Office for National Statistics

Statistical bulletin

Monthly mortality analysis, England and Wales: July 2023

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

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Discontinued

Notice

23 August 2023

We will no longer be updating the Monthly Mortality Analysis, England and Wales series. The last edition was for July 2023, published on 23 August 2023.

This publication was created during the coronavirus (COVID-19) pandemic to answer important questions around mortality in a timely manner. The Deaths registered weekly in England and Wales publication will continue to be updated weekly, and the Deaths registered monthly in England and Wales dataset will continue to provide number of deaths by local authority on a monthly basis.

9 January 2025

Following the Health and Social Care Statistical Outputs consultation commissioned by the Health and Social Care Statistics Leadership Forum, we are improving some of our statistical products, so they are more coherent and efficient. Additionally, we are ensuring that our resources are deployed in producing statistics for maximum possible benefit.

Full details of changes to this product, and our other health and social care products, are available in the Health and Social Care Statistical Outputs Consultation Response. We welcome user feedback on our releases. Please use the contact details on individual publication web pages to share feedback.

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1 . Main points

- In July 2023, there were 38,269 deaths registered in England, 977 deaths (2.5%) below the July five-year average (2017 to 2019, 2021 and 2022); in Wales, there were 2,674 deaths registered, 96 deaths (3.7%) above the five-year average.

- Accounting for the population size and age structure, the age-standardised mortality rate (ASMR) for July 2023 was below the five-year average in both England (776.3 deaths per 100,000 people, 9.0% below average) and Wales (893.9 deaths per 100,000 people, 2.3% below average); this difference was only statistically significant in England.

- The number of deaths in the year to date (January to July 2023) was above average in both England and Wales (by 7.1% and 7.0%, respectively); the year-to-date ASMR was also above average in Wales (0.5% above average) but below average in England (0.2% below average).

- The leading cause of death in both England and Wales in July 2023 was ischaemic heart diseases (9.9% and 9.6% of all deaths, respectively).

- The leading cause of excess death in England in July 2023 was symptoms, signs and ill-defined conditions (which includes "old age" and "frailty"), at 107 excess deaths (9.7% above average); in Wales, it was heart failure and complications and ill-defined heart disease at 29 excess deaths (83.1% above average).

2 . Death registrations in July 2023

In England, there were 38,269 deaths registered in July 2023, based on provisional data. This was 3,765 fewer deaths than in July 2022 and 977 (2.5%) fewer deaths than the five-year average (2017 to 2019, 2021 and 2022).

In Wales, there were 2,674 deaths registered in July 2023. This was 36 more deaths than July 2022 and 96 (3.7%) more deaths than the five-year average.

The five-year average for 2023 has been calculated using the years 2017 to 2019, 2021 and 2022. For more information, see our Understanding excess deaths during a pandemic blog and our How do we measure expected and excess deaths blog.

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

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

In July 2023, the ASMR in England was 776.3 deaths per 100,000 people. This was statistically significantly lower than all the July mortality rates since the beginning of our time series in 2001. Previous ASMRs for July ranged from 812.4 deaths per 100,000 people, in July 2017, to 1,190.5 deaths per 100,000 people, in July 2002.

In July 2023, the ASMR in Wales was 893.9 deaths per 100,000 people. This was the second lowest ASMR for July in our time series, other than July 2017 (867.6 deaths per 100,000 people). The July 2023 ASMR was not significantly different from July mortality rates since 2014 (1,002.1 deaths per 100,000 people), except for July 2021 (969.7 deaths per 100,000 people), which was significantly higher than in July 2023.
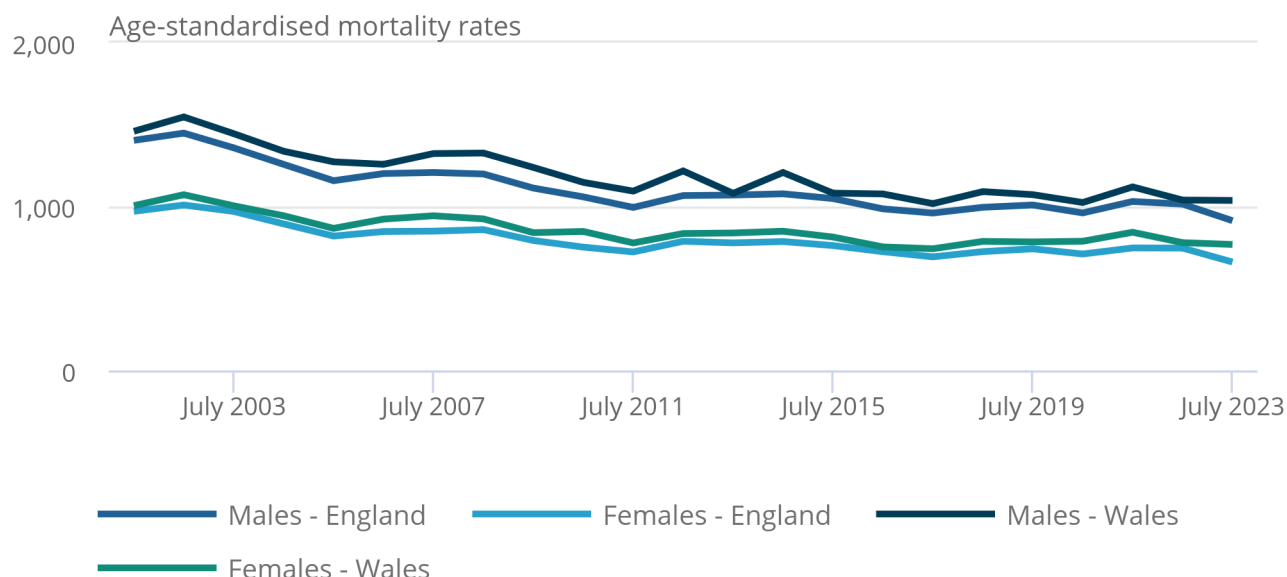
The mortality rate in July has consistently been statistically significantly higher for males than females in both England and Wales since the beginning of our data time series in 2001 (Figure 1). For more information on the differences between male and female ASMRs, see our accompanying dataset.

Figure 1: July 2023 ASMRs were the lowest and second lowest for July since our time series began, in England and Wales, respectively

Age-standardised mortality rates by sex, England and Wales, deaths registered in July 2001 to July 2023

Figure 1: July 2023 ASMRs were the lowest and second lowest for July since our time series began, in England and Wales, respectively

Age-standardised mortality rates by sex, England and Wales, deaths registered in July 2001 to July 2023

Age-standardised mortality rates

Legend: Males - England, Females - England, Males - Wales, Females - Wales

Source: Monthly mortality analysis from the Office for National Statistics

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 9: Measuring the data.

2. Figures are for deaths registered, rather than deaths occurring in each period.

3. Figures for 2022 and 2023 are based on provisional mortality statistics, and populations from July 2021 onwards are based partly or wholly on population projections.

4. Figures exclude non-residents.

Deaths registered in the year to date

There were 329,199 deaths registered in England and 21,805 in Wales during the first seven months (January to July) of 2023.

To gain a better idea of year-to-year differences in mortality rates, we calculated a year-to-date ASMR based on deaths registered in January to July of each year, from 2001 to 2023 (Figure 2).

