

Liver disease mortality

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Type	Statistical report
Topics	Conditions and diseases

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About this release

This publication displays average rates of people dying from liver disease in Scotland.

Scotland has some of the highest rates in hospital admissions and death rates from chronic and acute liver disease in comparison with other European countries (e.g. Lewsey et al., 2016).

Between 2011 and 2020, the average rate of mortality per year from the conditions included in this dashboard was 30.6 in every 100,000 people in Scotland. Mortality rates have also been increasing in England, with 20.6 deaths per 100,000 reported in 2020/21. View the gov.uk website for further information.

Only looking at chronic forms of liver disease, analysis on the ScotPHO pages has previously estimated that 16.7 deaths per 100,000 population in Scotland occurred in 2020 from alcoholic liver disease, chronic hepatitis, and fibrosis and cirrhosis. Chronic liver disease death rates were 3.8 times higher in the most deprived areas (32.5 per 100,000 population) compared to the least deprived areas (8.6 per 100,000 population). This publication incorporates maps of deprivation to allow comparison with liver mortality rates.

The ScotPHO pages also include information on hospital admissions due to chronic liver disease, which, in 2020, were estimated to have led to 187.5 hospital stays per 100,000 population in Scotland. In England, the estimate was 124.3 admissions per 100,000 in 2020/21. View the [gov.uk](https://www.gov.uk) website for further information.

The major risk factors are alcohol, obesity, and viral hepatitis, alcohol being the most common factor leading to liver disease. An NHS Health Scotland study (Tod et al., 2018) estimated the proportion of liver disease mortality due to alcohol consumption, known as alcohol-attributable fraction (AAF), to be over 70%.

There is no specific national liver disease policy in Scotland, although there are policy initiatives for many of the risk factors associated with chronic liver disease, such as alcohol and obesity. See the references and further information section for links to these policies.

Methodology

This dashboard presents rates of liver disease mortality in Scottish Parliamentary Constituencies and NHS Health Boards, further disaggregated by sex and age groups. The 2019 updated borders for both area levels are used.

The number of deaths comes from National Records of Scotland (NRS) deaths data.

Rates are calculated as European Age Standardised Rates (EASRs) per 100,000 population for females, males, and all persons.

The International Classification of Diseases, *edition 10 (ICD-10)* codes used for this analysis are: C22, K70, K71, K72, K73, K74, K75, K76, K77, K85.2, and K86.0.

In addition, we include the proportion due to alcohol consumption, the alcohol-attributable fractions (AAF) for C22 (Liver and intrahepatic bile ducts) by calculating the death rate for C22 multiplied by the proportion for men (0.72) and women (0.76). The non-alcohol attributable fractions of liver cancer are then calculated as $1-0.72$ and $1-0.76$, respectively.

The figures are to be updated in 2023 following updates to population linkage files.

Health board rates of liver mortality

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Health board deprivation levels

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Scottish Parliamentary Constituencies rates of liver mortality

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Scottish Parliamentary Constituencies deprivation levels

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Terminology

European Age Standardised Rates (EASRs)

The 2013 European Standard Population has been used to calculate the European Age Standardised Rates (EASRs) within this publication. The European Standard population is applied to a country's (or smaller geography) mortality or morbidity rates to provide so-called "standardised" rates, which are an estimate of what the mortality or morbidity rates would be if the country had the age distribution of the European Standard Population.

The Scottish Index of Multiple Deprivation (SIMD)

The Scottish Index of Multiple Deprivation (SIMD) is a measure of deprivation combining different aspects of disadvantage. Each data zone in Scotland is ranked from 1 (most deprived) to 6,976 (least deprived). This can further be divided into quintiles (groups of 20% of data zones). More information on SIMD can be found on the Scottish Government website.

Alcohol-attributable fractions

The estimated proportion of deaths due to alcohol consumption as calculated by Tod et al. (2018), Hospital admissions, deaths and the overall burden of disease attributable to alcohol consumption in Scotland can be found on the ScotPHO website. For example, for liver cancer (C22), AAFs are estimated at 0.24 for women and 0.46 for men on average, meaning that 24% and 46% of deaths are attributed to the impact of alcohol. The calculations on these pages take into account AAFs for each age group.

Caveats

Death rates are based on the International Classification of Diseases (ICD) code of underlying cause of death as recorded on medical death certificates. View the background information for NRS coding rules.

