Office for National Statistics

Statistical bulletin

Monthly mortality analysis, England and Wales: January 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.

Contact:
Danielle Cornish
health.data@ons.gov.uk
+44 (0)1329 444110

Release date:
25 February 2021

Next release:
18 March 2021

Table of contents

1. Main points

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

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

4. Leading causes of death

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

6. Death occurrences in January 2021

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

8. Monthly mortality data

9. Glossary

10. Measuring the data

11. Strengths and limitations

12. Related links

1 . Main points

- In January 2021, there were 68,796 deaths registered in England, 15,685 deaths (29.5%) more than the five-year average (2015 to 2019) for January; in Wales, there were 4,431 deaths registered, 904 deaths (25.6%) more than the five-year average for January.
- The coronavirus (COVID-19) was the leading cause of death in January 2021 for the third consecutive month in both England (accounting for 37.4% of all deaths registered in January) and in Wales (35.2% of all deaths).
- The second-leading cause of death was dementia and Alzheimer's disease in England, and ischaemic heart disease in Wales; COVID-19 accounted for more than four times the number of deaths than the second-leading cause in both countries.
- The age-standardised mortality rate (ASMR) of deaths due to COVID-19 in January 2021 was 545.9 deaths per 100,000 people in England and 539.1 deaths per 100,000 people in Wales.
- In Wales, the highest ASMR due to COVID-19 was experienced in January 2021, 8.9% higher than in April 2020 (a rate of 539.1 deaths per 100,000 people in January 2021, compared with 495.1 deaths per 100,000 people in April 2020).
- London was the English region with the highest mortality rate for deaths due to COVID-19 in January 2021 (900.6 deaths per 100,000 people), followed by the East of England (700.2 deaths per 100,000 people); the South West had the lowest COVID-19 mortality rate, at 295.6 deaths per 100,000 people.
- In England, the mortality rate for deaths due to COVID-19 in January 2021 in the most deprived areas was 710.4 deaths per 100,000 people; this was 1.8 times the mortality rate in the least deprived areas (400.1 deaths per 100,000 people).
- In Wales, the COVID-19 mortality rate in the most deprived areas was 1.5 times the mortality rate in the least deprived areas (680.3 deaths per 100,000 people in the most deprived areas, 444.7 deaths per 100,000 people in the least deprived areas).
- Dementia and Alzheimer's disease was the most common pre-existing condition among COVID-19 deaths in England and Wales in 2020 , identified in 25.3% of deaths due to COVID-19.

This month's bulletin includes an interactive map of deaths due to COVID-19 in each Middle layer Super Output Area (see Section 3) and analysis of pre-existing conditions of people who died due to COVID-19 (see Section 7). The accompanying datasets also include mortality rates for deaths due to COVID-19 by local area and deprivation, and deaths involving COVID-19 for the UK.

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

Based on provisional data, there were 68,796 deaths registered in England in January 2021. This was 15,747 more deaths than in January 2020 and 15,685 deaths more than the five-year average (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 January 2021, 34,903 were males and 33,893 were females.

In Wales, the provisional number of deaths registered in January 2021 was 4,431. This was 878 more deaths than in January 2020 and 904 more deaths than the five-year average for January. Of the deaths registered in January in Wales, there were 2,254 male deaths and 2,177 female deaths.

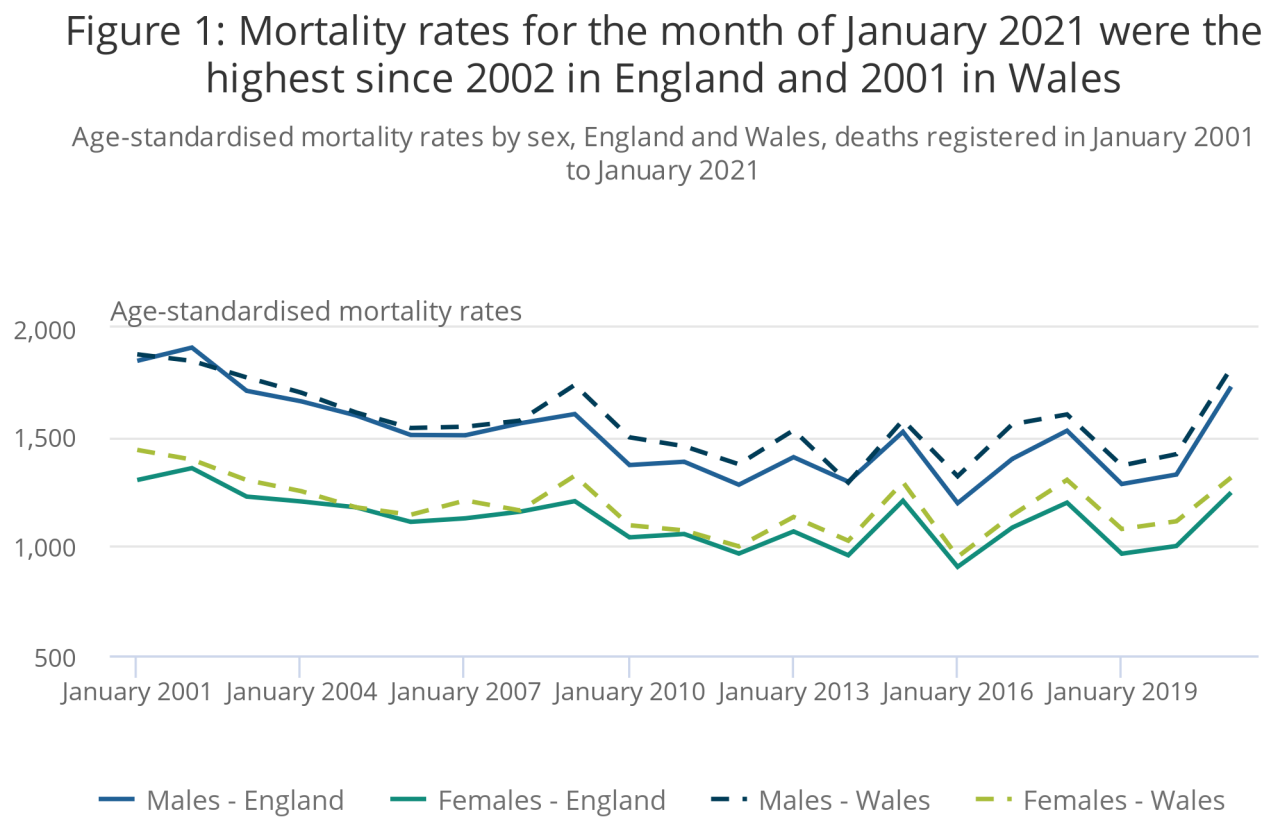
Age-standardised mortality rates (ASMRs) are used for comparisons over time rather than numbers of deaths, as ASMRs account for changes to the population size and age structure. In England, January 2002 was the year with the highest mortality rate since our data time series began in 2001. Since then, mortality rates in England for the month of January had been generally decreasing from 1,581.7 deaths per 100,000 people in 2002, to a low of 1,034.2 deaths per 100,000 people in January 2016. The statistically significant decrease in age-standardised mortality rates from 2002 was seen in both males and females (Figure 1). But since 2019, the mortality rate has increased each year.