For England, the year-to-date ASMR for 2023 (980.0 deaths per 100,000 people) was significantly higher than the year-to-date ASMR for 2022 (948.9 deaths per 100,000 people). However, this was significantly lower than most (18 of the 22) years since our data time series started in 2001.
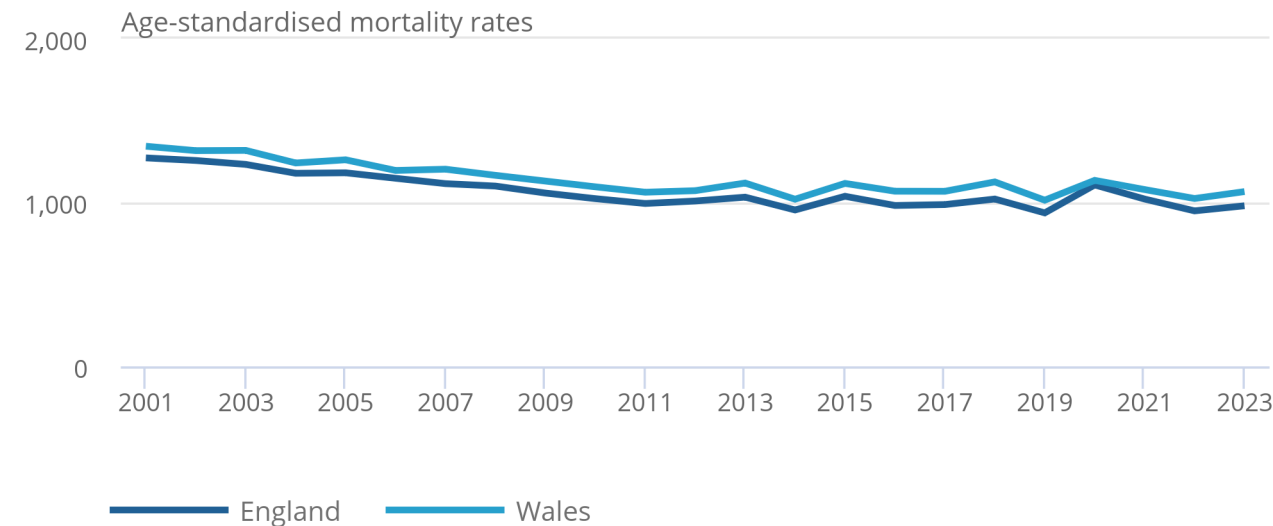
This was similar in Wales; the year-to-date ASMR for 2023 (1,066.5 deaths per 100,000 people) was significantly higher than that of 2022 (1,024.4 deaths per 100,000 people). However, it was significantly lower than over half (13 of the 22) of the years since our data time series began.

Figure 2: Year-to-date mortality rates in July 2023 were statistically significantly higher than 2022 in both England and Wales, but lower than the majority of other years since 2001

Age-standardised mortality rates, England and Wales, deaths registered in January to July, 2001 to 2023

Figure 2: Year-to-date mortality rates in July 2023 were statistically significantly higher than 2022 in both England and Wales, but lower than the majority of other years since 2001

Age-standardised mortality rates, England and Wales, deaths registered in January to July, 2001 to 2023

Source: Monthly mortality analysis from the Office for National Statistics

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 9: Measuring the data.

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3. Figures for 2022 and 2023 are based on provisional mortality statistics, and populations from July 2021 onwards are based partly or wholly on population projections.

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3 . Excess mortality in England and Wales

Excess deaths in this bulletin are the difference between the observed deaths within a period compared with the five-year average (2017 to 2019, 2021 and 2022) for the same period. This section compares excess mortality by number of deaths with excess mortality by age-standardised mortality rate (ASMR).

In July 2023, excess mortality rates remained proportionally lower than the number of excess deaths in England (Figure 3) and in Wales (Figure 4). This was the case regardless of whether deaths or ASMRs were below or above average, and has been consistent since the start of our timeseries in January 2022.

Because ASMRs take into account the population size and age structure at a given period, it is not unusual for proportional excess mortality rates to be lower than the number of excess deaths. This is because while deaths may be higher than we would expect, they may not be higher when relative to the population. For example, if the population were larger in the observed period than the average population of the years making up the five-year average, then the deaths per 100,000 people could be lower.

There are different ways of measuring excess mortality. These numbers will differ from those published elsewhere that use a different method, such as the Office for Health Improvement and Disparities' (OHID) excess deaths measure. This is because the figures in this bulletin are based on the average of five years, whereas the OHID measure looks at the trend seen between 2015 and 2019, as well as accounting for population, deprivation and ethnicity. We are now investigating different ways to calculate the expected number of deaths used in excess death calculations. The background to this work and information on how to get in contact can be found in our How we measure expected and excess deaths blog.

Figure 3: In England, both the number of deaths and the mortality rate were below the five-year average in July 2023

Percentage of excess mortality, compared with the five-year average, by number of deaths and age-standardised mortality rates, England, deaths registered from January to July, 2022 and 2023

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 For more information, see Section 9: Measuring the data.

2. Figures are for deaths registered, rather than deaths occurring in each period.

3. Figures for 2022 and 2023 are based on provisional mortality statistics, and populations from July 2021 onwards are based partly or wholly on population projections.

4. Figures exclude non-residents.

5. The five-year average for 2023 has been provided for 2017 to 2019, 2021 and 2022, and the five-year average for 2022 has been provided for 2016 to 2019 and 2021.

Download the data

In England in July 2023, the number of deaths was 2.5% (977 fewer deaths) below what we would expect using the five-year average. The mortality rate was statistically significantly below average (776.3 and 853.4 deaths per 100,000 people, respectively), by 9.0%. This was lower than July 2022 (compared with the five-year average of 2016 to 2019 and 2021) for both numbers of deaths (10.2% above average) and mortality rates (2.5% above average). In July 2023, both the number of deaths and the mortality rate were the furthest below average since February 2022, when they were 7.2% and 12.3% below average, respectively.

The number of deaths registered in the year to date for 2023 (January to July) was 7.1% above average, whereas the equivalent year-to-date value in 2022 was 2.5% above expected. The 2023 year-to-date ASMR was not significantly different than average (980.0 and 982.4 deaths per 100,000 people, respectively). The equivalent year-to-date ASMR in 2022 was significantly lower than average (948.9 and 989.5 deaths per 100,000 people, respectively), at 4.1% below expected.

Figure 4: In Wales, the number of deaths continued to be above the five-year average in July 2023, with the mortality rate below average

Percentage of excess mortality, compared with the five-year average, by number of deaths and age-standardised mortality rates, Wales, deaths registered from January to July, 2022 and 2023

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 9: Measuring the data.

2. Figures are for deaths registered, rather than deaths occurring in each period.

3. Figures for 2022 and 2023 are based on provisional mortality statistics, and populations from July 2021 onwards are based partly or wholly on population projections.

4. Figures exclude non-residents.

5. The five-year average for 2023 has been provided for 2017 to 2019, 2021 and 2022, and the five-year average for 2022 has been provided for 2016 to 2019 and 2021.

Download the data

In Wales, in July 2023, the number of deaths was 3.7% above the five-year average. The ASMR was 2.3% below the five-year average, however this difference was not significant. This was proportionally lower than July 2022 for both numbers of deaths (4.3% above average) and mortality rates (1.9% below average).

