

Statistical bulletin

Quarterly alcohol-specific deaths in England and Wales: 2001 to 2019 registrations and Quarter 1 (Jan to Mar) to Quarter 3 (July to Sept) 2020 provisional registrations

Quarterly rates and numbers of deaths caused by diseases known to be a direct consequence of alcohol misuse. Includes 2001 to 2019 registrations and provisional registrations for Quarter 1 (Jan to Mar) to Quarter 3 (July to Sept) 2020.

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1 . Main points

- Provisional data for England and Wales show there were 5,460 deaths related to alcohol-specific causes registered in the first three quarters of 2020 (Jan to Sept), a 16.4% increase compared with the same nine-month period in 2019.
- The alcohol-specific death rate reached its highest peak since the data time series began in 2001, of 12.8 deaths per 100,000 people (1,810 deaths registered) in Quarter 1 (Jan to Mar) 2020 and it remained at this level in both Quarter 2 (Apr to June; 1,811 deaths registered) and Quarter 3 (July to Sept; 1,839 deaths registered).
- When comparing the same quarter across the years, the rate in Quarter 1 2020 was statistically similar to rates in previous years, however, rates in Quarter 2 and Quarter 3 2020 were statistically significantly higher than in any other year back to 2001.
- Consistent with previous years, rates of male alcohol-specific deaths were twice those of females; with rates ranging between 17.3 and 17.8 deaths per 100,000 males in 2020 compared with rates ranging between 8.0 and 8.6 deaths per 100,000 females.
- Compared with the same period in 2019, rates were statistically significantly higher for persons aged 30 to 49 years in Quarter 2 2020 and for persons aged 40 to 69 years in Quarter 3 2020.
- Compared with the same period in 2019, rates were statistically significantly higher in the North East and London in Quarter 2 2020 and in the South West in Quarter 3 2020.
- The coronavirus (COVID-19) pandemic has had little impact on how long it has taken to register alcohol-specific deaths, the median delay continued to be six days in 2020, similar to previous years.

If you are struggling with your drinking, consider visiting [Get help now](#) on the Alcohol Change UK website. Help is available if you're concerned for yourself or on behalf of a family member or friend.

Statistician's comment

Commenting on today's release, Ben Humberstone, deputy director of Health Analysis and Life Events at the ONS said:

"Today's data shows that in the first three quarters of 2020, alcohol-specific deaths in England and Wales reached the highest level since the beginning of our data series, with April to September, during and after the first lockdown, seeing higher rates compared to the same period in previous years.

The reasons for this are complex and it will take time before the impact the pandemic has had on alcohol-specific deaths is fully understood."

2 . Quarterly analysis

Alcohol-specific deaths registered in 2020 by quarter

There were 5,460 alcohol-specific deaths registered in England and Wales from January to the end of September 2020, representing a 16.4% increase in the number of registered deaths compared with the same period in 2019 (4,689 deaths).

By quarter, there were 1,810 alcohol-specific deaths registered between January and March (a 9.7% increase compared with 2019), 1,811 deaths between April and June (a 17.7% increase compared with 2019) and 1,839 deaths between July and September (a 22.6% increase compared with 2019). These figures are based on provisional death registrations, and it is possible the numbers could change when the data are finalised in late 2021 in our next [annual publication](#) of alcohol-specific deaths.

Alcohol-specific deaths only include those health conditions where each death is a direct consequence of alcohol misuse (that is, wholly attributable causes such as alcoholic liver disease). See [Measuring the data](#) for more information.

The National Statistics definition of alcohol-specific deaths includes only those health conditions where each death is a direct consequence of alcohol misuse (that is, wholly attributable deaths). Most of these are chronic (longer-term) conditions associated with continued misuse of alcohol. Therefore, the increase in deaths in 2020 is more likely to be attributed to those with previous history of alcohol misuse or dependency.

The age-standardised mortality rate of alcohol-specific deaths has been steadily increasing since our data time series began in 2001, reaching a peak of 12.8 deaths per 100,000 people in Quarter 1 (Jan to Mar) of 2020 (see Figure 1). This is the highest rate since the data time series began almost two decades ago in Quarter 1 of 2001. The same rate of 12.8 deaths per 100,000 people was seen in the following two quarters of 2020 (Apr to June, July to Sept).

