

Statistical bulletin

Monthly mortality analysis, England and Wales: March 2021

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

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Release date:
22 April 2021

Next release:
20 May 2021

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1 . Main points

- There were 45,567 deaths registered in England in March 2021, 656 deaths (1.5%) more than the five-year average (2015 to 2019) for March; in Wales, there were 2,984 deaths registered, 87 deaths (2.8%) fewer than the five-year average for March.
- The coronavirus (COVID-19) was the third leading cause of death in March 2021 in both England (accounting for 9.2% of all deaths registered in March) and in Wales (6.3% of all deaths); COVID-19 was previously the leading cause of death for four consecutive months.
- The leading cause of death was dementia and Alzheimer's disease in England (accounting for 10.1% of all deaths registered in March) and ischaemic heart diseases in Wales (11.8% of all deaths).
- The age-standardised mortality rate (ASMR) of deaths due to COVID-19 in March 2021 was 89.3 deaths per 100,000 people in England, the lowest rate since November 2020, and 65.2 deaths per 100,000 people in Wales, the lowest rate since October 2020.
- The East Midlands was the English region with the highest mortality rate for deaths due to COVID-19 in March 2021 (118.9 deaths per 100,000 people), followed by the West Midlands (103.8 deaths per 100,000 people); the South West continued to have the lowest COVID-19 mortality rate, at 45.7 deaths per 100,000 people.

This month's bulletin includes an interactive map of deaths due to COVID-19 in each Middle layer Super Output Area (see [Section 3](#)). The [accompanying datasets](#) also include mortality rates for deaths due to COVID-19 by local area and deprivation, deaths involving COVID-19 for the UK and pre-existing conditions of people who died due to COVID-19 in 2020.

2 . Death registrations and the overall mortality rate for March 2021

Based on provisional data, there were 45,567 deaths registered in England in March 2021. This was 956 fewer deaths than in March 2020 and 656 deaths more than the five-year average (2015 to 2019). The number of deaths in March 2021 was within the five-year range of deaths registered in March in 2015 to 2019. The five-year average has been provided for 2015 to 2019 (rather than 2016 to 2020) because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020. The average for 2015 to 2019 provides a comparison of the number of deaths expected per month in a usual (non-pandemic) year. Of the deaths registered in March 2021, 23,167 were males and 22,400 were females.

In Wales, the provisional number of deaths registered in March 2021 was 2,984. This was 150 fewer deaths than in March 2020 and 87 fewer deaths than the five-year average for March. The number of deaths in March 2021 was within the five-year range of deaths registered in March in 2015 to 2019. Of the deaths registered in March in Wales, there were 1,547 male deaths and 1,437 female deaths.

Age-standardised mortality rates (ASMRs) are used for comparisons over time rather than numbers of deaths, as ASMRs account for changes to the population size and age structure. In England, mortality rates for the month of March had been generally decreasing since our data time series began in 2001, from 1,314.8 deaths per 100,000 people in 2001, to a low of 901.2 deaths per 100,000 people in March 2019. The [statistically significant](#) decrease in ASMRs from 2001 was seen in both males and females (Figure 1). From the beginning of the COVID-19 pandemic in March 2020, there was a statistically significant increase in the mortality rate (compared with March 2019) to 1,005.3 deaths per 100,000 people in England; this significant increase was seen in both males and females.

In England, the March 2021 mortality rate (966.3 deaths per 100,000 people) was statistically significantly lower than the mortality rate for March 2020, but remained significantly higher than the mortality rate for March 2019. The March 2021 mortality rate was also significantly lower than all other March mortality rates since our data time series began in 2001, with the exception of March 2014. [The Excess winter mortality in England and Wales: 2013 to 2014 \(provisional\)](#) release explained that, at the time of publishing (November 2014), excess deaths for the 2013 to 2014 winter were at the lowest number since records began in 1950 to 1951. The mortality rate in March 2021 was 1,128.9 deaths per 100,000 males (compared with 1,622.6 in March 2001) and 828.5 deaths per 100,000 females (compared with 1,106.7 in March 2001).

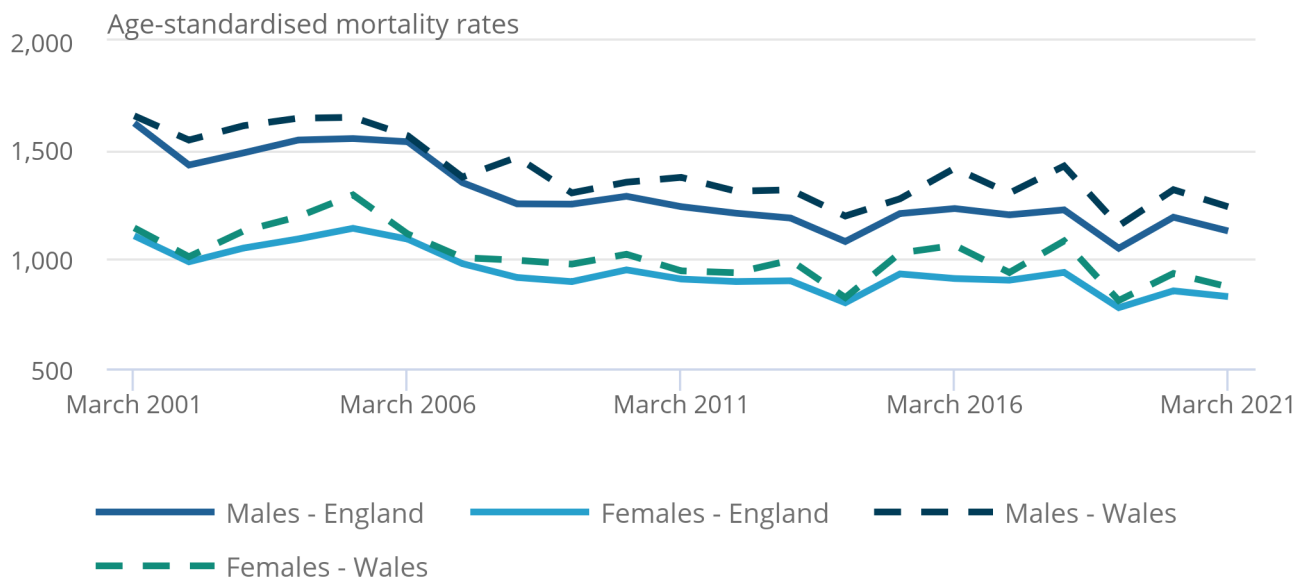
In Wales, 2005 was the year with the highest March mortality rate since our data time series began in 2001. Over time, mortality rates in Wales have decreased from 1,456.6 deaths per 100,000 people in March 2005 to a low of 965.1 deaths per 100,000 people in March 2019. With the beginning of the COVID-19 pandemic in March 2020, there was a statistically significant increase in the mortality rate (compared with March 2019) to 1,103.1 deaths per 100,000 people in Wales; this significant increase was also seen in both males and females. In March 2021, the mortality rate decreased (compared with March 2020) to 1,038.1 deaths per 100,000 people in Wales, with both males and females experiencing a decrease in deaths, however, none of these decreases were statistically significant.