The number of deaths registered in the year to date for 2023 was 7.0% above average in Wales, whereas the equivalent year to date value in 2022 was 1.3% above average. The 2023 year-to-date ASMR was 0.5% above average, however this difference was not significant. The equivalent year-to-date ASMR in 2022 was significantly lower than average (1,024.4 and 1,070.9 deaths per 100,000 people, respectively), at 4.3% below expected.

4 . Leading causes of death

The doctor certifying a death can list all causes in the chain of events that led to the death, and the pre-existing conditions that may have contributed to the death. Using this information, we determine an underlying cause of death. More information on this process can be found in our User guide to mortality statistics methodology.
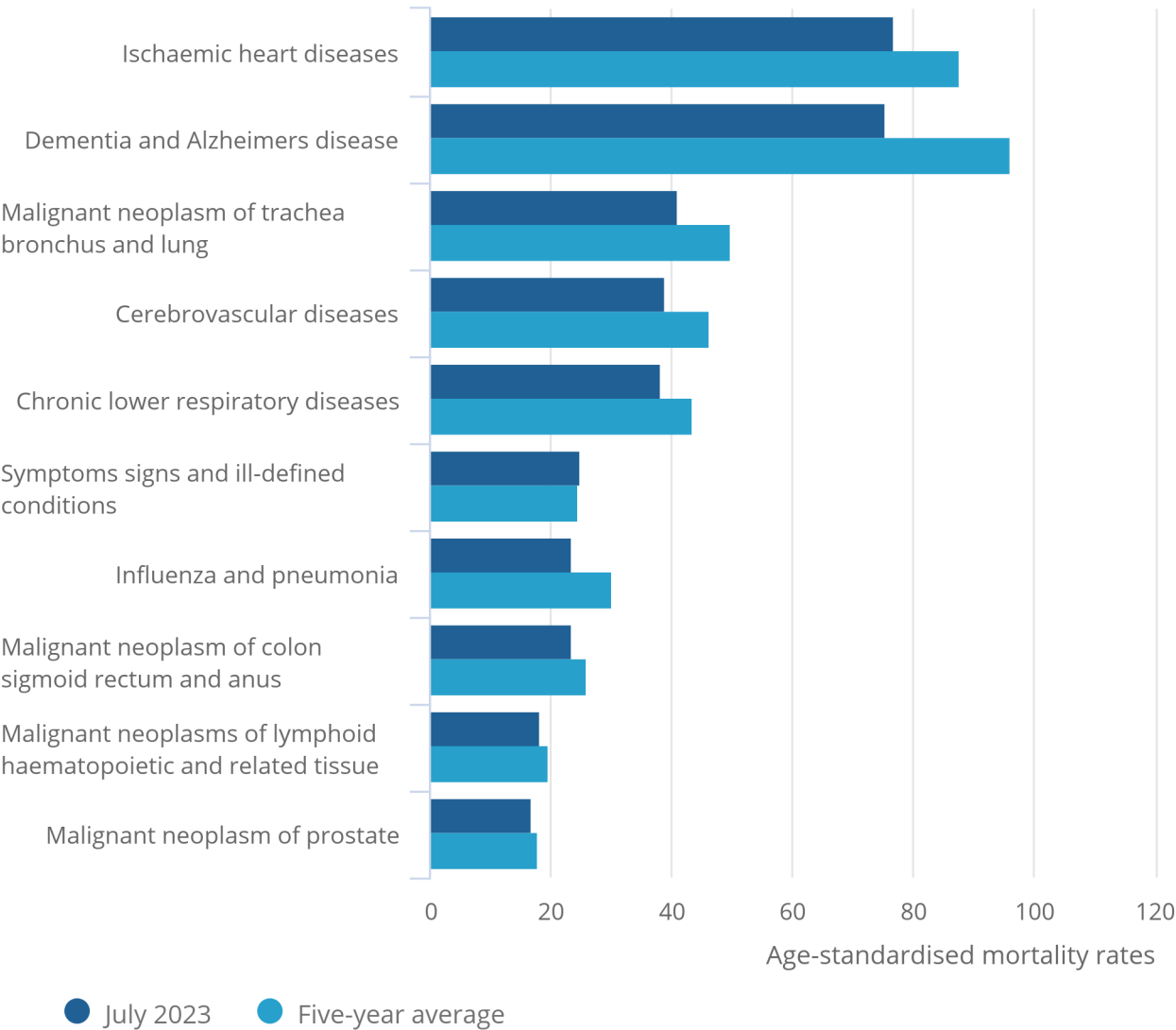
The 10 most common underlying causes of death registered in July 2023, compared with the five-year average for July (2017 to 2019, 2021 and 2022), for England and Wales, respectively, are shown in Figures 5 and 6. Causes of death are based on our leading causes of death groupings.

Figure 5: In England, ischaemic heart diseases was the leading cause of death in July 2023, replacing dementia and Alzheimers disease after 24 months

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, England, deaths registered in July 2023

Figure 5: In England, ischaemic heart diseases was the leading cause of death in July 2023, replacing dementia and Alzheimers disease after 24 months

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, England, deaths registered in July 2023

● July 2023   ● Five-year average

Source: Monthly mortality analysis from the Office for National Statistics
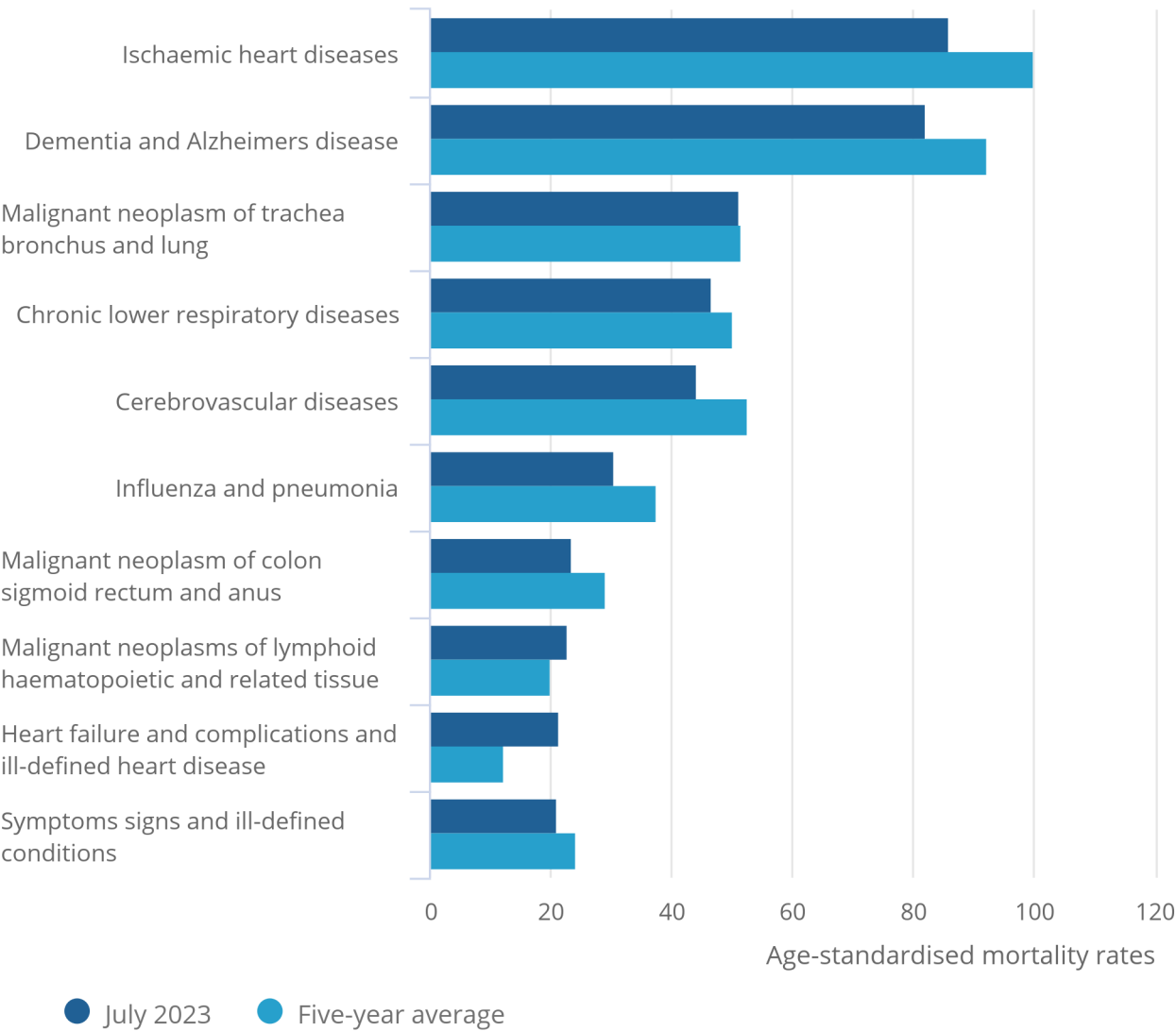
Notes:

