

Article

Quarterly mortality report, England: April to June 2019

Provisional death registration and death occurrence data for England, broken down by sex and age.

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1 . Main points

- In Quarter 2 (Apr to June) 2019 there were 118,848 deaths registered in England, which was 908 more deaths than the five-year average (2014 to 2018) for this quarter.
- When taking the size and age of the population into account, the age-standardised mortality rate in Quarter 2 2019 was 886 deaths per 100,000 population, which was statistically significantly lower than Quarter 2 for all years since 2001.
- The year-to-date mortality rate for deaths registered from 1 January to 30 June 2019 was 951 deaths per 100,000 population, which was statistically significantly lower than the mortality rate in the same period for all years since 2014.
- For those aged 0 to 74 years and 75 to 79 years, mortality rates in Quarter 2 2019 were statistically significantly lower than Quarter 2 2018 for males and females.

2 . Analysis of mortality in Quarter 2 (Apr to June) 2019

In Quarter 2 (Apr to June) 2019, there were 118,848 deaths registered in England. This was 1,794 fewer deaths than Quarter 2 2018, but 908 more deaths than the five-year average (2014 to 2018). Of the deaths registered in Quarter 2 2019 there were 59,793 male deaths and 59,055 female deaths.

Quarter 2 age-standardised mortality rates have fallen from 1,195 deaths per 100,000 population (1,467 deaths per 100,000 males and 1,008 deaths per 100,000 females) in 2001, to 886 deaths per 100,000 population (1,038 deaths per 100,000 males and 760 deaths per 100,00 females) in 2019 (Figure 1). Quarter 2 2019 mortality rates have statistically significantly decreased since 2018 and are statistically significantly lower than all Quarter 2s since 2001.

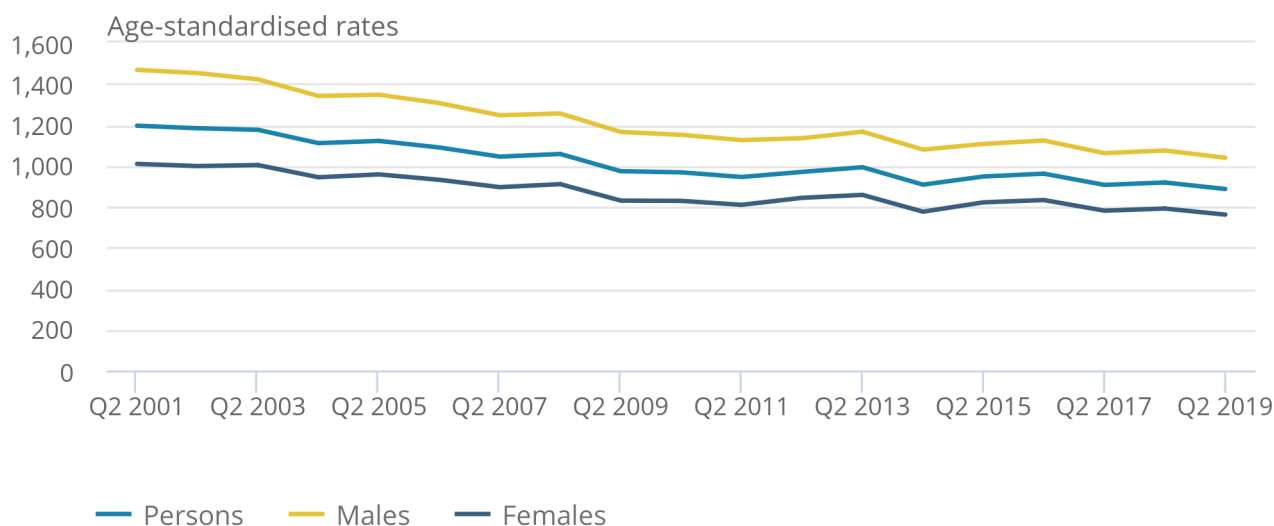
While mortality rates have declined since 2001, the annual rate of improvement has slowed between 2011 and 2019 with improvements only half that observed between 2001 and 2010. There is also less stability in trends in deaths between 2011 and 2019 compared with the earlier period.