Figure 1: Mortality rates for the month of March were lower in 2021 than in 2020, for males and females in England and Wales

Age-standardised mortality rates by sex, England and Wales, deaths registered in March 2001 to March 2021

Figure 1: Mortality rates for the month of March were lower in 2021 than in 2020, for males and females in England and Wales

Age-standardised mortality rates by sex, England and Wales, deaths registered in March 2001 to March 2021



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 [Section 11: Measuring the data](#).
2. Figures are for deaths registered rather than deaths occurring in each period.
3. Figures for 2020 and 2021 are based on provisional mortality data and projected populations.
4. Figures exclude non-residents.
5. The five-year average has been provided for 2015 to 2019 (rather than 2016 to 2020) because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020. The average for 2015 to 2019 provides a comparison of the number of deaths expected per month in a usual (non-pandemic) year.

3 . Deaths due to COVID-19 registered in March 2021

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](#).

In March in most cases (78.7% in England and 71.3% in Wales) where the coronavirus (COVID-19) was mentioned on the death certificate, it was found to be the underlying cause of death. For more information on our definition of COVID-19 deaths, see [Section 11: Measuring the data](#).

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 and 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.

Of the 45,567 deaths registered in March 2021 in England, 9.2% (4,198 deaths) were due to COVID-19. Taking into account all deaths involving COVID-19 increases the percentage to 11.7% of all deaths (5,336 deaths) in England in March 2021. This is the largest month-on-month decrease since the beginning of the coronavirus pandemic (72.0% fewer deaths compared with February 2021).

In Wales, 6.3% of the 2,984 deaths registered in March 2021 were due to COVID-19 (189 deaths). Taking into account all deaths involving COVID-19 increases the percentage to 8.9% of all deaths (265 deaths) in Wales.

Deaths due to COVID-19 in England and Wales

Age-standardised mortality rates (ASMRs) allow us to adjust for the size and age structure of the population. ASMRs for deaths due to COVID-19 had been increasing month-on-month (since the increase between August and September 2020 in England and between September and October 2020 in Wales), but significantly decreased in February 2021 and continued to decrease in March 2021 (Figure 2).

In England, the ASMR for deaths due to COVID-19 significantly decreased for the second consecutive month, with a rate of 89.3 deaths per 100,000 people in March 2021.

In Wales, the ASMR for deaths due to COVID-19 also significantly decreased for the second consecutive month, with a rate of 65.2 deaths per 100,000 people in March 2021.

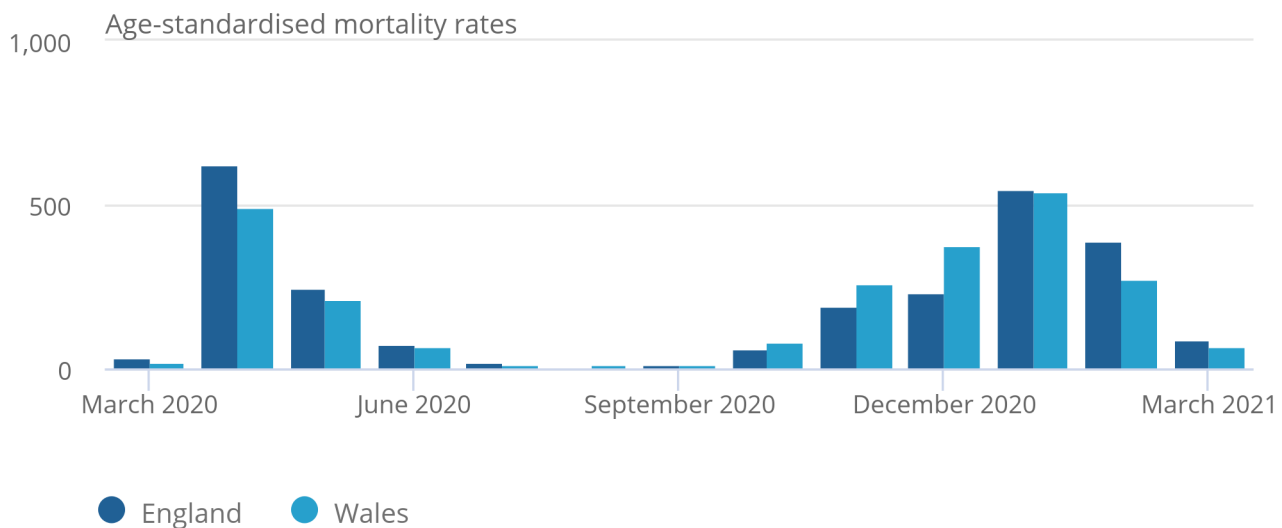
The COVID-19 mortality rate remains significantly higher in England than in Wales for the second consecutive month, but the difference has decreased from 44.1% in February 2021 to 37.0% in March 2021.