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 9: Measuring the data.

2. Figures for 2022 and 2023 are based on provisional mortality statistics, and populations from July 2021 onwards are based partly or wholly on population projections.

3. Based on underlying cause of death.

4. Figures exclude deaths of non-residents.

5. The five-year average has been provided for 2017 to 2019, 2021 and 2022 because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020.

6. Leading causes are ranked based on the number of deaths, not the age-standardised mortality rates.

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in July 2023

Figure 6: In Wales, ischaemic heart diseases remained the leading cause of death in July 2023

Age-standardised mortality rate for selected leading causes of death, per 100,000 people, Wales, deaths registered in July 2023

Source: Monthly mortality analysis from the Office for National Statistics

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 9: Measuring the data.

2. Figures for 2022 and 2023 are based on provisional mortality statistics, and populations from July 2021 onwards are based partly or wholly on population projections.

3. Based on underlying cause of death.

4. Figures exclude deaths of non-residents.

5. The five-year average has been provided for 2017 to 2019, 2021 and 2022 because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020.

6. Leading causes are ranked based on the number of deaths, not the age-standardised mortality rates.

In both England and Wales, ischaemic heart diseases was the leading cause of death in July 2023, with 77.0 deaths per 100,000 people in England (3,787 deaths) and 85.8 deaths per 100,000 people in Wales (256 deaths). In England, this was the first time since June 2021 that ischaemic heart diseases was the leading cause of death. In Wales, ischaemic heart diseases remained the leading cause of death for the fourth consecutive month.

Dementia and Alzheimers disease had been the leading cause of death in England for 24 consecutive months, since June 2021. In July 2023, dementia and Alzheimers disease was the second leading cause of death, with 75.5 deaths per 100,000 in England (3,782 deaths) and 82.1 deaths per 100,000 in Wales (250 deaths).

In England in July 2023, 9 of the 10 leading causes of death were also among the 10 leading causes of death in the year to date (January to July 2023). Coronavirus (COVID-19) ranked ninth in the year to date, compared with 40th in July 2023.

In Wales in July 2023, 9 of the 10 leading causes of death were also among the 10 leading causes of death in the year to date (January to July 2023). COVID-19 ranked ninth in the year to date, compared with 32nd in July 2023.

More information on leading causes of death is available in Table 12 for England, and Table 13 for Wales, in our accompanying dataset. More in-depth analysis of leading causes of death is available in our annual Deaths registered in England and Wales: 2021 bulletin, based on finalised mortality data.

Coronavirus (COVID-19) mortality

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

The first deaths involving COVID-19 were registered in England and Wales in March 2020. Since then, COVID-19 was the underlying cause in most deaths that involved COVID-19 (83.5% in England, 82.5% in Wales).

In England, COVID-19 dropped to the 40th leading cause of death in July 2023 (from 24th in June 2023), at 3.5 deaths per 100,000 people (175 deaths), accounting for 0.5% of all deaths. This was the lowest ranking for deaths due to COVID-19 in any month since our time series began in July 2020. The previous lowest ranking was in June 2021, when it was ranked 26th (8.8 deaths per 100,000 people, 394 deaths). This was also the lowest number of deaths due to COVID-19 within a single month and the mortality rate for July 2023 was statistically significantly lower than all previous months in our time series.

In Wales, COVID-19 decreased to the 32nd leading cause of death in July 2023 (from 19th in June 2023), at 7.0 deaths per 100,000 people (21 deaths), accounting for 0.8% of all deaths. This was not significantly different to the mortality rate for deaths due to COVID-19 in June 2023, at 11.8 deaths per 100,000 people (35 deaths, 1.2% of all deaths). This was the third lowest number of deaths due to COVID-19 in a month, after June 2021 (3 deaths) and May 2021 (19 deaths).

For more information on our definition of coronavirus (COVID-19) deaths, see Section 9: Measuring 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.
- View all coronavirus data.

5 . Excess mortality by causes of death

Changing trends in causes of death can help us to understand possible causes of excess mortality. Leading causes of excess deaths can include some of the 10 most common causes of death (see Section 4: Leading causes of death), but will also include other leading cause of death groupings, which contribute to above-average mortality.