Since 2001, rates of alcohol-specific deaths have been generally higher in the first quarter of each year. As such, despite the rate in Quarter 1 of 2020 being the highest seen since 2001, the Quarter 1 rate of 2020 was not statistically different compared with that in the same quarter in 2019 (11.8 deaths per 100,000 people).

On the other hand, Quarters 2 and 3 had [statistically significantly](#) higher rates in 2020 than any other rate in the same quarter since 2001. Both male and female rates increased significantly in Quarter 2 and Quarter 3 compared with the same quarters in 2019.

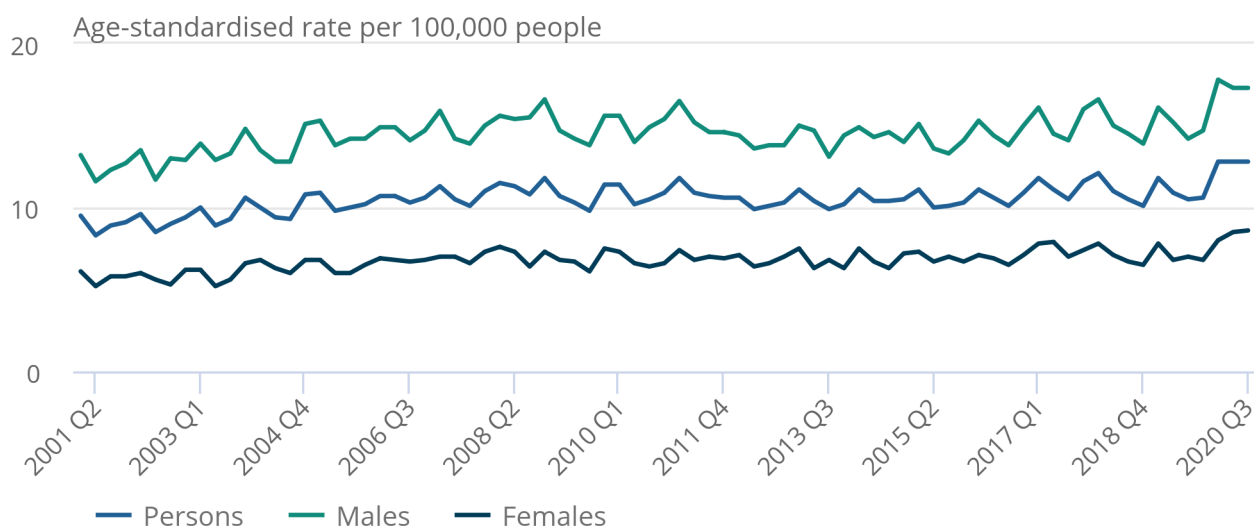
Consistent with previous years, rates of male alcohol-specific deaths were twice those of females; with rates ranging between 17.3 and 17.8 deaths per 100,000 males in 2020 compared with rates ranging between 8.0 and 8.6 deaths per 100,000 females.

Figure 1: Provisional figures for 2020 show significant increases in rates of alcohol-specific deaths in England and Wales

Quarterly age-standardised alcohol-specific death rates per 100,000 people, by sex; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2001 and Quarter 3 2020 (July to Sept)

Figure 1: Provisional figures for 2020 show significant increases in rates of alcohol-specific deaths in England and Wales

Quarterly age-standardised alcohol-specific death rates per 100,000 people, by sex; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2001 and Quarter 3 2020 (July to Sept)



Source: Office for National Statistics – Quarterly alcohol-specific deaths in England and Wales

Notes:

1. Figures for 2020 are provisional and will be finalised in late 2021 in the annual [Alcohol-specific deaths in the UK](#) bulletin.
2. Rates are expressed per 100,000 population and standardised to the 2013 European Standard Population.
3. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10) from 2001 onwards in England and Wales. The underlying cause of death codes used to select alcohol-specific deaths are shown in Table 2 in the annual bulletin.
4. Figures for the England and Wales (combined) include deaths of non-residents.
5. Figures are based on the date of registration, as opposed to the date the death occurred, in each calendar year and quarter. 6. 'Q1' refers to Quarter 1 (Jan-March), 'Q2' refers to Quarter 2 (April-June), 'Q3' refers to Quarter 3 (July-Sep), 'Q4' refers to Quarter 4 (Oct-Dec).