Figure 2: Mortality rates due to COVID-19 in March 2021 significantly decreased 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 March 2021

Figure 2: Mortality rates due to COVID-19 in March 2021 significantly decreased 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 March 2021



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 [Section 11: Measuring the data](#).
2. Figures are for deaths registered rather than deaths occurring in each period.
3. Figures for 2020 and 2021 are based on provisional mortality data and projected populations.
4. Figures exclude non-residents of England and Wales.
5. Deaths "due to COVID-19" include only deaths where COVID-19 was the underlying cause of death. Age-standardised mortality rates for all deaths involving COVID-19 are available in the [accompanying dataset](#).
6. The International Classification of Diseases, 10th Edition (ICD-10) definitions are as follows: coronavirus (COVID-19) (U07.1, U07.2 and U10.9). For more information on our definitions of COVID-19 deaths, see [Section 11: Measuring the data](#).

In England, the ASMR for deaths due to COVID-19 significantly decreased in March 2021 for both males (from 483.8 to 115.1 deaths per 100,000 males) and females (from 319.2 to 67.9 deaths per 100,000 females). The mortality rate for deaths due to COVID-19 was significantly higher in males than in females in every month from March 2020 to March 2021.

In Wales, the ASMR for deaths due to COVID-19 also significantly decreased in March 2021 for both males (335.1 to 64.3 deaths per 100,000 males) and females (from 223.0 to 62.6 deaths per 100,000 females). Males in Wales also had a higher mortality rate for deaths due to COVID-19 than females between March 2020 and March 2021, though this difference was not [statistically significant](#) in every month. More information on mortality rates by sex is available in Tables 3a and 3b of the [accompanying dataset](#).

Deaths due to COVID-19 in each Middle layer Super Output Area in England and Wales

[Super Output Areas \(SOAs\)](#) are small-area statistical geographies covering England and Wales. Each area has a similarly sized population and remains stable over time. For this analysis, Middle layer Super Output Areas (MSOAs) have been used. The [accompanying dataset](#) shows the number of deaths from all causes as well as deaths due to COVID-19.

The following interactive map allows you to see the cumulative number of monthly deaths due to COVID-19 in each area.

Figure 3: Number of deaths due to COVID-19 in Middle layer Super Output Areas, England and Wales, deaths registered between March 2020 and March 2021

Notes:

1. Points on the map are placed at the centre of the local area they represent and do not show the actual location of deaths. The size of the circle is proportional to the number of deaths.
2. To protect confidentiality, a small number of deaths have been reallocated between neighbouring areas. Given the method used for this, figures for some areas may be different to previously published data.
3. Figures are for deaths registered rather than deaths occurring in each month.
4. Figures exclude death of non-residents; geographical boundaries are based on the most up-to-date information available at the time of publication.
5. Deaths "due to COVID-19" include only deaths where COVID-19 was the underlying cause of death.
6. Locally adopted Middle-layer Super Output Area (MSOA) names are provided by House of Commons Library. While these names are not officially supported for National Statistics, they are provided here to help local users.
7. Figures are provisional.

[Download the data](#)

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 roundup](#).
- View [all coronavirus data](#).
- Find out how we are [working safely in our studies and surveys](#).

4 . Leading causes of death

Our [leading causes of death groupings](#) are based on a list developed by the World Health Organization (WHO). This categorises causes of death using the International Classification of Diseases, 10th edition (ICD-10) into groups that are epidemiologically more meaningful than single ICD-10 codes, for the purpose of comparing the most common causes of death in the population.