Focusing this analysis only on the primary ICD code, the underlying cause of death means that in some cases we cannot distinguish whether a patient who has died from liver cancer had alcohol-related or non-alcohol-related disease as their death was classified under the ICD code C22. For this reason, we have included alcohol-attributable fractions derived from the study by Tod et al. (2018) allowing users to see the contribution of alcohol to all liver cancer deaths.

For liver cancer, AAFs are estimated at 0.46 for men and 0.24 for women. However, it has not been possible, in this analysis, to estimate the impact of alcohol or other causes on all liver disease deaths.

Metadata

Publication title	Liver disease mortality dashboard
Description	This publication provides a dashboard of European Age Standardised Rates of liver disease mortality in Scotland. The dashboard includes interactive maps for Scottish Parliamentary Constituency, NHS board of treatment, and an interactive table for rates by age and sex for people aged under 75. Maps of the percentage of datazones in the 20% most deprived grouping according to the Scottish Index of Multiple Deprivation within Scottish Parliamentary Constituencies and Health Boards are provided.
Topic	Liver disease
Format	R Shiny and Excel (csv)
Data source(s)	National Records of Scotland (NRS) Deaths data extracts

Date that data are acquired	Data were extracted by Public Health Scotland in October 2022.
Release date	22 November 2022
Frequency	Annual
Timeframe of data and timeliness	NRS Deaths data are updated monthly. The figures are to be updated in 2023 following updates to population linkage files.
Continuity of data	Data between 1 January 2011 and 31 December 2020 is published.
Revisions statement	Figures contained within each publication may also be subject to change in future publications. Further detail can be found on the about our statistics section of the website.
Concepts and definitions	European Age Standardised Rates (EASR) are an estimate of what the mortality rates would be if the country had the age distribution of the European Standard Population. ICD-10 codes refer to WHO International Classification of Diseases, 10 th edition. Alcohol-attributable fractions: the estimated proportion of deaths due to alcohol consumption. The Scottish Index of Multiple Deprivation (SIMD) is a measure of deprivation combining different aspects of disadvantage.
Relevance and key uses of the statistics	This dashboard allows policy makers and MSPs to identify areas with high rates of liver mortality where resources to focus on more appropriate care and interventions could be provided. It allows observing trends over time for monitoring policy obligations both locally and nationally.
Accuracy	The data are considered accurate. Data are validated locally by partnerships. PHS carry out further validation checks in consultation with NHS boards.
Completeness	100% of the data is used for analysis.
Comparability	Data are not comparable outwith Scotland.
Accessibility	It is the policy of Public Health Scotland (PHS) to make its web sites and products accessible according to published guidelines
Value type and unit of measurement	European Age Standardised Rates per 100,000 population based on the number of people dying from underlying cause of death as one of the following ICD-10 codes: C22, K70, K71, K72, K73, K74, K75, K76, K77, K85.2, and K86.0.
Disclosure	The PHS protocol on statistical disclosure is followed.
Next published	2023
Date of first publication	1 November 2022
Help email	phs.alcohol@phs.scot

Contacts

General enquiries

If you have an enquiry relating to this publication, please email phs.alcohol@phs.scot.

Media enquiries

If you have a media enquiry relating to this publication, please contact the Communications and Engagement team.

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If you require publications or documents in other formats, please email phs.otherformats@phs.scot.

To report any issues with a publication, please email phs.generalpublications@phs.scot.

Further information

References

Liver disease profiles for England by the Office for Health Improvement and Disparities.
<https://fingertips.phe.org.uk/profile/liver-disease>

Lewsey, Blutell, J., Geue, C., Antony, G., Briggs, A., McCartney, G., Hutchinson, S., Graham, L., & Heydtmann, M. (2016). PTH-104 Hospital Admissions and Associated Costs of Alcoholic Liver Disease in Scotland Between 1991 and 2011. *Gut*, 65(Suppl 1), A270–A270. <https://doi.org/10.1136/gutjnl-2016-312388.508>

ScotPHO Chronic liver disease pages. <https://www.scotpho.org.uk/health-wellbeing-and-disease/chronic-liver-disease>

ScotPHO sections on Alcohol, Obesity and Hepatitis C.

Scottish Government - Alcohol and Drugs pages. <https://www.gov.scot/policies/alcohol-and-drugs/>

Information and advice on alcohol on NHS Inform. <https://www.nhsinform.scot/healthy-living/alcohol>

Information and advice on liver diseases on NHS Inform. <https://www.nhsinform.scot/illnesses-and-conditions/stomach-liver-and-gastrointestinal-tract>

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