Figure 1: Mortality rates in Quarter 2 2019 were statistically significantly lower than Quarter 2 2018

Age-standardised mortality rates by sex, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England

Figure 1: Mortality rates in Quarter 2 2019 were statistically significantly lower than Quarter 2 2018

Age-standardised mortality rates by sex, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England



Source: Office for National Statistics

Notes:

1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population.
2. Q2 refers to Quarter 2 (1 April to 30 June).
3. Figures are for deaths registered rather than deaths occurring in each period.
4. Figures for 2019 are based on provisional mortality data and projected populations.
5. Figures exclude non-residents.

Figures 2a and 2b show that since Quarter 2 2001, mortality rates have generally declined for males and females aged 75 years and over, however more fluctuations were observed in rates in the second decade. Quarter 2 2019 had the lowest rates for ages 75 to 89 years since Quarter 2 2001, while the lowest rates for ages 90 years and over were observed in 2009 (males) and 2014 (females).

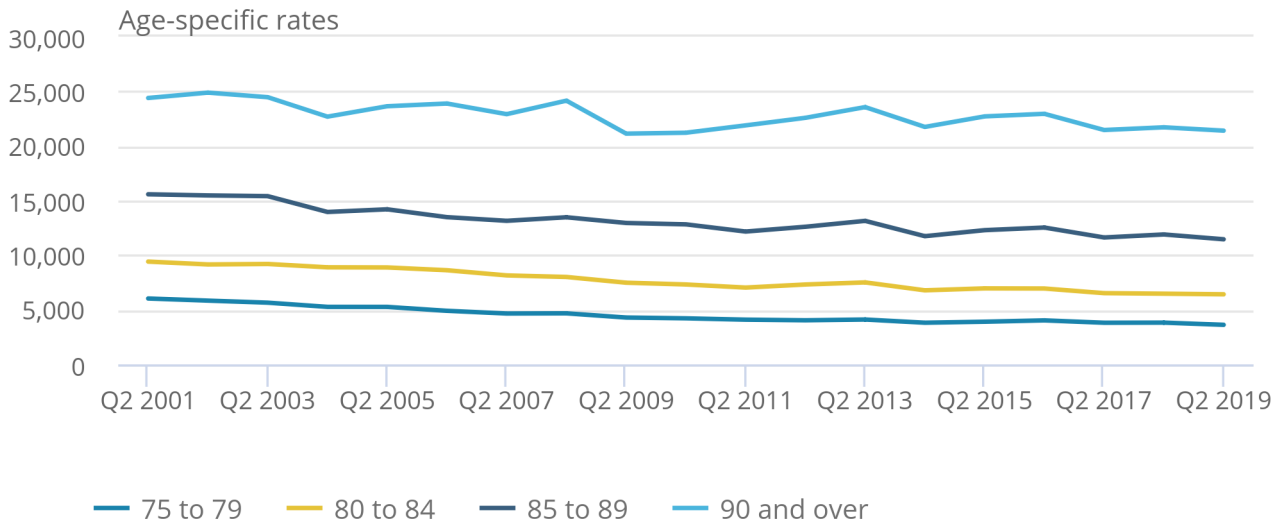
When looking at all age groups above 75 years between Quarter 2 2018 and Quarter 2 2019, the only statistically significant decreases were observed in ages 75 to 79 years for both sexes.

Figure 2a: Mortality rates statistically significantly decreased for males aged 75 to 79 years in Quarter 2 2019 compared with Quarter 2 2018

Age-specific mortality rates, males aged 75 years and over, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England

Figure 2a: Mortality rates statistically significantly decreased for males aged 75 to 79 years in Quarter 2 2019 compared with Quarter 2 2018

Age-specific mortality rates, males aged 75 years and over, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England



Source: Office for National Statistics

Notes:

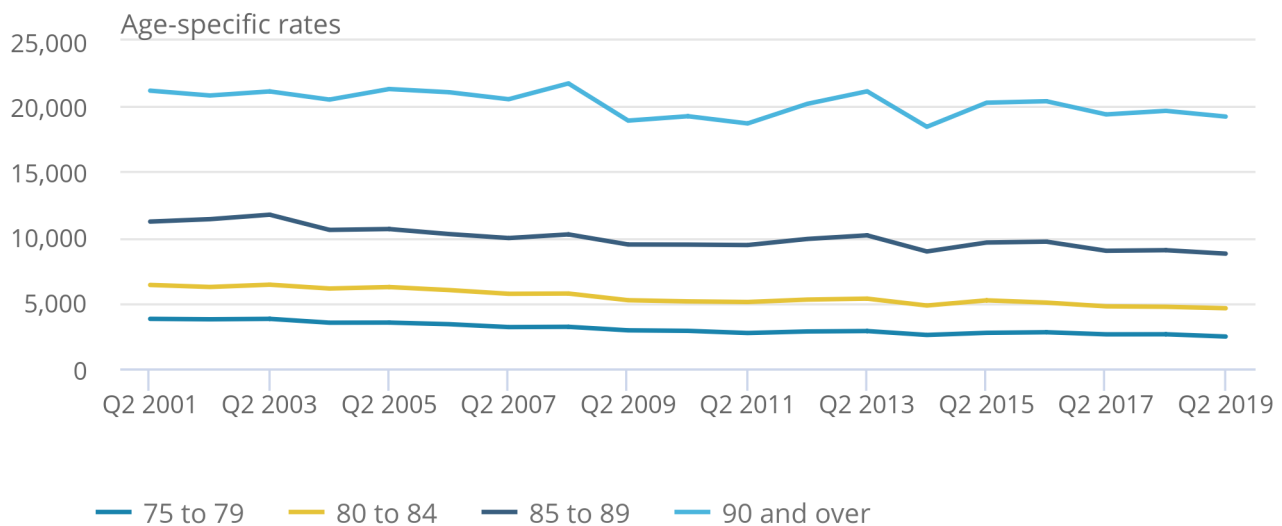
1. Age-specific mortality rates per 100,000 population.
2. Q2 refers to Quarter 2 (1 April to 30 June).
3. Figures are for deaths registered rather than deaths occurring in each period.
4. Figures for 2019 are based on provisional mortality data and projected populations.
5. Figures exclude non-residents.

Figure 2b: Mortality rates statistically significantly decreased for females aged 75 to 79 years in Quarter 2 2019 compared with Quarter 2 2018

Age-specific mortality rates, females aged 75 years and over, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England

Figure 2b: Mortality rates statistically significantly decreased for females aged 75 to 79 years in Quarter 2 2019 compared with Quarter 2 2018

Age-specific mortality rates, females aged 75 years and over, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England



Source: Office for National Statistics

Notes:

1. Age-specific mortality rates per 100,000 population.
2. Q2 refers to Quarter 2 (1 April to 30 June).
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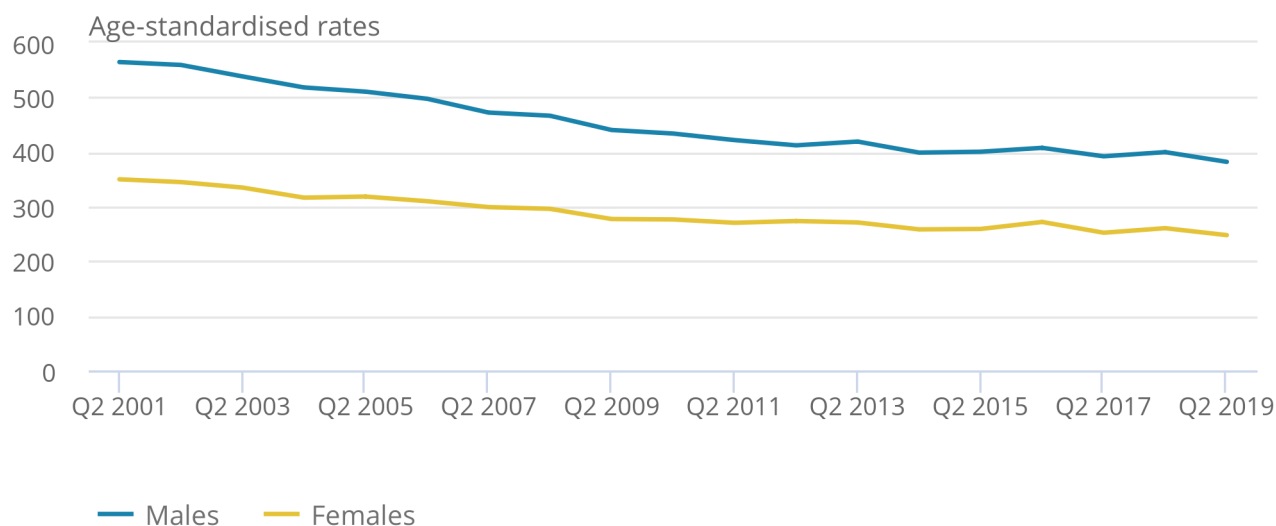
Figure 3 shows there were statistically significant decreases in mortality rates between Quarter 2 2018 and Quarter 2 2019 for ages 0 to 74 years. Additionally, the Quarter 2 2019 mortality rates were statistically significantly lower than Quarter 2 for all years since 2001, apart from 2017, where it was not significant. For both males and females, the annual rate of improvement in mortality rates has slowed since 2011 and is half that observed between 2001 and 2010.