Alcohol-specific deaths registered by age group

Since the beginning of our data time series in Quarter 1 (Jan to Mar) 2001, people aged between 50 and 69 years have always had the highest alcohol-specific death rate. Additionally, relatively few deaths have been registered for those aged under 30 years (39 deaths in the first three quarters (Jan to Sept) of 2020 or 0.7% of the total number).

Given that the definition of alcohol-specific deaths includes mostly chronic conditions, such as alcoholic liver disease, the increased rates in the older age groups may be a consequence of misuse of alcohol that began years, or even decades, earlier.

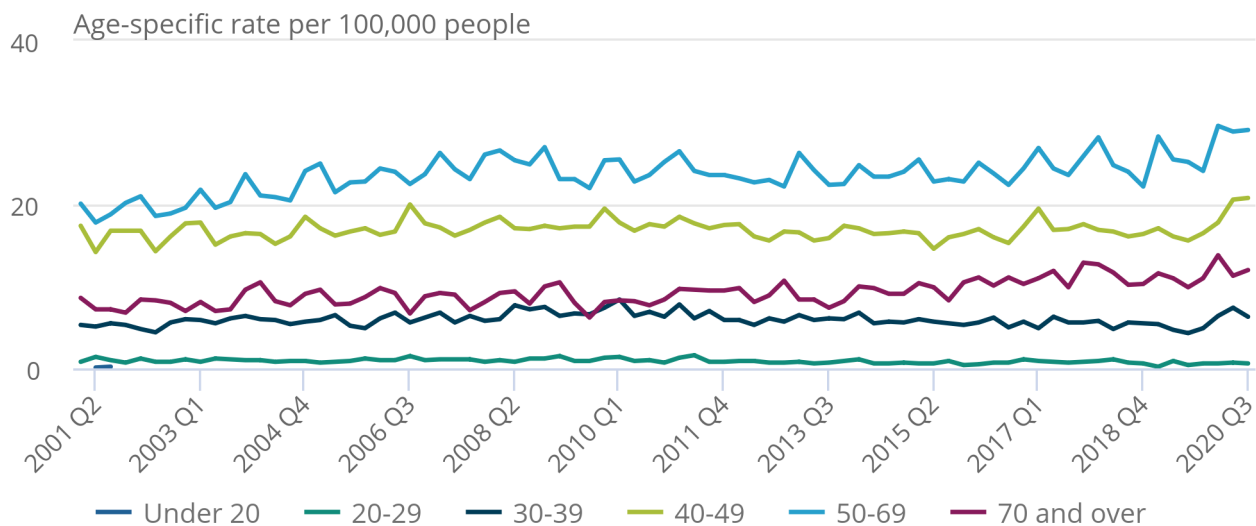
The highest age-specific rates for people aged 40 years and above are seen within the first three quarters of 2020. Compared with the same quarter in 2019, Quarter 1 (Jan to Mar) 2020 had no statistically significant change in age-specific rates. However, Quarter 2 (Apr to June) 2020 saw significant increases in rates for persons aged 30 to 39 and 40 to 49 years, and Quarter 3 (June to Sept) saw significant increases in rates for persons aged 40 to 49 and 50 to 69 years (see Figure 2).

