are for deaths registered rather than deaths occurring in each period.
2. Figures for 2021 and 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 May 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 2021 and 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.

## 7 . Death occurrences in May 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 the [Measuring the data section](#).

In England, 34,793 deaths occurred in May 2022 (and were registered by 7 June 2022). This was 4,590 fewer deaths than the five-year average (2016 to 2019, and 2021) for May (11.7% lower). In May 2022, of all deaths that occurred, 934 deaths (2.7%) were due to coronavirus (COVID-19); this is a 64.1% decrease compared with April 2022.

In Wales, 2,485 deaths occurred in May 2022 (and were registered by 7 June 2022). This was 138 fewer deaths than the five-year average (5.3% lower). Of all deaths that occurred in May 2022, deaths due to COVID-19 accounted for 64 deaths (2.6%); this is a 63.0% decrease compared with April 2022.

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 in May 2022, daily deaths due to COVID-19 decreased since April 2022

Number of deaths occurring on each day from March 2020 to May 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 June 2022. Death occurrences will increase as more deaths are registered, particularly for later dates.
2. Figures for 2021 and 2022 (including deaths that occurred in 2020 but were registered in 2021, and deaths that occurred in 2021 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-pandemic) year.

#### Download the data

[.xlsx](#)

### Figure 10: In Wales in May 2022, daily deaths due to COVID-19 decreased since April 2022

Number of deaths occurring on each day from March 2020 to May 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 June 2022. Death occurrences will increase as more deaths are registered, particularly for later dates.
2. Figures for 2021 and 2022 (including deaths that occurred in 2020 but were registered in 2021) 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-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 April 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 January to March 2022

Data on pre-existing conditions of people who died due to coronavirus (COVID-19) in England and Wales for 2020 and 2021 can be found in [our accompanying dataset](#). Quarter 1 (Jan to Mar) 2022 analysis is available in the [March 2022 edition of this bulletin](#). Analysis of Quarter 2 (Apr to Jun) 2022 will be published in the June 2022 edition of this bulletin.

## 9 . Monthly mortality data

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

Dataset | Released 22 June 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 22 June 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 22 June 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 22 June 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 22 June 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 27 April 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 the [Measuring the data section](#).

### 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 May 2022 by age and sex, and also includes deaths that occurred in May 2022 by date of death. Non-residents of England and Wales are excluded. In May 2022, there were 93 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 154,113 deaths due to COVID-19, 4,156 (2.7%) were classified as "suspected" COVID-19. Including all 179,103 deaths involving COVID-19, "suspected" COVID-19 was recorded on 4,787 deaths (2.7%) 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.

## Acknowledgement

We would like to thank Rhys Owen-Williams, Craig Arnold and Paul Brown for their valued contribution to this bulletin.

# 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 2021 and 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 QMI](#) 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: 2020](#)

Bulletin | Released 6 July 2021

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: 2020](#)

Article | Released 6 July 2021

Deaths registered in England and Wales due to coronavirus (COVID-19) by age, sex, region, 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.