Figure 3: Mortality rates in Quarter 2 2019 for ages 0 and 74 years were the lowest since the time series began in 2001

Age-standardised mortality rates by sex, ages 0 to 74 years, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England

Figure 3: Mortality rates in Quarter 2 2019 for ages 0 and 74 years were the lowest since the time series began in 2001

Age-standardised mortality rates by sex, ages 0 to 74 years, deaths registered in Quarter 2 (Apr to June) 2001 to 2019, England



Source: Office for National Statistics

Notes:

1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population.
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Death occurrences

Data reported in this section are based on deaths that occurred between 1 April and 30 June, rather than deaths that were registered in this period (as in the rest of this report). Further information about death occurrences and registration delays can be found in the [measuring these data section](#) of this report.

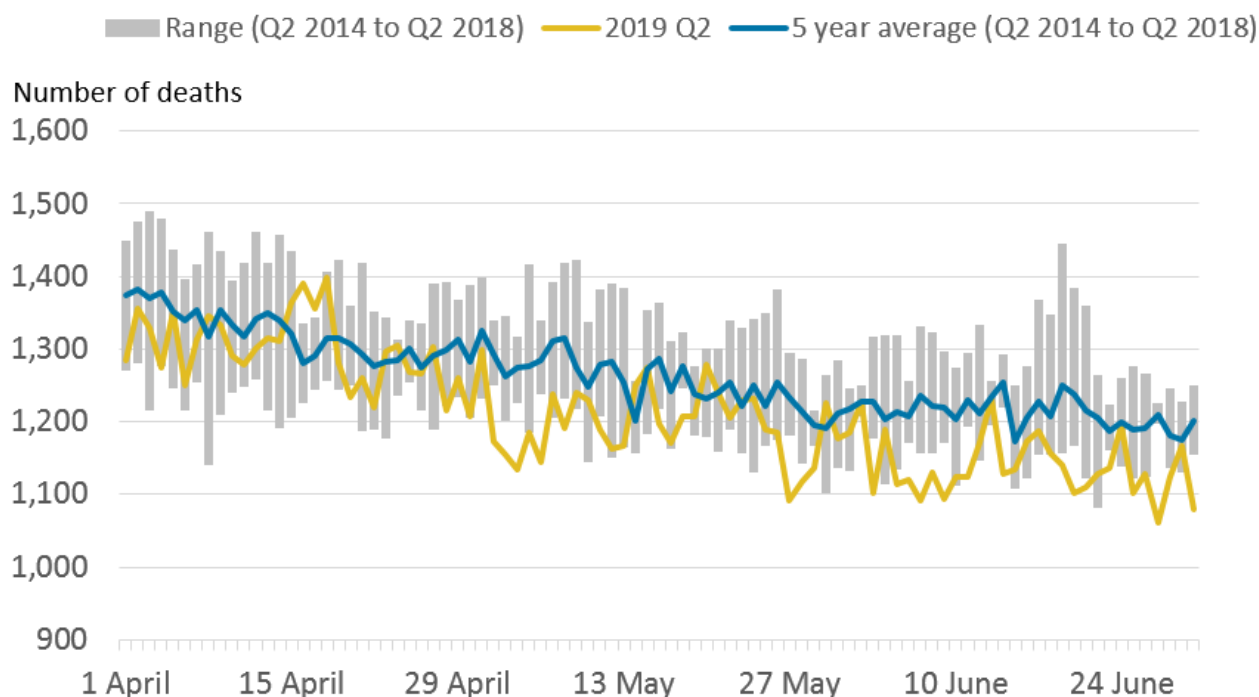
There were 110,221 deaths that occurred between 1 April and 30 June 2019 in England, 4,670 less deaths than the five-year average (2014 to 2018) for the quarter. The number of deaths that occurred each day in Quarter 2 2019 were predominantly lower than the five-year average (75 out of 91 days were lower).