Please see Section 3: Excess mortality in England and Wales for ongoing methodology work on excess mortality.
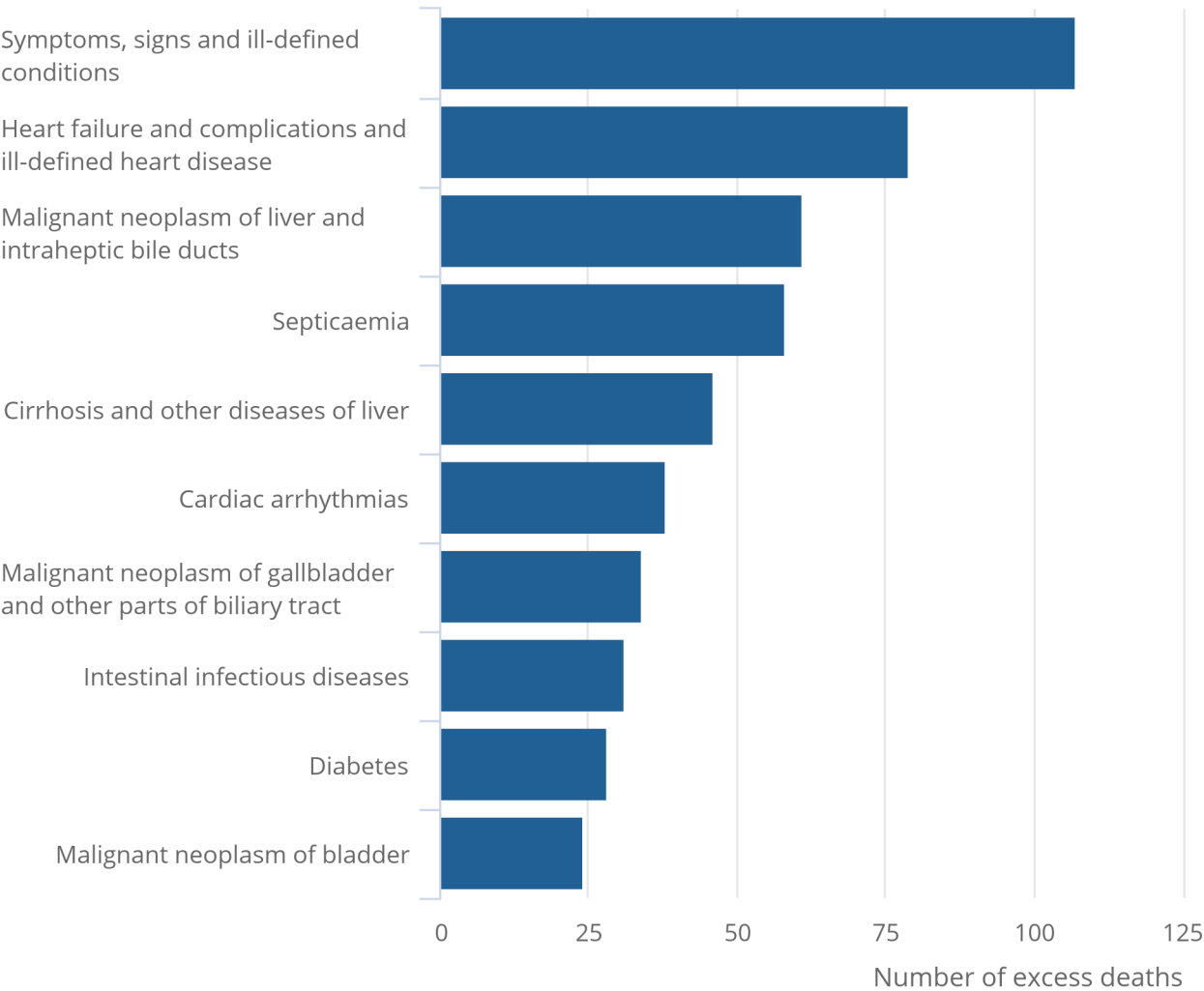
While the number of deaths by cause of death may be higher in July 2023 compared with the five-year average for July (2017 to 2019, 2021 and 2022), the age-standardised mortality rate (ASMR) may be lower. This is because ASMRs take into account changes in population size and age structure. Therefore, changing trends in the age groups affected by the cause of death, and the size of that age group in the population, will cause changes to the ASMR.

Figure 7: In England, symptoms, signs and ill-defined conditions was the leading cause of excess death in July 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, England, deaths registered in July 2023

Figure 7: In England, symptoms, signs and ill-defined conditions was the leading cause of excess death in July 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, England, deaths registered in July 2023

Source: Monthly mortality analysis from the Office for National Statistics

Notes:

1. Figures for 2022 and 2023 are based on provisional mortality data.

2. Based on underlying cause of death.

3. Figures exclude deaths of non-residents.

4. Leading causes are ranked based on the number of excess deaths.

5. The five-year average has been provided for 2017 to 2019, 2021 and 2022 because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020.

In England in July 2023, the leading cause of excess death was symptoms, signs and ill-defined conditions, with 107 excess deaths (9.7% above average) (Figure 7). Of the top ten leading causes of death in July 2023 (see Section 4: Leading causes of death), this is the only cause to have any excess deaths; the remaining causes were all either below or equal to average. The ASMR for this cause was not statistically significantly different than the July five-year average (24.9 and 24.4 deaths per 100,000 people, respectively). This leading cause group includes mostly deaths with a code for "old age" but is also used for causes such as "frailty"; for more information see Section 8: Glossary. This has been the leading cause of excess death in five of the seven months (January to July) of 2023 so far.

Deaths due to malignant neoplasm of gallbladder and other parts of the biliary tract had the greatest proportional increase when compared with the July five-year average for both number of deaths (34 excess deaths, 43.8% above average) and ASMR (33.2% above average). This increase, though, was not statistically significant.

Deaths due to dementia and Alzheimers disease had the greatest number of deaths below average, at 659 fewer deaths (14.8% below average). This was in contrast to May and June 2023, when dementia and Alzheimers disease was consistently the second leading cause of excess death, at 216 excess deaths (4.6% above average) and 313 excess deaths (7.3% above average), respectively. In July 2023, the mortality rate was significantly lower than average (75.5 compared with 96.3 deaths per 100,000 people), at 21.6% below average.

Despite being the leading cause of death in July 2023 (see Section 4: Leading causes of death), the mortality rate for deaths due to ischaemic heart diseases was statistically significantly lower than the five-year average (87.8 deaths per 100,000 people) at 12.4% below average.
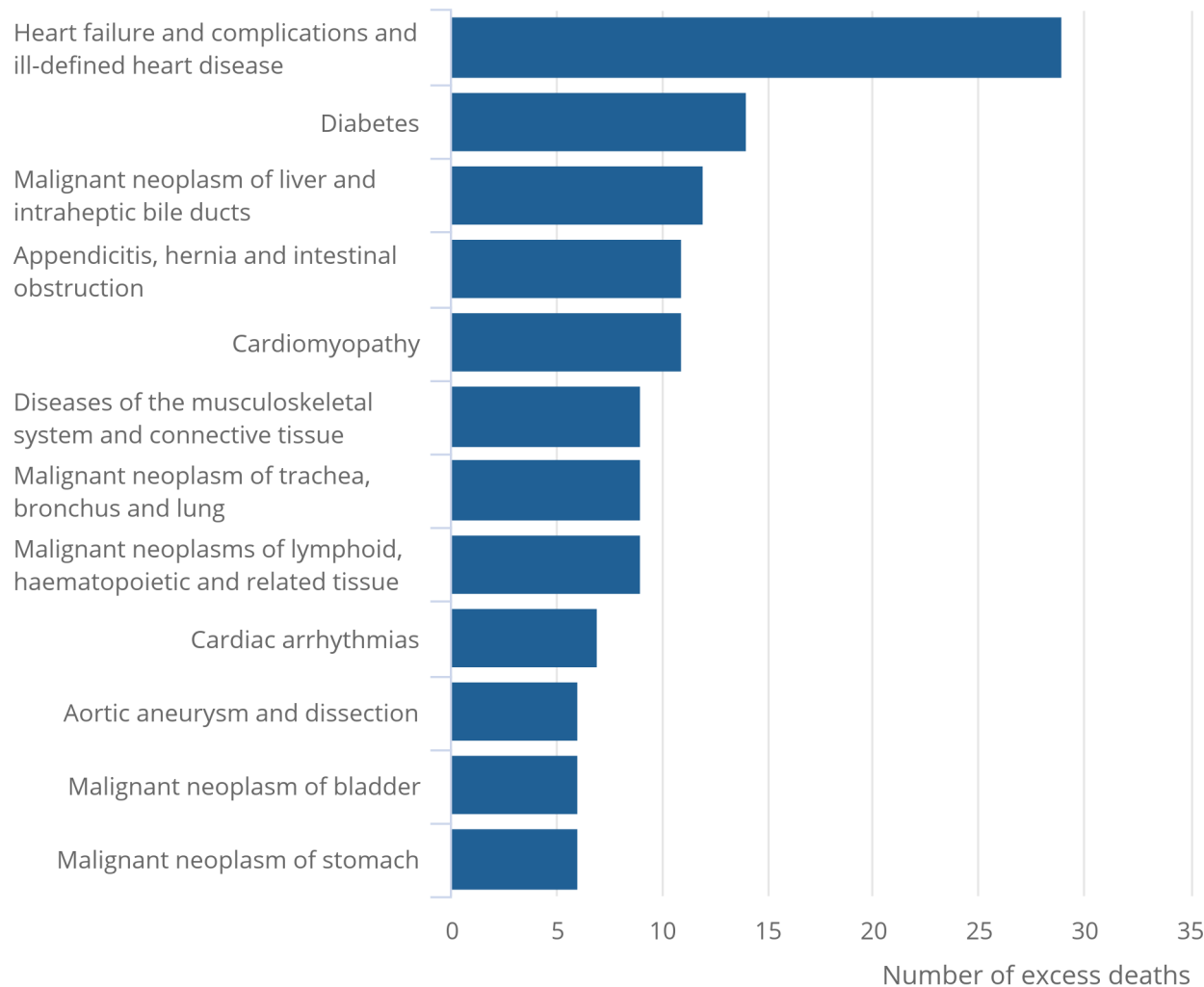
In England in July 2023, 17 out of the 69 leading causes of death were statistically significantly lower than average, while the rest were not significantly different than average.