Figure 2: Alcohol-specific death rates increased significantly in 2020 for those aged between 30 and 69 years

Quarterly age-specific alcohol-specific death rates per 100,000 people; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2001 and Quarter 3 2020 (July to Sept)

Figure 2: Alcohol-specific death rates increased significantly in 2020 for those aged between 30 and 69 years

Quarterly age-specific alcohol-specific death rates per 100,000 people; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2001 and Quarter 3 2020 (July to Sept)



Source: Office for National Statistics – Quarterly alcohol-specific deaths in England and Wales

Notes:

1. Figures for 2020 are provisional and will be finalised in late 2021 in the annual [Alcohol-specific deaths in the UK](#) bulletin.
2. Rates are expressed per 100,000 population.
3. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10) from 2001 onwards in England and Wales. The underlying cause of death codes used to select alcohol-specific deaths are shown in Table 2 in the annual bulletin.
4. Figures for the England and Wales (combined) include deaths of non-residents.
5. Figures are based on the date of registration, as opposed to the date the death occurred, in each calendar year and quarter. 'Q1' refers to Quarter 1 (Jan-March), 'Q2' refers to Quarter 2 (April-June), 'Q3' refers to Quarter 3 (July-Sep), 'Q4' refers to Quarter 4 (Oct-Dec).

Alcohol-specific deaths registered in 2020 compared with 2019

Here we compare alcohol-specific deaths registered in 2019 against the latest 2020 figures; 2019 is the latest non-pandemic year available and has statistically similar rates to those registered between 2015 and 2019 combined in Quarters 1 to 4 (Jan to Dec) in England and Wales (see Table 7 of [the accompanying dataset](#)).

England

Figures for England tend to follow a similar pattern to that of England and Wales combined, with rates ranging between 12.6 and 12.8 deaths per 100,000 people in the first three quarters (Jan to Sept) of 2020. Compared with the same period in 2019, rates were [statistically significantly](#) higher in England in Quarter 2 (Apr to June) and in Quarter 3 (July to Sept) 2020.

Wales

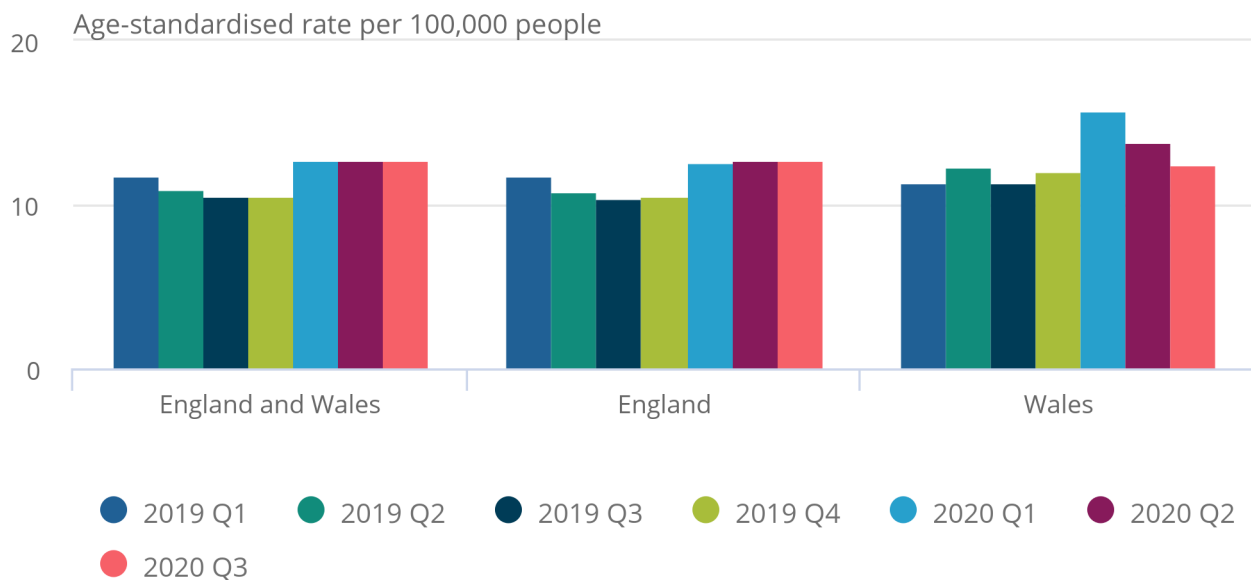
As shown in Figure 3, alcohol-specific rates for Wales increased to 15.7 deaths per 100,000 in Quarter 1 (Jan to Mar) 2020 before declining in subsequent quarters. It is important to note that rates for Wales by quarter have not changed in recent years in terms of statistical significance. Wales tends to have a more volatile pattern than England and with wider [confidence intervals](#), this is because of the smaller number of alcohol-specific deaths registered in Wales.