Figure 4 shows the range of death occurrences. This refers to the difference between the lowest and highest numbers of deaths observed on each individual day during Quarter 2 2014 to 2018.

For April and May 2019, the number of death occurrences on each day were predominantly within the range of those occurring in Quarter 2 during the last five years. In June 2019, however, there were more instances where the number of death occurrences on each day were below the range of the last five years. This is likely to be an artefact of when the data extract was created, as deaths that occurred towards the end of the quarter may not have been registered by the date the extract was created. We would therefore expect the number of death occurrences to be higher in future releases.

Figure 4: There were 110,221 death occurrences in Q2 2019 in England

Number of deaths occurring on each day in Quarter 2 (Apr to June) 2019, five-year average and range, England



Source: Office for National Statistics

Notes:

1. Figures are for deaths occurring on each day rather than deaths registered.
2. Q2 refers to Quarter 2 (1 April to 30 June).
3. The range is the difference between the minimum and maximum value observed on each day during the five-year period (Q2 2014 to Q2 2018).
4. Figures exclude non-residents.

3 . Analysis of year-to-date mortality

To monitor mortality trends, we have calculated year-to-date figures based on deaths registered between 1 January and 30 June for years 2014 to 2019 (Figure 5).

There were 253,185 deaths registered during the first two quarters of 2019. This was lower than all observed years except for 2014 when there were 234,735 registered deaths.

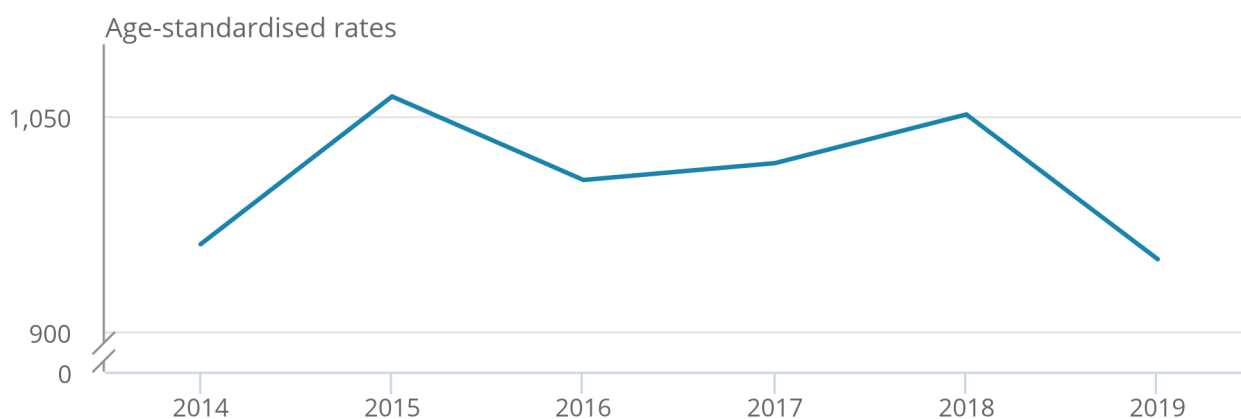
The year-to-date age-standardised mortality rate for 2019 was 951 deaths per 100,000 population. Mortality rates for the first two quarters of each year have fluctuated with the rate in 2019 being statistically significantly lower than all observed years since 2014.