Figure 8: In Wales, heart failure and complications and ill-defined heart disease was the leading cause of excess death in July 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, Wales, deaths registered in July 2023

Figure 8: In Wales, heart failure and complications and ill-defined heart disease was the leading cause of excess death in July 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, Wales, deaths registered in July 2023

Source: Monthly mortality analysis from the Office for National Statistics

Notes:

1. Figures for 2022 and 2023 are based on provisional mortality data.

2. Based on underlying cause of death.

3. Figures exclude deaths of non-residents.

4. Leading causes are ranked based on the number of excess deaths.

5. The five-year average has been provided for 2017 to 2019, 2021 and 2022 because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020.

In Wales in July 2023, the leading cause of excess death was heart failure and complications and ill-defined heart disease, with 29 excess deaths (Figure 8). This also had the greatest proportional excess in deaths, at 83.1% above average. This was the first time that heart failure and complications and ill-defined heart disease had been the leading cause of excess death in 2023, with four other causes being the monthly leading cause across the seven months to date.

Deaths due to heart failure and complications and ill-defined heart disease also had the greatest proportional increase in ASMR when compared with the July five-year average (76.1% above average, 21.5 compared with 12.2 deaths per 100,000 people, respectively). This was the only cause of death mortality rate in Wales to be statistically significantly higher than the July five-year average; all other causes were not significantly different from average.

In Wales, deaths due to ischaemic heart diseases had the greatest numbers of deaths below the five-year average (28 fewer deaths), despite being the leading cause of death in July 2023.
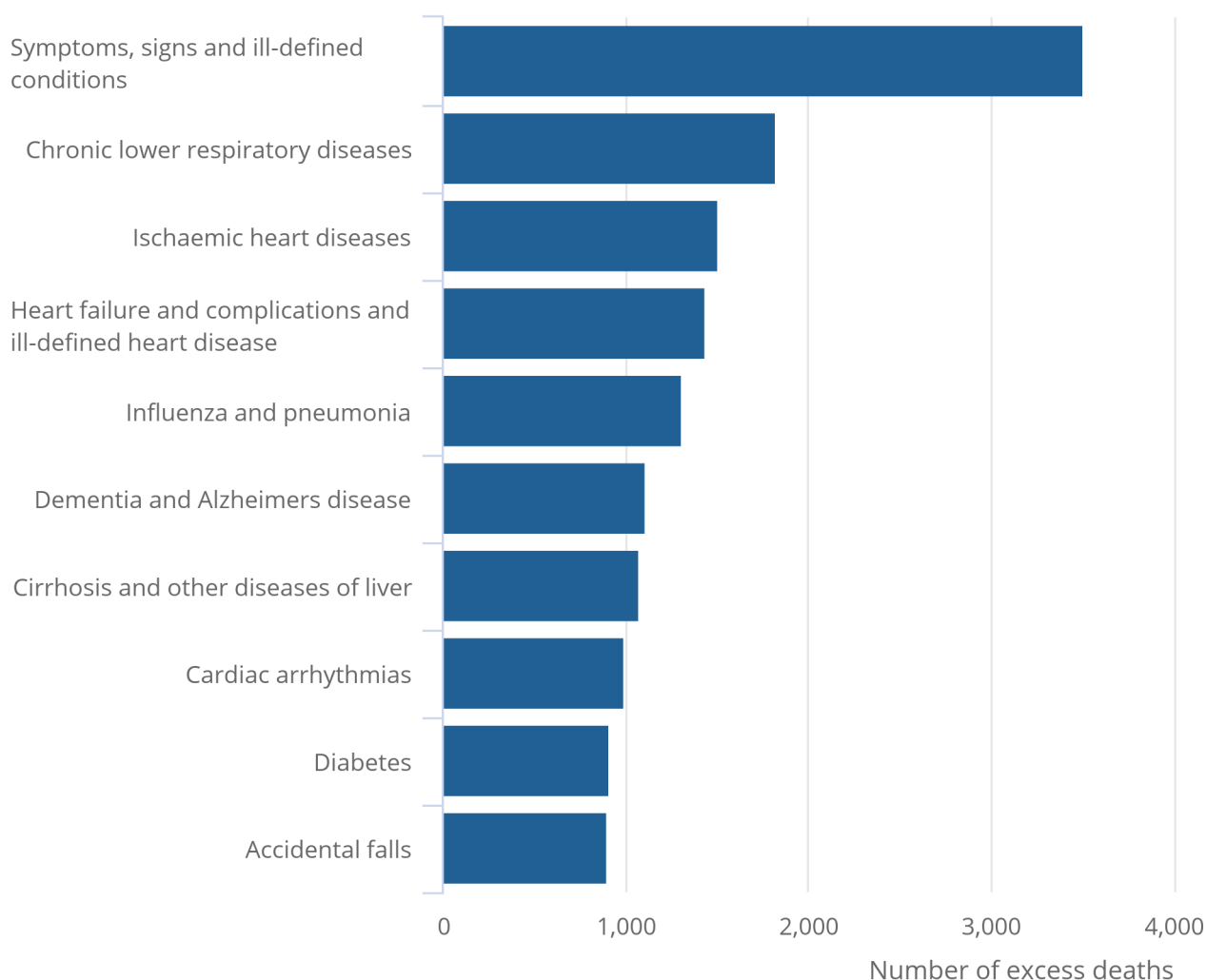
Excess mortality by causes of death in the year-to-date

Figure 9: In England, symptoms, signs and ill-defined conditions remained the leading cause of excess death in the year to date for 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, England, deaths registered in January to July 2023

Figure 9: In England, symptoms, signs and ill-defined conditions remained the leading cause of excess death in the year to date for 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, England, deaths registered in January to July 2023

Source: Monthly mortality analysis from the Office for National Statistics

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2. Based on underlying cause of death.

3. Figures exclude deaths of non-residents.

4. Leading causes are ranked based on the number of excess deaths.

5. The five-year average has been provided for 2017 to 2019, 2021 and 2022 because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020.