In England, the January 2021 mortality rate (1,462.0 deaths per 100,000 people) was significantly higher than the mortality rate in every year back to January 2003 (but significantly lower than January 2002 and January 2001, the highest mortality rates in this analysis). The mortality rate in January 2021 was 1,729.9 deaths per 100,000 males (compared with 1,908.9 in January 2002) and 1,245.5 deaths per 100,000 females (compared with 1,357.0 in January 2002).

In Wales, 2001 was the year with the highest January mortality rate since our data time series began in 2001. Over time, mortality rates in Wales have decreased from 1,626.5 deaths per 100,000 people in January 2001 to a low of 1,114.0 deaths per 100,000 people in January 2016. In January 2021, the mortality rate significantly increased (compared with January 2020) to 1,537.2 deaths per 100,000 people; with both males and females experiencing an increase in deaths. The January 2021 mortality rate was significantly higher than the mortality rate in every year back to January 2009.

Figure 1: Mortality rates for the month of January 2021 were the highest since 2002 in England and 2001 in Wales

Age-standardised mortality rates by sex, England and Wales, deaths registered in January 2001 to January 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 10: 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 January 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 January in most cases (89.8% in England and 89.9% 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 10: 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 68,796 deaths registered in January 2021 in England, 37.4% (25,716 deaths) were due to COVID-19. This is the highest proportion seen in England since the pandemic began, overtaking April 2020 when 33.5% of all deaths were due to COVID-19. Taking into account all deaths involving COVID-19 increases the percentage to 41.6% of all deaths (28,650 deaths) in England in January 2021.

In Wales, 35.2% of the 4,431 deaths registered in January 2021 were due to COVID-19 (1,561 deaths), the highest proportion seen in Wales since the pandemic began, overtaking April 2020 when 30.1% of all deaths were due to COVID-19. Taking into account all deaths involving COVID-19 increases the percentage to 39.2% of all deaths (1,736 deaths) in Wales.

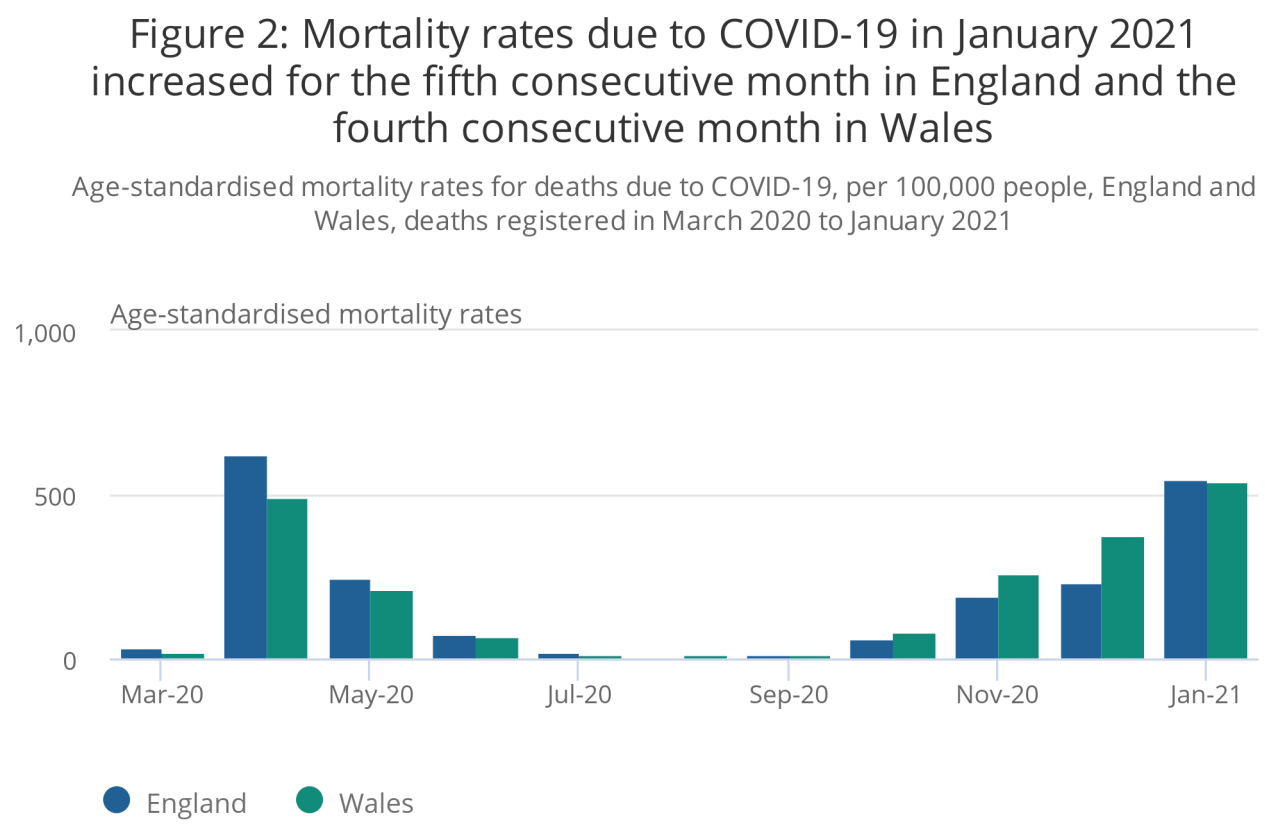
Deaths due to COVID-19 in England and Wales