Figure 5: Mortality rates for 2019 so far are statistically significantly lower than all years since 2014

Age-standardised mortality rates, deaths registered between 1 January and 30 June 2014 to 2019, England

Figure 5: Mortality rates for 2019 so far are statistically significantly lower than all years since 2014

Age-standardised mortality rates, deaths registered between 1 January and 30 June 2014 to 2019, England



Source: Office for National Statistics

Notes:

1. Age-standardised mortality rates per 100,000 population, standardised to the 2013 European Standard Population.
2. Figures are for deaths registered rather than deaths occurring in each period.
3. Figures for 2019 are based on provisional mortality data and projected populations.
4. Figures exclude non-residents.

4 . Quarterly mortality data

[Quarterly mortality, England](#)

Quarterly data on death registrations and death occurrences in England broken down by sex and age.

5 . 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 are used to allow comparisons between populations, which may contain different proportions of people of different ages. The 2013 European Standard Population is used to standardise rates.

Quarter 2

Quarter 2 is the period covering 1 April to 30 June.

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 figures indicate the difference is unlikely to have arisen from random fluctuation.

6 . Measuring these data

The purpose of this report is to provide timely surveillance of mortality in England, based on the best available provisional data. This report focuses on Quarter 2 (Apr to June).

Deaths data sources

This report is based primarily on death registrations, with a section on death occurrences towards the end of the quarterly overview. Death occurrences show the number of deaths that occurred within a calendar period and gives 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 for Quarter 2 (1 April to 30 June) 2019 was created on 30 July 2019, roughly four weeks after the end of the reporting period.

Death registrations data for 2019 are provisional, however, we would expect only very small changes to total death registration counts once data are made final.

Previously, death occurrences data have been produced using a similar extraction date to ensure data were consistent throughout the time period. However, for this release and all future releases this similar extraction date has been removed to ensure the occurrence data are the most up to date. As the result of [registration delays](#), deaths that occurred during Quarter 2 2019 may not have been registered by 30 July 2019 when the data extract was created. For this reason, the quarterly occurrences data are always somewhat incomplete, and we would expect the number of death occurrences in Quarter 2 2019 reported in future articles to be higher than the number reported here.

Quarterly populations

We publish the [mid-year population estimates](#) used for calculating rates. For 2019, the [2016-based ONS population projections were used](#).

Calculation of mortality rates for quarterly deaths requires adjustments to be made to annual population estimates to calculate rates that are comparable.

We calculate an annual population centred on the midpoint of the quarter using two years' worth of population estimates or projections. This is then multiplied by the number of days within the quarter, 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:

Quarter 2 2019 population

$$= (\text{population}_{2018}(i) + ((\text{population}_{2019}(i) - \text{population}_{2018}(i)) * (\frac{m}{M}))) * (\frac{N}{M})$$

where m is the number of days from 1 July 2018 (the start of the mid-year for the population estimate) to the midpoint of Quarter 2 inclusive, N is the number of days in Quarter 2 2019 and M is the number of days in 2019 and (i) is the age group.

Early access for quality assurance purposes

We provide early access for quality assurance purposes to a small number of analysts within Public Health England (PHE) and the Department of Health and Social Care (DHSC). The analysts are not permitted to share the findings or the report more widely in their organisations. The report is provided for the analysts to provide technical comment on our findings. However, the Office for National Statistics (ONS) itself independently produces these statistics, including determining the focus, content, commentary, illustration and interpretation of these measures presented, and the comments provided by PHE and DHSC are purely advisory.

7 . Strengths and limitations

The strengths of the quarterly mortality report include the following:

- provisional data are used to enable timely analysis to be completed to monitor mortality trends
- mortality data give complete population coverage and ensure the estimates are of high precision, and representative of the underlying population at risk

The limitations of the quarterly mortality report include the following:

- provisional death registrations and death occurrences data are used, which means the data are subject to change
- quarterly occurrence data are always somewhat incomplete because of registration delays, especially for deaths that occurred towards the end of the quarter

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

8 . You may also be interested in

[Changing trends in mortality in England and Wales: 1990 to 2017 \(Experimental Statistics\)](#)

[Changing trends in mortality: a cross-UK comparison, 1981 to 2016](#)

[Changing trends in mortality: an international comparison: 2000 to 2016](#)

[A review of recent trends in mortality in England \(PDF, 2.93MB\)](#)

[Excess winter mortality in England and Wales: 2017 to 2018 \(provisional\) and 2016 to 2017 \(final\)](#)

[Deaths registered in England and Wales 2018](#)