Figure 3: There were significant increases in alcohol-specific rates in England in Quarter 2 (Apr to June) and Quarter 3 (July to Sept 2020)

Quarterly age-standardised alcohol-specific death rates per 100,000 people, by country; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2019 and Quarter 3 2020 (July to Sept)

Figure 3: There were significant increases in alcohol-specific rates in England in Quarter 2 (Apr to June) and Quarter 3 (July to Sept 2020)

Quarterly age-standardised alcohol-specific death rates per 100,000 people, by country; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2019 and Quarter 3 2020 (July to Sept)



Source: Office for National Statistics – Quarterly alcohol-specific deaths in England and Wales

Notes:

1. Figures for 2020 are provisional and will be finalised in late 2021 in the annual [Alcohol-specific deaths in the UK](#) bulletin.
2. Rates are expressed per 100,000 population and standardised to the 2013 European Standard Population.
3. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10) from 2001 onwards in England and Wales. The underlying cause of death codes used to select alcohol-specific deaths are shown in Table 2 in the annual bulletin.
4. Figures for the England and Wales (combined) include deaths of non-residents. However, figures for England and Wales separately exclude deaths of non-residents and are based on the latest postcode boundaries.
5. Figures are based on the date of registration, as opposed to the date the death occurred, in each calendar year and quarter.
6. 'Q1' refers to Quarter 1 (Jan-March), 'Q2' refers to Quarter 2 (April-June), 'Q3' refers to Quarter 3 (July-Sep), 'Q4' refers to Quarter 4 (Oct-Dec).

English regions

Looking at rates of alcohol-specific deaths by English region, in 2020, female rates increased significantly in the North East in Quarter 2 (Apr to June) compared with 2019. Similarly, male rates increased significantly in London in Quarter 2 and in the South West in Quarter 3 (July to Sept) in the same period.

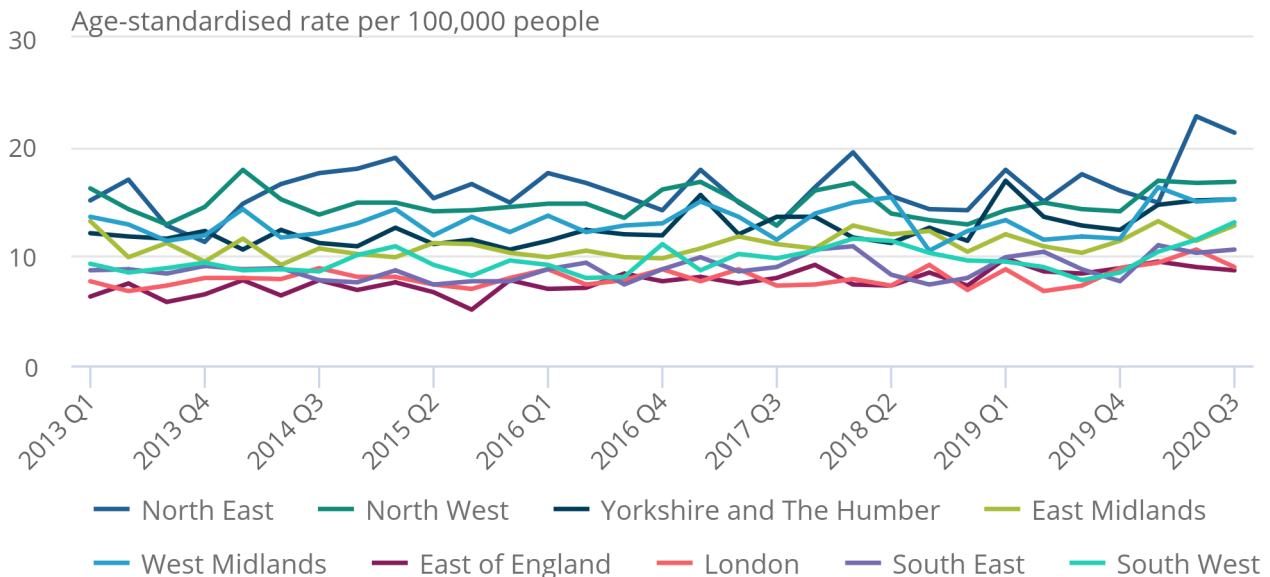
Rates for persons are presented in Figure 4, though caution is recommended when directly comparing regional rates; because of the relatively smaller number of deaths, rates for English regions by quarter of death registration have a wide degree of statistical uncertainty.