When adjusting for the size and age structure of the population, age-standardised mortality rates (ASMRs) for deaths due to COVID-19 in both England and Wales have increased significantly each month between October 2020 and January 2021 (Figure 2). In England, the ASMR for deaths due to COVID-19 significantly increased for the fifth consecutive month, with a rate of 545.9 deaths per 100,000 people in January 2021. In Wales, the ASMR for deaths due to COVID-19 significantly increased for the fourth consecutive month, with a rate of 539.1 deaths per 100,000 people in January 2021.

In England, although mortality rates due to COVID-19 have increased between September 2020 and January 2021, these remain significantly lower than in April 2020 when the COVID-19 mortality rate was the highest. In England, the ASMR due to COVID-19 in January 2021 was 12.4% lower than in April 2020 (623.2 deaths per 100,000 people). However, in Wales, the highest ASMR due to COVID-19 was experienced in January 2021, 8.9% higher than in April 2020 (increasing from a rate of 495.1 deaths per 100,000 people to 539.1 deaths per 100,000 people).

Figure 2: Mortality rates due to COVID-19 in January 2021 increased for the fifth consecutive month in England and the fourth consecutive month in Wales

Age-standardised mortality rates for deaths due to COVID-19, per 100,000 people, England and Wales, deaths registered in March 2020 to January 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 10: Measuring the data.

2. Figures for 2020 and 2021 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. Age-standardised mortality rates for all deaths involving COVID-19 are available in the accompanying dataset.

In England, the ASMR for deaths due to COVID-19 significantly increased for the fifth consecutive month for both males (675.4 per 100,000 males) and females (446.0 per 100,000 females) in January 2021. In Wales, the ASMR for deaths due to COVID-19 significantly increased for the fourth consecutive month for both males (671.2 per 100,000 males) and females (436.5 per 100,000 females) in January 2021.

In England, mortality rates due to COVID-19 remained significantly lower than April 2020 (838.3 per 100,000 males and 458.6 per 100,000 females; when the COVID-19 mortality rate was the highest). However, in Wales, the highest ASMR for deaths due to COVID-19 since the pandemic began was experienced in January 2021 for both males (671.2 per 100,000 males) and females (436.5 per 100,000 females). 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 1 March 2020 and 31 January 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

4 . Leading causes of death

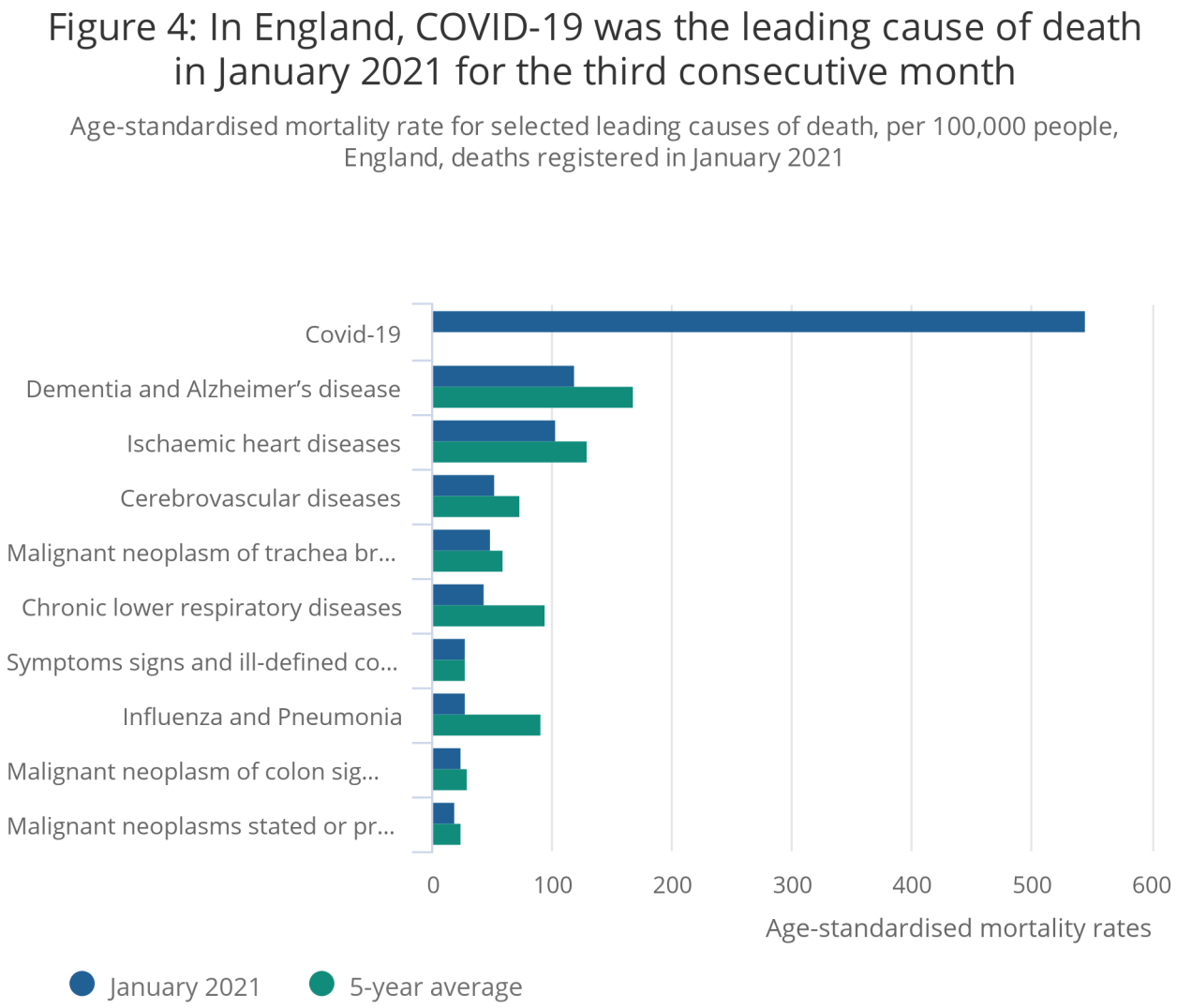
Our leading causes of death groupings are based on a list developed by the World Health Organization (WHO). This categorises causes of death using the International Classification of Diseases, 10th edition (ICD-10) into groups that are epidemiologically more meaningful than single ICD-10 codes, for the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