Leading causes of death registered in March 2021

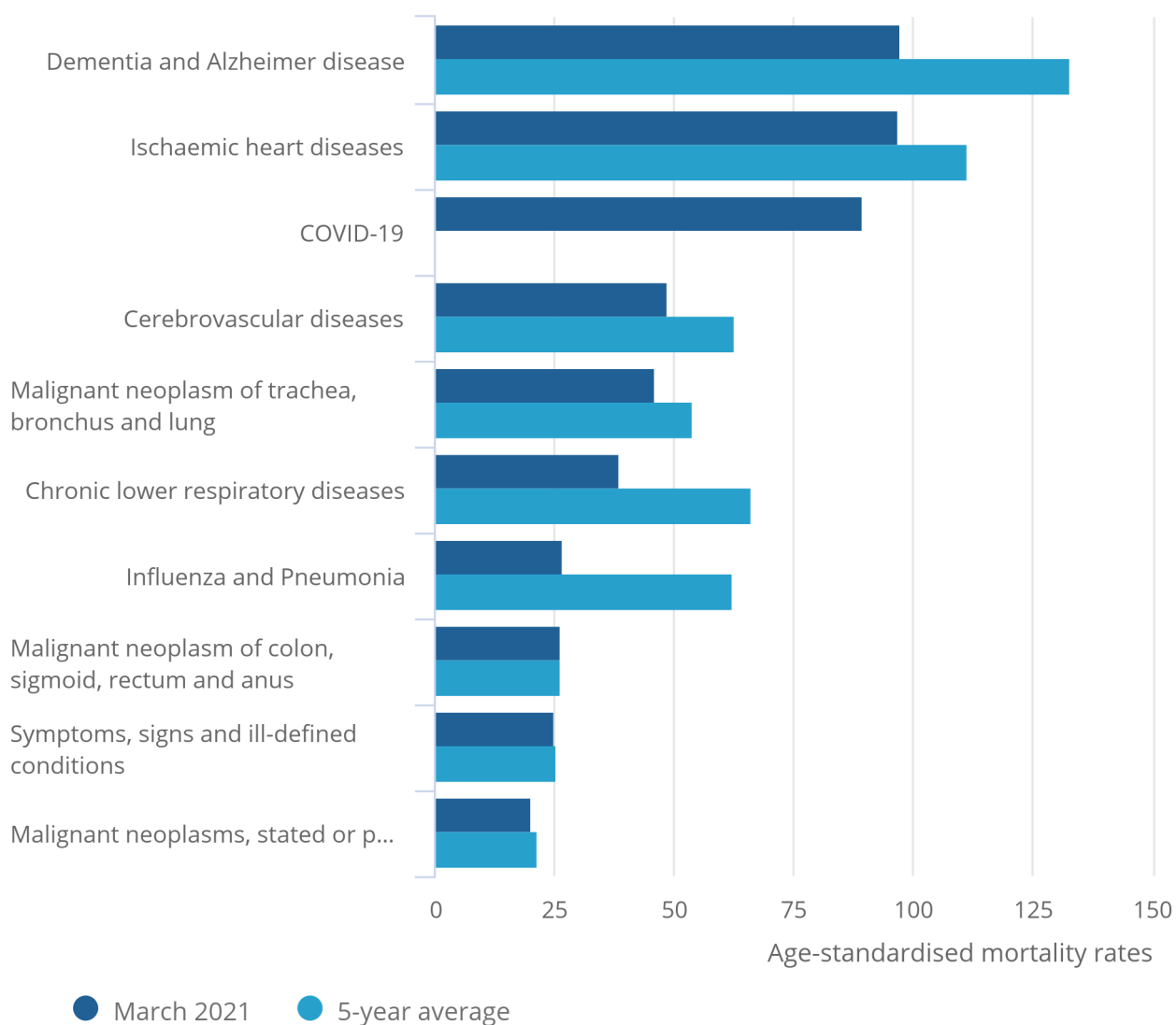
Figures 4 and 5 show the 10 most common underlying causes of death registered in March 2021 for England and Wales, compared with the five-year average for March (2015 to 2019).

Figure 4: In England, dementia and Alzheimer's disease was the leading cause of death in March 2021

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, England, deaths registered in March 2021

Figure 4: In England, dementia and Alzheimer's disease was the leading cause of death in March 2021

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, England, deaths registered in March 2021



Source: Office for National Statistics – Monthly mortality analysis

Notes:

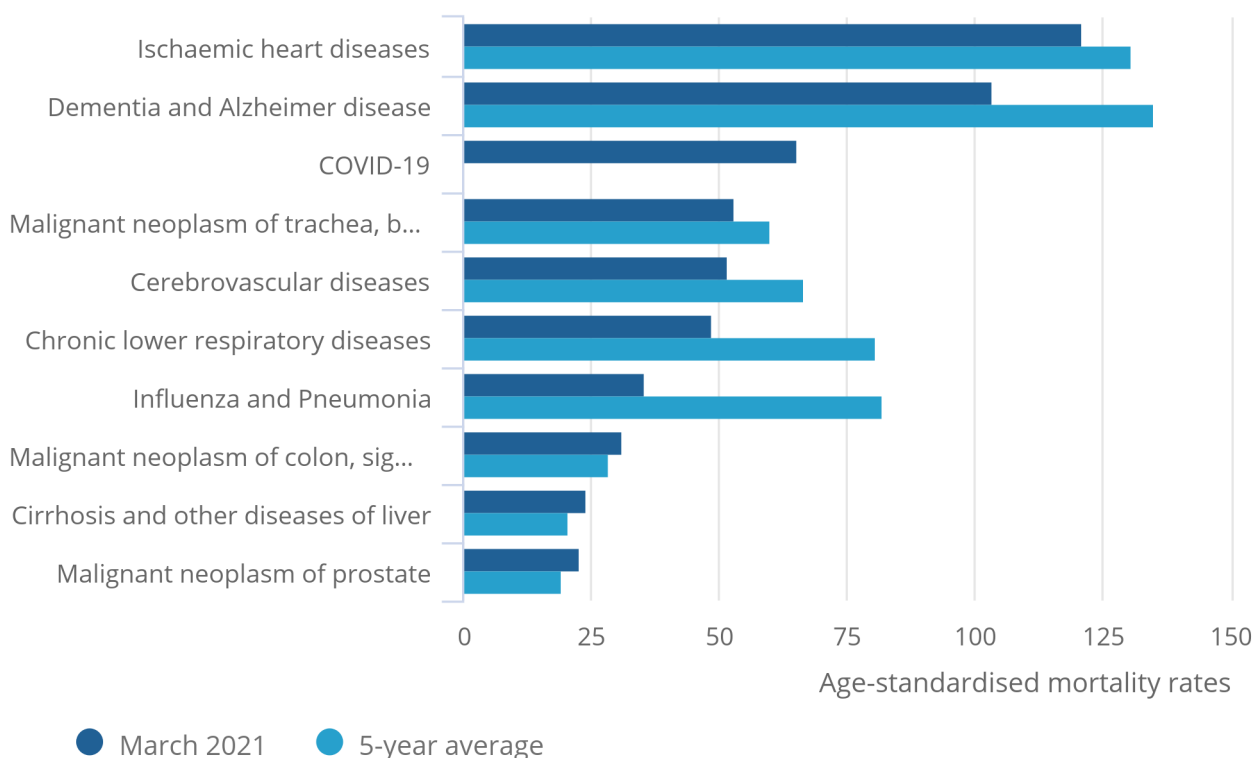
1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population. Monthly rates in this bulletin are adjusted to allow for comparisons with annual rates. For more information, see [Section 11: Measuring the data](#).
2. Figures are for deaths registered rather than deaths occurring in each period.
3. Figures for 2020 and 2021 are based on provisional mortality data and projected populations.
4. Figures exclude deaths of non-residents.
5. "COVID-19" includes only deaths where COVID-19 was the underlying cause of death.
6. The five-year average has been provided for 2015 to 2019 (rather than 2016 to 2020) because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020. The average for 2015 to 2019 provides a comparison of the number of deaths expected per month in a usual (non-pandemic) year.

