



Public Health  
England

Protecting and improving the nation's health

# **Response to consultation on proposed changes to the calculation of alcohol-related mortality and hospital admissions**

# Contents

About the document	2
The consultation	4
Questions asked	4
Who responded?	5
What were the issues raised?	5
Considerations based on responses	8
Time lag between prevalence and outcome	8
Routine updating of AAFs	9
The upshift	9
Why former and never drinkers have been distinguished for particular diseases	10
Acknowledged limitations	10
Accounting for differences in deprivation, ethnicity, region and others	10
Clear explanation of change	11
Embargo	12
Conclusion	13

# About the document

## Background

Alcohol consumption is a significant risk factor for many major chronic diseases (for example, coronary heart disease and stroke). Public Health England recently published 'Alcohol-attributable fractions for England: An update' (1), the purpose of which was to identify the most recent and robust evidence on the relative risks of disease associated with alcohol consumption, and the proportion of disease cases that can be attributed to alcohol. This updates the alcohol-attributable fraction (AAF) estimates that were last published in 2013 (2).

These recently updated AAFs are not yet used to produce statistics within Public Health England. Public Health England is proposing to move to using these updated AAFs for its next publication of statistics on alcohol-related mortality and admissions, currently planned for October 2021.

Public Health England published 'Consultation on proposed changes to the calculation of alcohol-related mortality and hospital admissions' (3) which presented analysis showing the impact of changing to the updated AAFs on the rates of alcohol-related mortality and hospital admissions as currently published. Specific questions were asked regarding the proposal to update the fractions and Official Statistics publications, as well as an invitation to interested parties to provide other comments for consideration.

## Proposed changes

Public Health England (PHE) currently uses AAFs produced by Jones and Bellis (4) to calculate alcohol-related mortality and hospital admissions. The aim of the update was to replicate and update the Jones and Bellis analysis. A detailed comparison between the updated AAFs and those estimated by Jones and Bellis is provided in Appendix 3 of the UK Health Forum and Public Health England report (5).

---

1 UK Health Forum and Public Health England (2020) [Alcohol-attributable fractions for England: An update](#)

2 Jones, L. and M. Bellis (2013) [Updating England-specific alcohol-attributable fractions](#)

3 PHE (2021) [Consultation on proposed changes to the calculation of alcohol-related mortality and hospital admissions](#)

4 Jones, L. and M. Bellis (2013) [Updating England-specific alcohol-attributable fractions](#)

5 UK Health Forum and Public Health England (2020) [Alcohol-attributable fractions for England: An update](#)

## Comparison with previous alcohol-attributable fractions

The results of the UK Health Forum and Public Health England update report were in line with Jones and Bellis. In summary:

- alcohol continues to contribute to the increased risk of many chronic and acute diseases
- alcohol consumption has the greatest impact on morbidities such as cancer and digestive diseases, compared with other morbidities
- the majority of the updated AAFs are smaller than previous estimates. This is mainly due to changes in reported prevalence of alcohol consumption in the English population
- evidence suggests the risk of type 2 diabetes and hypertensive disease for females is lower for low risk drinkers than abstainers
- there were age and sex differences in AAFs for all diseases – differences in alcohol consumption level, prevalence of current drinkers, and variation in relative risks explain these differences
- for all diseases, except for tuberculosis and unspecified liver disease mortality across all age groups, and haemorrhagic stroke mortality for some age groups, the AAFs for males are larger than those for females – likely because the proportion of drinkers and drinking quantity is higher in males.

In conclusion, for many diseases the proportion of disease caused by alcohol was lower than estimated in 2013. In general, this is because people report drinking less, not because the harm alcohol causes to individuals has reduced.

## Impact of these changes on Official Statistics

We have assessed the impact of changing to the updated AAFs on the rates of alcohol-related mortality and hospital admissions (6).

---

6 PHE (2021) [Consultation on proposed changes to the calculation of alcohol-related mortality and hospital admissions](#)

The following Official Statistics published in the Local Alcohol Profiles for England (LAPE) will be affected by this change:

- alcohol-related mortality
- years of life lost due to alcohol-related mortality
- admission episodes for alcohol-related conditions (Narrow)
- admission episodes for alcohol-related conditions (Broad)
- admission episodes for alcohol-related conditions broken down by age group, cause, and so on

Statistics on alcohol-specific mortality and alcohol-specific admissions are not affected by the changes as the wholly attributable causes these indicators are based on have not been changed as part of the review.