Figure 4: The increase in alcohol-specific rates in the North East is driven by females

Quarterly age-standardised alcohol-specific death rates per 100,000 people, by English region, deaths registered between Quarter 1 (Jan to Mar) 2013 and Quarter 3 2020 (July to Sept)

Figure 4: The increase in alcohol-specific rates in the North East is driven by females

Quarterly age-standardised alcohol-specific death rates per 100,000 people, by English region, deaths registered between Quarter 1 (Jan to Mar) 2013 and Quarter 3 2020 (July to Sept)



Source: Office for National Statistics – Quarterly alcohol-specific deaths in England and Wales

Notes:

1. Figures for 2020 are provisional and will be finalised in late 2021 in the annual [Alcohol-specific deaths in the UK](#) bulletin.
2. Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD-10) from 2001 onwards in England and Wales. The underlying cause of death codes used to select alcohol-specific deaths are shown in Table 2 in the annual bulletin.
3. Figures for English regions exclude deaths of non-residents and are based on the latest postcode boundaries.
4. Figures are based on the date of registration, as opposed to the date the death occurred, in each calendar year and quarter.
5. 'Q1' refers to Quarter 1 (Jan-March), 'Q2' refers to Quarter 2 (April-June), 'Q3' refers to Quarter 3 (July-Sep), 'Q4' refers to Quarter 4 (Oct-Dec).

Alcohol-specific deaths by cause

[Previous releases](#) have highlighted that the highest proportion of alcohol-specific deaths are attributed to alcoholic liver disease. It remains the case in 2020, where 4,355 alcohol-specific deaths were caused by alcoholic liver disease (79.8% of the alcohol-specific death total, 5,460 deaths) from January to the end of September, representing a 16.7% increase in the number of deaths registered from this cause compared with the same period in 2019 (3,732 deaths).

In the same nine-month period of 2020, a further 531 deaths were caused by mental and behavioural disorders due to the use of alcohol, and 353 deaths by accidental poisoning by and exposure to alcohol, an increase of 15.9% and 10.3% respectively compared with 2019.

Figure 5 shows the percentage of alcohol-specific deaths for the following three individual causes:

- alcoholic liver disease (International Classification of Diseases: ICD-10 code K70)
- mental and behavioural disorders as a result of the use of alcohol (ICD-10 code F10)
- accidental poisoning by and exposure to alcohol (ICD-10 code X45)