Figure 5: In Wales, ischaemic heart diseases was the leading cause of death in March 2021

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in March 2021

Figure 5: In Wales, ischaemic heart diseases was the leading cause of death in March 2021

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in March 2021



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 [Section 11: Measuring the data](#).
2. Figures are for deaths registered rather than deaths occurring in each period.
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4. Figures exclude deaths of non-residents.
5. "COVID-19" includes only deaths where COVID-19 was the underlying cause of death.
6. The five-year average has been provided for 2015 to 2019 (rather than 2016 to 2020) because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020. The average for 2015 to 2019 provides a comparison of the number of deaths expected per month in a usual (non-pandemic) year.

In England, dementia and Alzheimer's disease was the leading cause of death in March 2021, with 97.2 deaths per 100,000 people (4,616 deaths). This is the first month since October 2020 that dementia and Alzheimer's disease was the leading cause of death in England. The rate of deaths due to dementia and Alzheimer's disease was not significantly higher than the second most common cause of death in England, ischaemic heart diseases, with 96.9 deaths per 100,000 people (4,553 deaths). Dementia and Alzheimer's disease and ischaemic heart diseases were the first and second leading cause of death for the five-year average (2015 to 2019) for the month of March in England, with 133.0 and 111.4 deaths per 100,000 people respectively.

In Wales, ischaemic heart diseases was the leading cause of death in March 2021, with 121.2 deaths per 100,000 people (351 deaths). This is the first month since August 2020 that ischaemic heart diseases was the leading cause of death in Wales. The rate of deaths due to ischaemic heart diseases was not significantly higher than the second most common cause of death in Wales, dementia and Alzheimer's disease, with 103.6 deaths per 100,000 people (299 deaths). Dementia and Alzheimer's disease and ischaemic heart diseases were the first and second leading cause of death for the five-year average (2015 to 2019) for the month of March in Wales, with 135.0 and 130.7 deaths per 100,000 people respectively.

In March 2021, COVID-19 was the third most common cause of death in both England and Wales (89.3 and 65.2 deaths per 100,000 people respectively). COVID-19 was previously the leading cause of death in both England and Wales for four consecutive months.

In England in March 2021, 6 of the 10 leading causes of death were significantly lower than the five-year average (2015 to 2019), with malignant neoplasms, stated or presumed to be primary of lymphoid, haematopoietic and related tissue, symptoms, signs and ill-defined conditions, and malignant neoplasm of colon, sigmoid, rectum and anus all having a similar mortality rate to the five-year average. In particular, the mortality rate for deaths with an underlying cause of influenza and pneumonia was 57.1% lower in March 2021 than the five-year average for March.

In Wales, 4 of the 11 leading causes were significantly lower than the five-year average. Similar to England, the March 2021 mortality rate for influenza and pneumonia was 56.8% lower than the five-year average.

5 . Age-standardised mortality rates by sex and age group, in March 2021

Generally, since 2001 (the beginning of our data time series), the age-standardised mortality rates for people aged both 0 to 74 years and 75 years and over have been decreasing in England and Wales.

Similar to the trend seen in all ages ([Section 2](#)), mortality rates in both England and Wales increased between August 2020 and January 2021 for the age group 75 years and over and in England for the under 75 years age group. However, mortality rates in England have decreased significantly for the second consecutive month for people aged both 0 to 74 years and 75 years and over. Mortality rates in Wales have similarly decreased in both age groups but were only significant for people aged 75 years and over.

More information on mortality rates by sex and age group (including age-specific mortality rates by five-year age group for people aged 75 years and over) is available in Tables 4 to 9 of the [accompanying dataset](#).

6 . Deaths registered in the year-to-date

There were 169,851 deaths registered in England and 10,613 in Wales during the first three months (January to March) of 2021.

To gain a better idea of year-to-year differences in mortality rates, we calculated year-to-date age-standardised mortality rates (ASMR) based on deaths registered in January to March of each year from 2001 to 2021 (Figure 6). For England, the year-to-date age-standardised mortality rate for 2021 was 1,242.0 deaths per 100,000 people, which was [statistically significantly](#) higher than all years between 2007 and 2020.