Leading causes of death registered in January 2021

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

Figure 4: In England, COVID-19 was the leading cause of death in January 2021 for the third consecutive month

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, England, deaths registered in January 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 see Section 10: Measuring the data.

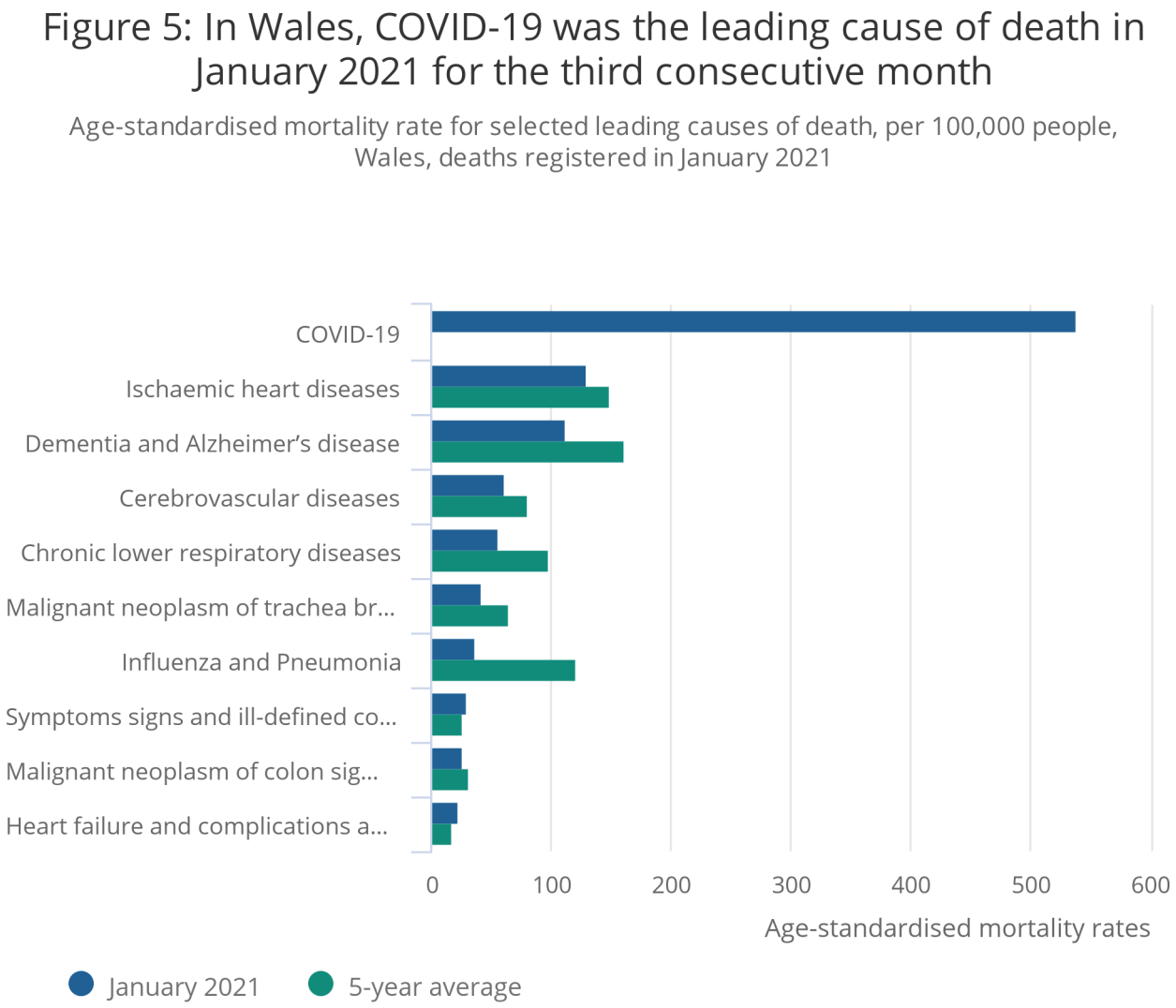
2. Figures for 2020 and 2021 are based on provisional mortality data and projected populations.

3. Figures exclude deaths of non-residents.

4. "COVID-19" includes only deaths where COVID-19 was the underlying cause of death. 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.

Figure 5: In Wales, COVID-19 was the leading cause of death in January 2021 for the third consecutive month

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in January 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 10: Measuring the data.

2. Figures for 2020 and 2021 are based on provisional mortality data and projected populations.

3. Figures exclude deaths of non-residents.

4. "COVID-19" includes only deaths where COVID-19 was the underlying cause of death.

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.

In both England and Wales, the coronavirus (COVID-19) was the leading cause of death in January 2021, with 545.9 deaths per 100,000 people in England (25,716 deaths) and 539.1 deaths per 100,000 people in Wales (1,561 deaths). This was the third consecutive month where COVID-19 was the leading cause of death.

The rate of deaths due to COVID-19 was significantly higher than the next-leading cause of death in both England and Wales. In England, the second most common cause of death in January 2021 was dementia and Alzheimer's disease, with 119.4 deaths per 100,000 people in England (5,655 deaths). In Wales, the second most common cause of death was ischaemic heart diseases, with 129.0 deaths per 100,000 people in Wales (370 deaths). The COVID-19 mortality rate was more than four times the second-leading cause of death in both England and Wales.