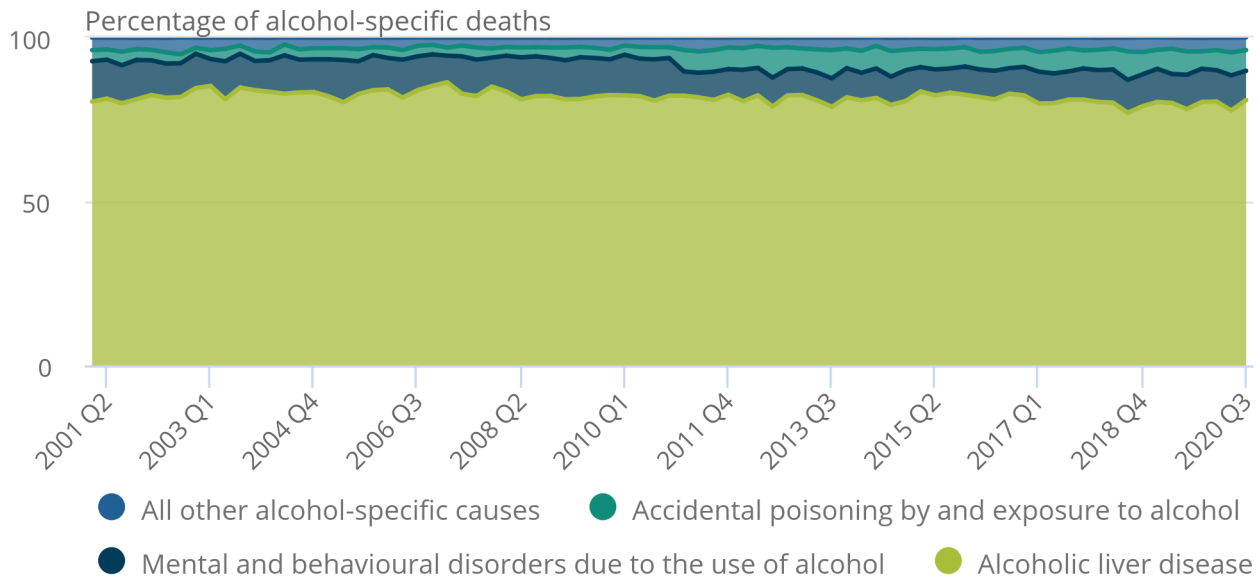
These contributed 96.0% of all alcohol-specific deaths registered in the first three quarters (Jan to Sept) of 2020.

Figure 5: Around four in every five deaths were caused from alcoholic liver disease

Percentage of alcohol-specific death by individual cause; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2001 and Quarter 3 2020 (July to Sept)

Figure 5: Around four in every five deaths were caused from alcoholic liver disease

Percentage of alcohol-specific death by individual cause; England and Wales, deaths registered between Quarter 1 (Jan to Mar) 2001 and Quarter 3 2020 (July to Sept)



Source: Office for National Statistics – Quarterly alcohol-specific deaths in England and Wales

Notes:

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3 . Factors that could be associated with the 2020 increase in alcohol-specific deaths

When trying to understand the elevated rates of alcohol-specific deaths seen since April 2020, there will be many complex factors, and it may be some time before we fully understand all of these.

Data from Public Health England collected during the coronavirus (COVID-19) pandemic show there have been [higher levels of abstinence from alcohol since the first national lockdown in England](#), compared with drinking habits beforehand. Despite this, data for the same time period show an increase in those reporting higher levels of drinking (greater than 35 units per week).

Other small studies have also found that [lockdown may have resulted in increased alcohol consumption in people with alcohol use disorders and relapse](#) for those who were previously abstinent.

Data on [the purchasing of alcohol from food retailers](#) have also seen an increase during the pandemic. However, it is possible that these figures reflect the reduction in alcohol purchased and consumed outside of the home. Further, more detailed work is required to understand whether this increase represents a full shift from sales in pubs, bars and restaurants, to sales purchased from supermarkets and shops to be consumed at home as opposed to more drink being purchased overall.

While it is clear that alcohol consumption in higher-risk drinkers has increased during the pandemic, it will take time before the impact of this on mortality is fully understood.

4 . Quarterly data

[Quarterly alcohol-specific deaths in England and Wales](#)

Dataset | Released 2 February 2021

Quarterly rates and numbers of deaths caused by diseases known to be a direct consequence of alcohol misuse. Includes 2001 to 2019 registrations and provisional registrations for Quarter 1 (Jan to Mar) to Quarter 3 (July to Sept) 2020.

5 . Glossary

Alcohol-specific death

Deaths resulting from health conditions that are a direct consequence of alcohol misuse, such as alcoholic liver disease. This is the National Statistics definition. For further information on the definition used, please see our [annual release](#).

Year of registration

Figures are based on deaths registered in each calendar year, rather than the date on which the death occurs.

Registration delay

The registration delay refers to the time lag between the date of death (that is, when the death occurred) and the date the death was registered. For further information on the impact of registration delays, see [Section 6: Measuring the data](#).