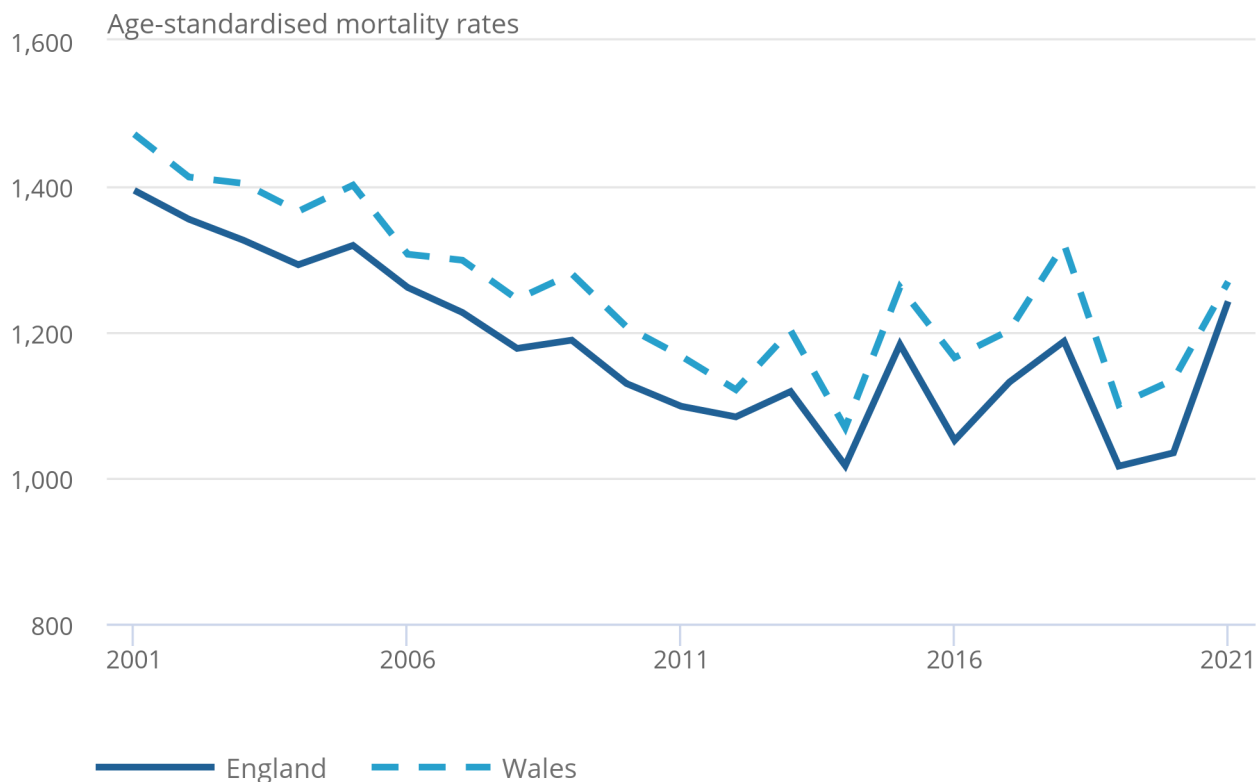
For Wales, the year-to-date age-standardised mortality rate for 2021 was 1,269.1 deaths per 100,000 people. This was statistically significantly higher than the same period in 2019 and 2020. This was statistically significantly higher than the same period in 2019 and 2020, but significantly lower than 2018.

Figure 6: The mortality rate for January to March 2021 was significantly higher than the same period in 2019 and 2020 in both England and Wales

Age-standardised mortality rates, England and Wales, deaths registered in January to March 2001 to 2021

Figure 6: The mortality rate for January to March 2021 was significantly higher than the same period in 2019 and 2020 in both England and Wales

Age-standardised mortality rates, England and Wales, deaths registered in January to March 2001 to 2021



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 [Section 11: Measuring the data](#).
2. Figures are for deaths registered rather than deaths occurring in each period.
3. Figures for 2020 and 2021 are based on provisional mortality data and projected populations.
4. Figures exclude non-residents.

The age-standardised mortality rate for January to March 2021 was higher in Wales than in England in every year since our data time series began in 2001. This difference was statistically significant in all years except January to March 2021, which showed no significant difference. The smallest difference between England and Wales was in January to March 2021, with the two countries showing similar year-to-date mortality rates (1,242.0 deaths per 100,000 people in England, 1,269.1 in Wales).

7 . Death occurrences in March 2021 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. Analysis of deaths by date of registration is useful as the figures are comparable across time and geography. Because of the [length of time that it takes a death to be registered](#), using data based on registration can mean that we are not monitoring the most current death trends. For example, a death registered in March 2021 could have occurred in a previous month or even a previous year. Further information regarding death occurrences and registration delays can be found in [Section 11: Measuring the data](#).

Between 1 January and 31 March 2021, 154,020 deaths occurred in England (and were registered by 8 April 2021). This was 14,061 more deaths than the five-year average (2015 to 2019) for January to March (10.0% higher). Of the 154,020 deaths that occurred, 28.4% were due to the coronavirus (COVID-19) (43,715 deaths).

In Wales, 9,666 deaths occurred in January to March 2021 (and were registered by 8 April 2021). This was 246 more deaths than the five-year average (2.6% higher). COVID-19 was the underlying cause of death in 23.2% of all deaths that occurred (2,243 deaths).

In England, the first death due to COVID-19 occurred on 30 January 2020 (Figure 7). Since 11 March 2020, the number of COVID-19 deaths occurring on each day rose (except for 6 April 2020, when it decreased by 14 deaths) until the peak of 1,225 deaths that occurred on 8 April 2020.

Since 8 April, the number of COVID-19 deaths each day had generally been decreasing but began increasing again from mid-September. The number of daily COVID-19 deaths had continued to increase, reaching 1,192 deaths on 19 January 2021 (the highest since 8 April 2020 at 1,225 deaths). Since then, the number of COVID-19 deaths has been decreasing, with 27 deaths due to COVID-19 occurring on 31 March 2021 (though the number of death occurrences on more recent dates is likely to rise as we receive more death registrations).