In England in January 2021, 8 of the 10 leading causes of death were significantly lower than the five-year average (2015 to 2019), with only signs, symptoms and ill-defined conditions having a similar mortality rate to the five-year average. In particular, the mortality rate for deaths with an underlying cause of Influenza or Pneumonia were 70.0% lower in January 2021 than the five-year average for January. In Wales, 6 of the 10 leading causes were significantly lower than the five-year average, with signs, symptoms and ill-defined conditions, malignant neoplasm of colon, sigmoid and rectum and anus, and heart failure and complications and ill-defined heart disease having similar mortality rates. Similar to England, the January 2021 mortality rate for flu and pneumonia was 69.4% lower than the five-year average.

5 . Age-standardised mortality rates by sex and age group, in January 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. However, similar to the trend seen in all ages (Section 2), mortality rates in both England and Wales have increased in 2020 and 2021 for age group 75 and over and in England for the under 75 age group. 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 5 to 9 of the accompanying dataset.

6 . Death occurrences in January 2021

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 January 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 10: Measuring the data.

Between 1 January and 31 January 2021, 66,494 deaths occurred in England (and were registered by 8 February 2021). This was 14,640 more deaths than the five-year average (2015 to 2019) for January (28.2% higher). Of the 66,494 deaths that occurred, 41.0% were due to the coronavirus (COVID-19) (27,273 deaths).

In Wales, 4,179 deaths occurred in January 2021 (and were registered by 8 February 2021), which was 753 more deaths than the five-year average (22.0% higher). COVID-19 was the underlying cause of death in 36.6% of all deaths that occurred (1,529 deaths).

In England, the first death due to COVID-19 occurred on 30 January 2020 (Figure 6). Since 11 March, 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 1,223 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 has continued to increase reaching 1,150 deaths on 19 January 2021 (the highest since 11 April 2020 at 1,157 deaths). The number of death occurrences on more recent dates is likely to rise as we receive more death registrations.

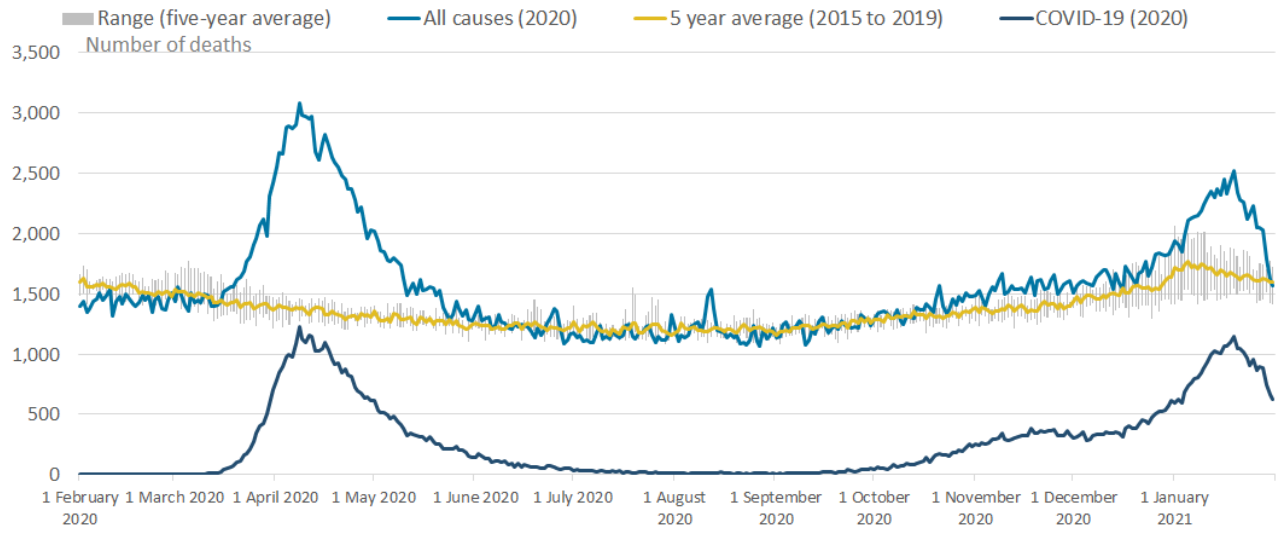
In Wales, the first death with an underlying cause of COVID-19 occurred on 15 March. As in England, the number of COVID-19 deaths per day reached the peak on 8 April 2020, when 70 deaths due to COVID-19 occurred in Wales. Since 8 April, the number of COVID-19 deaths occurring each day in Wales had been gradually decreasing, with no COVID-19 deaths occurring on 41 days between June and September. However, daily COVID-19 deaths increased throughout October, November, December 2020 and January 2021, with 74 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.

It is important to note that the number of death occurrences is incomplete as 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 January 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.

Figure 6: Daily deaths due to COVID-19 increased between October 2020 and mid-January 2021 in England

Number of deaths occurring on each day from February 2020 to January 2021[1], five-year average and range, England



Source: Office for National Statistics - Monthly mortality analysis

Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 8 February. Death occurrences will increase as more deaths are registered, particularly for later dates.