Age-specific mortality rate

Age-specific mortality rate is the total number of deaths per 100,000 people of a particular age group, used to allow comparisons between specified age groups.

Age-standardised mortality rate

Age-standardised mortality rate in this bulletin refers to a weighted average of the age-specific mortality rates per 100,000 people and standardised to the 2013 European Standard Population. They allow for differences in the age structure of populations and therefore allow valid comparisons to be made between geographic areas, the sexes and over time. For more information see Sections 6 and 7 of the [Alcohol-specific deaths in the UK QMI](#).

Statistical significance

The term "significant" refers to statistically significant changes or differences based on unrounded figures. 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. For more information see Sections 6 and 7 of the [Alcohol-specific deaths in the UK QMI](#).

6 . Measuring the data

Quality and methodology

Numerous changes were made to death certification and registration under the [Coronavirus Act 2020](#), we have previously explored the [impact on the quality of death registration data](#). More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in Section 10 of the annual bulletin and the [Alcohol-specific deaths in the UK QMI](#).

Figures are for deaths registered, rather than deaths occurring in each quarter and year. In England and Wales, the deaths included in our alcohol-specific definition are more commonly certified by a doctor (67.0% in 2019).

The amount of time it takes to complete an inquest creates what is known as a "registration delay", which is a lag between the date of death and the date of death registration. For alcohol-specific deaths registered in the first three quarters of 2020, the average (median) time between death occurrence and registration was six days in England and Wales. This is the same delay as observed in each registration years from 2015 to 2019, therefore the coronavirus (COVID-19) pandemic has had little overall impact on the registration of alcohol-specific deaths.

Quarterly age-standardised rates

Age-standardised mortality rates are calculated using the number of deaths and mid-year population estimates provided by our Population Estimates Unit. [Mid-year population estimates](#) were used for 2001 to 2019 rate calculations whilst [2018-based ONS population projections](#) were used for 2020 age-standardised rates. For more information on age-standardisation, please see the [Quality and Methodology Information](#) report.

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

We calculate an annual population centred on the mid-point of the quarter using two years' worth of population estimates or projections. This is then multiplied by the proportion of the number of days within a quarter 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.

Using 2020 as an example, calculations for quarters (in each geographical area) were:

Quarter 1 and 2:

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

Quarter 3 and 4:

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

where:

- m is the number of days from 1 July 2020 (the start of the mid-year for the population estimate) to the mid-point of the relevant quarter, inclusive
- N is the number of days in the quarter, for example, Quarter 3 (July to Sept) 2020
- M is the number of days in 2020
- (i^*) is the age group

7 . Strengths and limitations

This release aims to monitor alcohol-specific death registrations in England and Wales, based on the best available provisional data.

Quarterly data for 2020 are provisional and may be subject to changes once annual death registrations are complete. For example, some deaths may be registered but the underlying cause of death has not yet been coded. Data for 2020 will be finalised in the next annual [Alcohol-specific deaths in the UK](#) release (expected in late 2021 to early 2022).

Quarterly age-standardised rates are included to aid interpretation, such as whether changes by quarter in a given registration year are statistically meaningful. This is especially important when interpreting low numbers of deaths, which are prone to random fluctuation and volatility over time.

Numbers of alcohol-specific deaths by quarter are often small, particularly where males and females are analysed separately, as demonstrated by the relatively wide confidence intervals. For this reason, any comparisons should be interpreted with caution and particular attention should be paid to overlapping confidence intervals where differences are then not statistically significant.

Since the beginning of our data time series in 2001, the number of alcohol-specific death registrations in Quarter 1 (Jan to Mar) tends to be higher than those observed in any of the other quarters, something that should be kept in mind when making comparisons. Further guidance on how to interpret the data included in this release is available in the "Table interpretation" worksheet of [the accompanying dataset](#).

Further strengths and limitations are mentioned in the [annual bulletin](#).

8 . Related links

[Alcohol-specific deaths in the UK: registered in 2019](#)

Bulletin | Released 2 February 2021

Deaths caused by diseases known to be a direct consequence of alcohol misuse by sex, age and region.