In Wales, the first death with an underlying cause of COVID-19 occurred on 15 March 2020. As in England, the number of COVID-19 deaths per day reached the peak on 8 April 2020, when 70 deaths due to COVID-19 occurred in Wales.

Since 8 April, the number of COVID-19 deaths occurring each day in Wales had been gradually decreasing, with no COVID-19 deaths occurring on 41 days between June and September. However, daily COVID-19 deaths generally increased throughout October 2020 to January 2021, with 76 deaths occurring on 11 January 2021 (though this may be higher due to registration delays). This is the highest number of daily deaths due to COVID-19 in Wales to-date. Since then, the number of COVID-19 deaths has been decreasing in Wales, with fewer than 10 deaths occurring throughout most days in March.

Trends on more recent dates should be treated with caution as numbers of deaths are likely to rise as we receive more death registrations. In particular, instances where the number of death occurrences on each day in March were below the range of the last five years, are likely to be a result of when the data extract was created.

Figure 7: In England, daily deaths due to COVID-19 continued to decrease in March 2021

Number of deaths occurring on each day from March 2020 to March 2021¹, five-year average and range, England

Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 8 April 2021. Death occurrences will increase as more deaths are registered, particularly for later dates.
2. The range is the difference between the minimum and maximum value observed on each day during the five-year period (2015 to 2019).
3. Figures exclude non-residents.
4. This chart includes deaths from 1 March 2020. Three deaths involving COVID-19 occurred prior to this (one death in January 2020 and two deaths in February 2020), but are not included here.

[Download the data](#)

Figure 8: In Wales, daily deaths due to COVID-19 continued to decrease in March 2021

Number of deaths occurring on each day from March 2020 and March 2021¹, five-year average and range, Wales

Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 8 April 2021. Death occurrences will increase as more deaths are registered, particularly for later dates.
2. The range is the difference between the minimum and maximum value observed on each day during the five-year period (2015 to 2019).
3. Figures exclude non-residents.

[Download the data](#)

8 . Pre-existing conditions of people whose death was recorded with an underlying cause of COVID-19, deaths registered in 2020

Data on pre-existing conditions of people who died due to the coronavirus (COVID-19) in England and Wales for 2020 can be found in the [accompanying dataset](#). Detailed information on this analysis is available in the [January 2021 edition of this bulletin](#). This analysis will be updated on a quarterly basis in the April edition.

9 . Monthly mortality data

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

Dataset | Released 22 April 2021

Monthly data on death registrations and death occurrences in England and Wales, broken down by sex and age. Includes deaths due to the 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 local area and deprivation](#)

Dataset | Released 22 April 2021

Provisional age-standardised mortality rates for deaths due to COVID-19 by 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 April 2021

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 April 2021

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.

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

Dataset | Released 25 February 2021

Pre-existing conditions of people who died due to COVID-19, England and Wales, 2020.

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 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 was not part of the causal sequence.

Main pre-existing condition

The main pre-existing condition is defined as the one pre-existing condition that is, on average, mostly likely to be the underlying cause of death for a person of that age and sex.

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

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

The purpose of this bulletin is to provide timely surveillance of mortality in England and Wales, based on the best available provisional data, including all-cause mortality and deaths where the coronavirus (COVID-19) was the underlying cause.

The analysis contains deaths registered in March 2021 by age and sex, and also includes deaths that occurred in March 2021 by date of death. This expands on the quarterly data for England that were previously published in the [Quarterly mortality report](#). Non-residents of England and Wales are excluded from this analysis. In March 2021, there were 73 deaths of non-residents that were registered in England and Wales.

More in-depth analysis on deaths involving the coronavirus (COVID-19) is included in this bulletin in some months to meet user needs. In the November 2020 edition, we added analysis of [deaths due to COVID-19 by local area and deprivation](#), and in December 2020 we added mortality rates for [deaths involving COVID-19 for the UK](#). In January 2021, we added an analysis of [pre-existing conditions of deaths due to COVID-19](#).

Analysis by month of death registration is consistent with the [weekly death registrations release](#) and allows for a more timely analysis than would be possible using death occurrences. This is because a proportion of deaths that occurred in the previous month would not yet have been registered. On average, there is a delay of five days between a death occurring and it being registered, but this can be much longer, especially for certain causes of death. More information on this issue can be found in our [Impact of registration delays publication](#).

Deaths data sources

This bulletin is based primarily on death registrations, with 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 than registrations 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 8th of the month, to allow time for deaths to be registered. Death registrations data for 2020 and 2021 are provisional; however, we would expect only very small changes to total death registration counts once data are made final. Death occurrences are likely to change, especially for dates towards the end of the current month, as some deaths will not have been registered when the extract is taken.

Figures on deaths due to COVID-19 in this bulletin are different from the [daily surveillance figures on COVID-19 deaths](#) published by the Department of Health and Social Care (DHSC) on the GOV.UK website as figures in this report are derived from the formal process of death registration. More information on the different sources of COVID-19 deaths data is available in [Deaths registered weekly in England and Wales](#).

Definition of COVID-19

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](#). We use the term "due to COVID-19" when referring only to deaths with an underlying cause of death of COVID-19. When taking into account 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". Age-standardised rates for deaths due to COVID-19 and involving COVID-19 are available in the [accompanying dataset](#).

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. For example, a doctor may have clinically diagnosed COVID-19 based on symptoms, but this diagnosis may not have been confirmed because no test was available, or the test result was inconclusive. Of the 122,683 deaths due to COVID-19, 4,009 (3.3%) were classified as "suspected" COVID-19. Including all deaths involving COVID-19 (137,570 deaths), "suspected" COVID-19 was recorded on 3.3% (4,587 deaths) of all deaths involving COVID-19 in England and Wales.