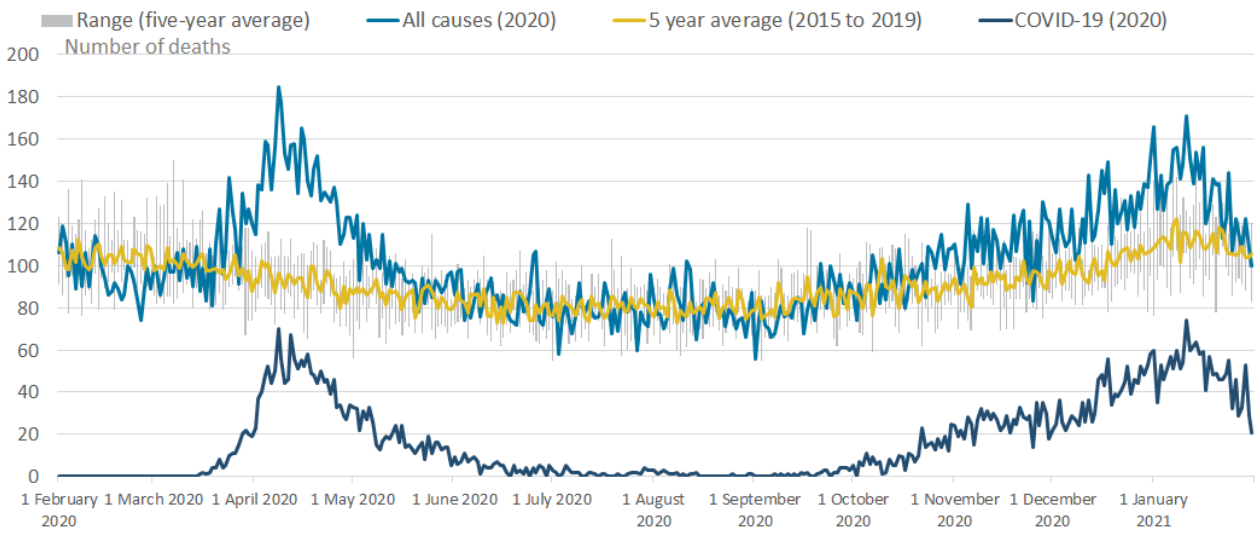
2. The range is the difference between the minimum and maximum value observed on each day during the five-year period (1 January to 31 December 2015 to 2019).

3. Figures exclude non-residents.

4. For 29 February, only data for leap years are included in the five-year average.

Figure 7: In Wales, daily deaths due to COVID-19 increased between October 2020 and mid-January 2021

Number of deaths occurring on each day in from February 2020 and January 2021[1], five-year average and range, Wales



Source: Office for National Statistics - Monthly mortality analysis

Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 8 February 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 (1 January to 31 December 2015 to 2019).

3. Figures exclude non-residents.

4. For 29 February, only data for leap years are included in the five-year average.

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

In this section we use the multiple health conditions that can be recorded on a death certificate to identify deaths where there were pre-existing health conditions that contributed to the cause of death. Health conditions are recorded on the death certificate only if the certifying doctor or coroner believed they made some contribution to the death, direct or indirect: the death certificate does not include all health conditions the deceased might have suffered from if they were not considered relevant. However, the fact that a pre-existing condition was recorded does not suggest that the deceased was likely to have died from that condition in the absence of the coronavirus (COVID-19) infection.

Of the 73,519 non-neonatal deaths of residents registered in England and Wales in 2020 with an underlying cause of death of COVID-19, there were 22 cases where the ordering of health conditions on the death certificate was ambiguous. These 22 cases are excluded from the data presented in this section, leaving 73,497 deaths.

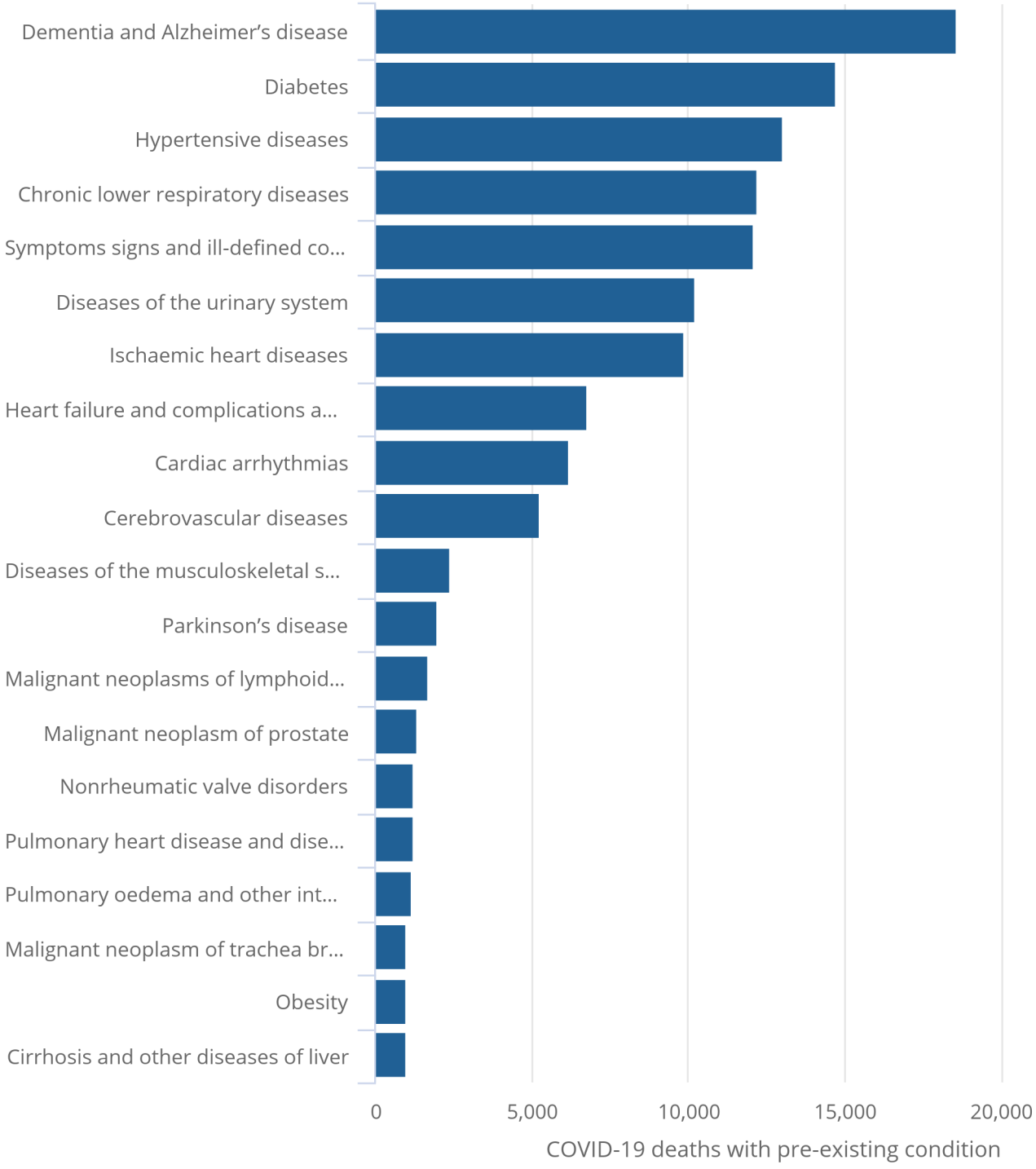
The 20 most common pre-existing conditions for the 73,497 deaths registered in England and Wales with an underlying cause of death of COVID-19 in 2020 are shown in Figure 8 (Pre-existing conditions of people who died due to COVID-19, England and Wales dataset). In this table, pre-existing conditions are counted separately, so that a death where there was more than one pre-existing condition may appear under several different categories. We have also provided the frequency with which each condition was mentioned in all deaths registered in 2017 to 2019 (whatever the underlying cause of death) for comparison in the Pre-existing conditions of people who died due to COVID-19, England and Wales dataset.