In England, the leading cause of excess death in the year to date (January to July) of 2023 was symptoms, signs and ill-defined conditions, with 3,506 excess deaths (43.0% above average) (Figure 9). The mortality rate was significantly higher compared with the five-year average ASMR, at 32.7% above average (35.3 compared with 26.6 deaths per 100,000 people, respectively).

The ASMRs for 21 of the 69 leading causes in the year to date were significantly higher than the five-year average, with seven of these appearing in the top 10 leading causes of excess death. Deaths due to pregnancy, childbirth and the puerperium had the largest proportional increase in both number of deaths at 73.5% above average (14 excess deaths) and ASMR at 74.6% above average, but this difference was not significant.
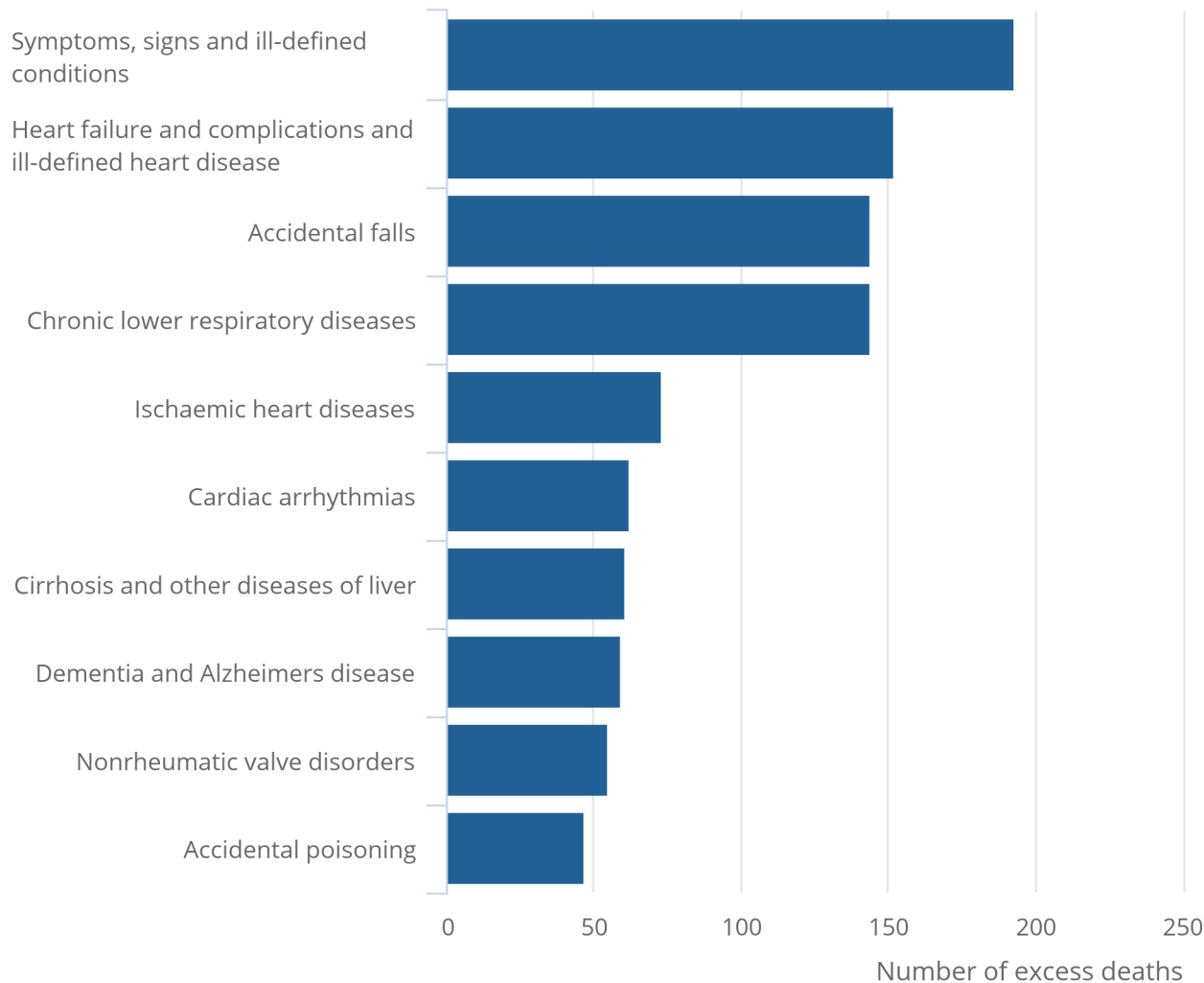
Deaths due to malignant neoplasms of the trachea, bronchus and lung continued to have the greatest number of deaths below average, at 648 fewer deaths (4.1% below average). The mortality rate was significantly lower than average (45.5 compared with 50.9 deaths per 100,000 people), at 10.8% below average. Despite this, the cause was the fifth leading cause of death in the year to date.

Figure 10: In Wales, symptoms, signs and ill-defined conditions remained the leading cause of excess death in the year to date for 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, Wales, deaths registered in January to July 2023

Figure 10: In Wales, symptoms, signs and ill-defined conditions remained the leading cause of excess death in the year to date for 2023

Number of excess deaths, compared with the 2017 to 2019, 2021 and 2022 five-year average, for selected leading causes of death, Wales, deaths registered in January to July 2023

Source: Monthly mortality analysis from the Office for National Statistics

Notes:

1. Figures for 2022 and 2023 are based on provisional mortality data.

2. Based on underlying cause of death.

3. Figures exclude deaths of non-residents.

4. Leading causes are ranked based on the number of excess deaths.

5. The five-year average has been provided for 2017 to 2019, 2021 and 2022 because of the impact of the coronavirus (COVID-19) pandemic on deaths registered in 2020.

In Wales, the leading cause of excess death in the year to date (January to July) of 2023 was also symptoms, signs and ill-defined conditions, with 193 excess deaths (40.9% above average) (Figure 10). The mortality rate was significantly higher when compared with the five-year average ASMR (34.1 compared with 25.8 deaths per 100,000 people, an increase of 32.0%).

Deaths due to mental and behavioural disorders due to psychoactive substance abuse had the greatest proportional increase in the number of deaths at 70.5% above average (18 excess deaths). This was also the greatest proportional increase for ASMRs at 67.0% above average (2.4 compared with 1.4 deaths per 100,000 people), which was statistically significant.

The ASMRs for 7 of the 69 leading causes in the year to date were significantly higher than the five-year average, with four of these appearing in the top 10 leading causes of excess death.

Deaths due to influenza and pneumonia continued to have the greatest number of deaths below average, at 117 fewer deaths (10.4% below average). The mortality rate was significantly lower than average (49.4 compared with 59.1 deaths per 100,000 people), at 16.3% below average.

6 . Death occurrences in July 2023

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. The number of death occurrences is incomplete because it is likely that more deaths need to be registered.

Instances where the number of daily death occurrences in July were below the range of the last five years may 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, and comparisons should be treated with caution. Further information can be found in Section 9: Measuring the data.

Figure 11: In England, the majority of daily deaths in 2023 to date were within the range of the five-year average

Number of deaths occurring on each day from January 2022 to July 2023, five-year average and range, England

Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 7 August 2023. Death occurrences will increase as more deaths are registered, particularly for later dates.

2. Figures for 2022 and 2023 (including deaths that occurred in previous years but were registered in 2022 and 2023) are based on provisional mortality data.