From the February 2021 bulletin, new International Classification of Diseases (ICD-10) codes for COVID-19 issued by the World Health Organization (WHO) have been implemented for COVID-19 deaths. The new codes are U09.9 (Post-COVID condition, where the acute COVID had ended before the condition immediately causing death occurred) and U10.9 (Multisystem inflammatory syndrome associated with COVID-19 (also called Kawasaki-like syndrome), a specific, uncommon effect of COVID-19 in children). These are in addition to the existing codes of U07.1 (COVID-19, virus identified) and U07.2 (COVID-19, virus not identified, that is, COVID-19 stated to be unconfirmed or suspected).

As ICD-10 code U09.9 cannot be assigned to the underlying cause of death, our deaths due to COVID-19 definition does not include this code. Table 1 summarises the ICD-10 codes used to define COVID-19 deaths.

Table 1: International Classification of Diseases, Tenth Edition (ICD-10) codes used to define deaths due to COVID-19 and involving COVID-19

ICD-10 code Description

U07.1	COVID-19, virus identified
U07.2	COVID-19, virus not identified
U09.91	Post-COVID condition, unspecified
U10.9	Multisystem inflammatory syndrome associated with COVID-19, unspecified

Notes

1. ICD-10 code U09.9 cannot be assigned to the underlying cause of death so is not included in the deaths "due to COVID-19" definition.

There are several ICD-10 codes not included in our definitions of deaths due to COVID-19 and deaths involving COVID-19; these are summarised in Table 2. ICD-10 code U08.9 is used to record an earlier episode of COVID-19 when the person no longer suffers from COVID-19. ICD-10 codes U11.9 and U12.9 relate to COVID-19 vaccines rather than COVID-19 itself. U11.9 is an optional code that may be used when a person encounters health services for the specific purposes of receiving a COVID-19 vaccine, and U12.9 covers deaths caused by an adverse effect of the COVID-19 vaccine. Although these three codes are not included in our figures for deaths "due to" or "involving" COVID-19, a summary of deaths for these codes is available in Table 12 of the [accompanying dataset](#).

Table 2. International Classification of Diseases, Tenth Edition (ICD-10) codes for personal history of COVID-19 and COVID-19 vaccines

ICD-10 code Description

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

Monthly mortality rates

We publish the mid-year population estimates used for calculating rates; these are currently available up to 2019. For 2020 onwards, population projections were used.

Calculation of mortality rates for monthly deaths requires adjustments to be made to annual population estimates to calculate rates that are comparable with annual rates. We calculate an annual population centred on the midpoint of the month using two years' worth of population estimates (or where these are not available, population projections). For the first half of the year (January to June), populations for the current year and the previous year are used; for the second half of the year (July to December), populations for the current year and the following year are used.

This is then multiplied by the number of days within the month as a proportion of the total number of days within that year. The output is used as the population denominator in calculations of age-standardised and age-specific mortality rates.

For example:

June 2020 population equals

$$(\text{population}_{2019}(i) + ((\text{population}_{2020}(i) - \text{population}_{2019}(i)) \times (\frac{m}{M}))) \times (\frac{N}{M})$$

where m is the number of days from 1 July 2019 (the start of the mid-year for the population estimate) to the midpoint of June inclusive, N is the number of days in June 2020, M is the number of days in 2020 and (i) is the age group.

July 2020 population equals

$$(\text{population}_{2020}(i) + ((\text{population}_{2021}(i) - \text{population}_{2020}(i)) \times (\frac{m}{M}))) \times (\frac{N}{M})$$

where m is the number of days from 1 July 2019 (the start of the mid-year for the population estimate) to the midpoint of July inclusive, N is the number of days in July 2020, M is the number of days in 2020 and (i) is the age group.

For geographies where population projections are not available (such as deprivation deciles quintiles, which are based on Lower layer Super Output Areas), we calculate the proportion of the country-level population that is within each geography. Then we apply this proportion to the country-level population projections to estimate a population projection for that area. This estimated projection is then used in the monthly population method previously described. Mid-year population estimates for 2019 are used to calculate the proportions as these are the most up-to-date estimates available. The monthly population method for geographies below country level was updated in the January 2021 edition and the data back series revised. For more information see the [accompanying dataset](#).

Acknowledgement

We would like to thank Rachel Rushton, Charlee Humphries, Georgia Brett, Kanak Ghosh, Matt Wells, Rachael Hopkin and Steve Reynolds 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 2020 and 2021 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 are 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.

Further information can be found in the [Mortality statistics in England and Wales Quality and Methodology Information \(QMI\)](#) report and the [User guide to mortality statistics](#).

13 . Related links

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

Bulletin | Released 20 April 2021

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

[Deaths involving COVID-19, England and Wales](#)

Bulletin | Released 17 July 2020

Number of deaths involving the coronavirus (COVID-19) that occurred in each month in England and Wales, by country, age, sex and place of death.

[Deaths registered in England and Wales: 2019](#)

Bulletin | Released 1 July 2020

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 involving COVID-19 by local area and socioeconomic deprivation: deaths occurring between 1 March and 31 July 2020](#)

Bulletin | Released 28 August 2020

Provisional counts of the number of deaths and age-standardised mortality rates involving COVID-19 between 1 March and 31 July 2020 in England and Wales. Figures are provided by age, sex, geographies down to local authority level, and deprivation indices.

[Deaths involving COVID-19, UK: deaths occurring between 1 March and 30 April 2020](#)

Bulletin | Released 12 June 2020

Provisional counts of the number of deaths and age-standardised mortality rates involving the coronavirus (COVID-19) between 1 March and 30 April 2020 in the UK.

[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.