Figure 8: Dementia and Alzheimer’s disease was the most common pre-existing condition among COVID-19 deaths in England and Wales in 2020

The 20 most common pre-existing conditions mentioned in COVID-19 deaths in England and Wales registered in 2020.

Figure 8: Dementia and Alzheimer's disease was the most common pre-existing condition among COVID-19 deaths in England and Wales in 2020

The 20 most common pre-existing conditions mentioned in COVID-19 deaths in England and Wales registered in 2020.



Source: Office for National Statistics – Deaths involving COVID-19

Notes:

1. Figures for non-neonatal deaths due to COVID-19 (U07.1, U07.2) rather than deaths involving COVID-19.
2. Figures exclude deaths of non-residents.
3. Figures exclude 22 records with ordering anomalies that affect judgement on whether condition pre-existed.
4. Deaths with more than one pre-existing condition in the most common twenty will be represented for each pre-existing condition mentioned.

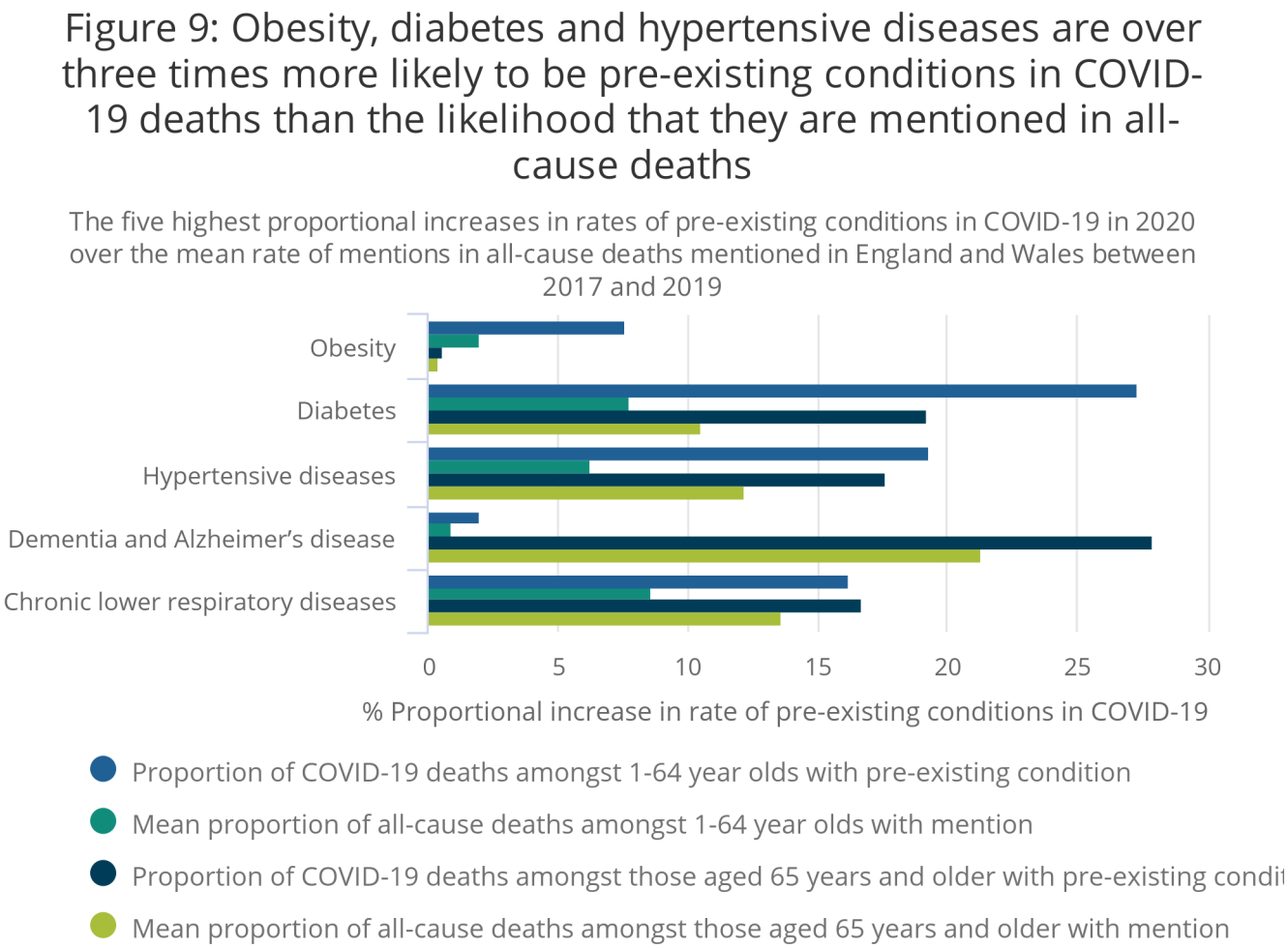
The most common pre-existing condition was dementia and Alzheimer's disease, identified in 25.3% of COVID-19 deaths. For comparison, dementia and Alzheimer's disease was mentioned in around a fifth of all-cause deaths in England and Wales between 2017 and 2019, a slightly lower proportion.