3. Figures exclude non-residents.

4. For deaths occurring in 2022, the five-year average consists of deaths occurring from 2016 to 2019, and 2021, whereas for deaths occurring in 2023, the five-year average consists of deaths occurring from 2017 to 2019, 2021 and 2022.

Download the data

.xlsx

In the first seven months of 2023 (January to July), 295,103 deaths occurred in England and were registered by 7 August 2023; this was 8,673 fewer deaths (2.9% lower) than the five-year average (2017 to 2019, 2021 and 2022) (Figure 11). Most days (73.6%) had daily death occurrences within the range of the five-year average, and 21.2% had death occurrences below the range.

In July 2023, 33,553 deaths occurred and were registered by 7 August 2023; this was 6,381 fewer deaths than average (16.0% lower). This will increase as more deaths are registered. For example, between 7 July and 7 August 2023, 2,236 more deaths were registered as occurring in June 2023, a 6.4% increase from that published in the June edition of our monthly analysis bulletin.

Figure 12: In Wales, the majority of daily deaths in 2023 to date were within the range of the five-year average

Number of deaths occurring on each day from January 2022 to July 2023, five-year average and range, Wales

Notes:

1. Figures are for deaths occurring on each day rather than deaths registered, registered up to 7 August 2023. Death occurrences will increase as more deaths are registered, particularly for later dates.

2. Figures for 2022 and 2023 (including deaths that occurred in previous years but were registered in 2022 and 2023) are based on provisional mortality data.

3. Figures exclude non-residents.

4. For deaths occurring in 2022, the five-year average consists of deaths occurring from 2016 to 2019, and 2021, whereas for deaths occurring in 2023, the five-year average consists of deaths occurring from 2017 to 2019, 2021 and 2022.

Download the data

.xlsx

In the year of 2023 to date, 19,363 deaths occurred in Wales and were registered by 7 August 2023; this was 1,817 fewer deaths (10.4% lower) than the five-year average (Figure 12). Most days (68.9%) had daily death occurrences within the range of the five-year average, and 22.6% had death occurrences below the range.

In July 2023, 2,405 deaths occurred and were registered by 7 August 2023; this was 221 fewer deaths than average (8.4% below). This will increase as more deaths are registered. For example, between 7 July and 7 August 2023, 69 more deaths were registered as occurring in June 2023, a 3.0% increase from that published in the June edition of our monthly analysis bulletin.

7 . Monthly mortality data

[Monthly mortality analysis, England and Wales](#)
Dataset | Released 23 August 2023
Provisional data on death registrations and death occurrences in England and Wales, broken down by sex and age. Includes deaths due to coronavirus (COVID-19) and leading causes of death.

[Deaths due to coronavirus (COVID-19) by English region and Welsh health board](#)
Dataset | Released 23 August 2023
Provisional age-standardised mortality rates for deaths due to COVID-19 by sex, English regions and Welsh health boards.

[Deaths involving coronavirus (COVID-19) by month of registration, UK](#)
Dataset | Released 23 August 2023
Provisional age-standardised mortality rates for deaths involving COVID-19 by sex and month of death registration, for England, Wales, Scotland and Northern Ireland.

[Deaths registered monthly in England and Wales](#)
Dataset | Released 23 August 2023
Number of deaths registered each month by area of usual residence for England and Wales, by region, county, local and unitary authority, and London borough.

[Single year of age and average age of death of people whose death was due to or involved coronavirus (COVID-19)](#)
Dataset | Released 23 August 2023
Provisional deaths registration data for single year of age and average age of death (median and mean) of persons whose death involved coronavirus (COVID-19), England and Wales. Includes deaths due to COVID-19 and breakdowns by sex.

[Pre-existing conditions of people who died due to coronavirus (COVID-19), England and Wales](#)
Dataset | Released 21 July 2023
Pre-existing conditions of people who died due to COVID-19, broken down by country, broad age group, and place of death occurrence, usual residents of England and Wales.

8 . Glossary

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 9: Measuring the data](#).

Coronaviruses

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

Coronavirus (COVID-19)

COVID-19 refers to the "coronavirus disease 2019" and is a disease that can affect the lungs and airways. It is caused by a type of coronavirus. Further [information about COVID-19 is available from the WHO](#).

Symptoms, signs and ill-defined conditions

Symptoms, signs and ill-defined conditions is a [leading cause of death grouping](#), which includes International Classification of Diseases (ICD-10) codes R00 to R99. This cause grouping is the same codes as Chapter 18: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified, of the [ICD-10](#) developed by the WHO. This cause grouping includes a variety of causes of deaths, such as abnormalities of heartbeat, somnolence, stupor and coma, old age, and frailty.

Pre-existing condition

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

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

Registration delay

Mortality statistics are compiled from information supplied when deaths are certified and registered as part of civil registration, a legal requirement. According to the [Births and Deaths Registration Act 1953](#), a death should be registered within five days unless it is referred to a coroner for investigation. Mortality statistics for a given time period can be based on occurrence (death date) or registration (registration date); registration delay is the difference between the date of occurrence and the 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](#).

9 . Measuring the data

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

Analysis contains deaths registered in July 2023 by age and sex, and includes deaths that occurred in July 2023 by date of death. Non-residents of England and Wales are excluded. In July 2023, there were 106 deaths of non-residents that were registered in England and Wales.

Data sources

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

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

Definition of COVID-19 deaths

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

1. U07.1: COVID-19, virus identified

2. U07.2: COVID-19, virus not identified

3. U09.9: post-COVID condition, unspecified (this cannot be assigned to the underlying cause of death so is not included in the "deaths due to COVID-19" definition)

4. U10.9: multisystem inflammatory syndrome associated with COVID-19, unspecified

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

1. U08.9: personal history of COVID-19, unspecified

2. U11.9: need for immunisation against COVID-19, unspecified

3. U12.9: COVID-19 vaccines causing adverse effects in therapeutic use, unspecified

Tables 14 and 15 of our [accompanying dataset](#) provide figures of each COVID-19 ICD-10 code registered since March 2020. Our figures usually consist of first registrations only. On occasion, and after further investigation, a death can be re-registered as a different cause of death. For transparency of our statistics, these tables include re-registrations as well as initial registrations. All the other figures remain as first registration only.

Monthly mortality rates

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

10 . Strengths and limitations

Provisional data are used

Provisional death registrations and death occurrences data are used in this bulletin. This enables timely analysis to be completed to monitor mortality trends. However, as the data for 2022 and 2023 are provisional, they are subject to change.

Data coverage, timeliness and registration delays

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

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

11 . Related links

[Deaths registered weekly in England and Wales](#)
Bulletin | Released weekly
Provisional counts of the number of deaths registered in England and Wales, including deaths involving coronavirus (COVID-19), in the latest weeks for which data are available.

[Death registration summary statistics, England and Wales: 2022](#)
Article | Released 11 April 2023
Number of deaths registered by year, sex, area of usual residence and selected underlying cause of death.

[Deaths registered in England and Wales: 2021 (refreshed populations)](#)
Bulletin | Released 27 January 2023
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.

[Excess deaths in England and Wales: March 2020 to December 2022](#)
Article | Released 9 March 2023
Number of excess deaths, including deaths due to coronavirus (COVID-19) and due to other causes.
Including breakdowns by age, sex and geography.

12 . Cite this statistical bulletin

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