Those conditions that are mentioned with a higher frequency in deaths due to COVID-19 than in all-cause deaths are of interest as they may indicate increased risk of dying from COVID-19 among people with those conditions. Of the 20 most common pre-existing conditions, obesity, diabetes and hypertensive diseases were present in a notably greater proportion of COVID-19 deaths than in all-cause deaths (Figure 9).

For deaths occurring in people aged under 65 years, obesity, diabetes and hypertensive diseases were mentioned at over three times the rate in COVID-19 deaths than in all-cause deaths. The proportion of COVID-19 deaths in those aged under 65 years with a pre-existing condition of obesity was 7.6% compared with 2.0% of all-cause deaths between 2017 and 2019. A pre-existing condition of diabetes was mentioned on 27.3% of deaths due to COVID-19 compared with 7.8% of all-cause deaths between 2017 and 2019. The proportion of COVID-19 deaths in those aged under 65 years with a pre-existing condition of hypertensive diseases was 19.3% compared with 6.3% of all-cause deaths between 2017 and 2019. This means it is likely that these three conditions are risk factors for COVID-19 deaths.

Figure 9: Obesity, diabetes and hypertensive diseases are over three times more likely to be pre-existing conditions in COVID-19 deaths than the likelihood that they are mentioned in all-cause deaths

The five highest proportional increases in rates of pre-existing conditions in COVID-19 in 2020 over the mean rate of mentions in all-cause deaths mentioned in England and Wales between 2017 and 2019



Source: Office for National Statistics – Deaths involving COVID-19

Notes:

1. England and Wales, registration data.
2. COVID-19 values are proportions of non-neonatal deaths due to COVID-19 (U07.1, U07.2) in 2020 with pre-existing condition.
3. All-cause deaths are proportions of non-neonatal deaths due to all-causes that have the condition mentioned.

The proportions of COVID-19 deaths with each of the 20 most common pre-existing conditions and all-cause deaths mentioning the same conditions are provided in the Pre-existing conditions of people who died due to COVID-19, England and Wales dataset. The relative ratios of proportions of deaths with the condition is also presented (the "COVID ratio" is the proportion of COVID-19 deaths with the pre-existing condition divided by the proportion of all-cause deaths between 2017 and 2019 mentioning that condition; the "all death ratio" is the proportion of all-cause 2020 deaths mentioning the condition divided by the proportion of all-cause deaths between 2017 and 2019 mentioning that condition. Counts of deaths due to COVID-19 by the 20 most common pre-existing conditions and broad age group in England and in Wales (Pre-existing conditions of people who died due to COVID-19, England and Wales dataset). The mean number of pre-existing conditions for those aged under 65 years was 1.7 in England and 1.5 in Wales.

The mean number of pre-existing conditions for those aged 65 years and over was 2.0 in England and 1.8 in Wales. This pattern is broadly repeated each quarter. This means that the total number of pre-existing conditions mentioned for each COVID-19 death tended to be greater among deaths of those aged 65 years and over than among those aged under 65 years.

The 20 most common pre-existing conditions are analysed by place of death are available in the Pre-existing conditions of people who died due to COVID-19, England and Wales dataset. Dementia and Alzheimer's disease was a pre-existing condition in 53.5% of deaths due to COVID-19 that occurred in care homes. This proportion is somewhat higher than the proportion of all-cause deaths in care homes that mentioned dementia and Alzheimer's disease (47.8% of care home deaths between 2017 and 2019). However, this is consistent with dementia and Alzheimer's disease being the most common pre-existing condition because of the distribution of COVID-19 deaths by age and place of death rather than dementia and Alzheimer's disease being a specific risk factor.

Diabetes and hypertensive diseases were the most common pre-existing conditions for COVID-19 deaths occurring either in hospital or at home. Counts of deaths due to COVID-19 having the 20 most common pre-existing conditions by place of death in England and in Wales are shown in the Pre-existing conditions of people who died due to COVID-19, England and Wales dataset.

8 . Monthly mortality data

Monthly mortality analysis, England and Wales
Dataset | Released 25 February 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 25 February 2021
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 25 February 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 25 February 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

9 . Glossary

Age-specific mortality rates

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

Age-standardised mortality rates

Age-standardised mortality rates (ASMRs) are used to allow comparisons between populations that may contain different proportions of people of different ages. The 2013 European Standard Population is used to standardise rates. In this bulletin, we have adjusted the monthly ASMRs to allow for comparisons with annual rates. For more information see Section 10: Measuring the data.

Coronaviruses

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

Coronavirus (COVID-19)

COVID-19 refers to the "coronavirus disease 2019" and is a disease that can affect the lungs and airways. It is caused by a type of coronavirus. Further information 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.

10 . 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 January 2021 by age and sex, and also includes deaths that occurred in January 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 January 2021, there were 88 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 this edition, we have 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 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 100,570 deaths due to COVID-19, 3,951 (3.9% were classified as "suspected" COVID-19. Including all deaths involving COVID-19, "suspected" COVID-19 was recorded on 41.0% (4,525 deaths) of all deaths involving COVID-19 in England and Wales.

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

$$\left(population2019(i) + \left((population2020(i) - population2019(i)) \times \left(\frac{m}{M}\right)\right)\right) \times \left(\frac{N}{M}\right)$$

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

$$\left(population2020(i) + \left((population2021(i) - population2020(i)) \times \left(\frac{m}{M}\right)\right)\right) \times \left(\frac{N}{M}\right)$$

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 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 Alexander Cooke, Nadia Lohawala, Rhys Owen-Williams, Paul Breen, and Klaudia Rzepnicka for their valued contribution to this bulletin.

11 . Strengths and limitations

Provisional data are used

Provisional death registrations and death occurrences data are used in this bulletin. This enables timely analysis to be completed to monitor mortality trends. However, as the data 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 I nformation (QMI) report and the User guide to mortality statistics.

Monthly mortality rates

As explained in Section 10: Measuring the data, rates in this bulletin have been adjusted to take account of the time period observed. Below country level, a more basic adjustment method has been used.

More quality and methodology information on strengths and limitations is available in the Mortality statistics in England and Wales QMI and User guide to mortality statistics.

12 . Related links

Deaths registered weekly in England and Wales
Bulletin | Released 23 February 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.