The most significant changes to LAPE indicators following revision according to the 2020 AAFs will be:

- the estimate of the level of alcohol-related mortality, years of life lost, Narrow and Broad alcohol-related admissions will be lower than those currently published
- overall, around a quarter of deaths and/or admissions are removed from the calculations
- reduction in alcohol consumption between 2010 and 2016 is the main driver of the lower estimates for the alcohol-related indicators from 2016 onwards
- when the change is implemented LAPE will introduce a new data series and discontinue the old set of indicators – the revised indicators and the trend from 2016 is a correction
- and the current direction of travel for mortality and admissions over recent years will remain.

## The consultation

### Questions asked

Public Health England conducted an online consultation via the gov.uk website from 1 March 2021 to 12 April 2021. The survey asked 6 questions:

1. Do you agree with the proposal to update the AAFs in this way?
2. The change will improve the accuracy of published statistics but will result in a break in the data series at the date the correction is implemented. Is this an acceptable scenario for you?

3. Is the proposed date of introduction (2016) to align with the alcohol consumption prevalence data used appropriate?
4. Do you think your stakeholders and partners will readily understand and accept that the reduction is a result of a change in methodology and not necessarily a real reduction in the harm alcohol causes to individuals?
5. Based on the latest evidence, the new AAFs changed the upshift (the extent to which people in surveys may underestimate their drinking) down to 40% from the 59% used previously. Is this your preferred approach?
6. Do you have any other comments or points that you would like us to consider?

## Who responded?

We received 6 responses to the consultation from the following stakeholders: Alcohol Change UK, Institute of alcohol studies (IAS), The Portman Group , Southampton City Council, the University of Southampton and the Public Health Intelligence group covering Hampshire County Council, Isle of Wight Council, Southampton City Council and Portsmouth City Council.

## What were the issues raised?

For each of the questions asked in the consultation document the following points were raised.

### Do you agree with the proposal to update the AAFs in this way?

All 6 respondents answered this question and agreed with the proposal. One respondent highlighted several concerns which included:

- existence of time lag between data on exposure (prevalence and outcome) for partial conditions
- the use of recent consumption data for current chronic outcomes is not appropriate.

### The change will improve the accuracy of published statistics but will result in a break in the data series at the date the correction is implemented. Is this an acceptable scenario for you?

All 6 respondents answered this question and again agreed that this was an acceptable scenario. Two respondents highlighted a need for an explanation regarding the break so that it is understood and not misrepresented. Another

respondent suggested that the change should include a mechanism to allow for longer term comparisons.

### Is the proposed date of introduction (2016) to align with the alcohol consumption prevalence data used appropriate?

Of the 6 respondents, who all answered this question, 5 agreed that the proposed prevalence data was appropriate.

The remaining response suggested that the change in AAF was a result of a move to the 2016 Health Survey for England data, and recommended using 2010 General Lifestyle Survey data for chronic conditions and 2016 Health Survey for England data for acute conditions.

In addition to this, one respondent also expressed concerns that mortality and alcohol admission estimates under the previous methodology may also misrepresent the potential burden of alcohol due to changing consumption patterns.

### Do you think your stakeholders and partners will readily understand and accept that the reduction is a result of a change in methodology and not necessarily a real reduction in the harm alcohol causes to individuals?

Again, all 6 respondents answered this question. All expressed concerns that clearer communication and further explanation was needed to ensure all stakeholders and partners understand and accept the change.

Three respondents specifically desired greater emphasis be placed on the clarification that the changes are a result of methodological change and that the update was not done to 'correct' the previous AAFs. Two respondents stated that explanations should emphasise that the harm resulting from alcohol misuse to individuals remains unchanged.

Numerous respondents stated that further clarification should be accessible and understandable by the lay person due to the complexity of the methodology.

Based on the latest evidence, the new AAFs changed the upshift (the extent to which people in surveys may underestimate their drinking) down to 40% from the 59% used previously. Is this your preferred approach?

There were 4 responses to this question, 2 of which stated this was their preferred approach.

One respondent recommended justification regarding this new approach in the main body of the report, with such an explanation including that application differs between age group and sex.

Another commented that upshifting alcohol consumption might not be necessary at all and recommended using the SchARR (School of Health and Related Research) model which does not upshift consumption, whilst highlighting that some reports suggests this has only a small impact.

Do you have any other comments or points that you would like us to consider?

Two respondents had no further comments, with 4 providing additional points to consider.

The first was the requirement for a comprehensive explanation regarding how the updated figures compares to the current figures. This relates to points made under the specific questions above.

Several respondents suggest that the AAFs should be updated annually or at regular intervals to prevent step changes, whilst one respondent recommends updating AAFs again in conjunction with the collection of alcohol consumption data in 2022. Many respondents also wished for further exploration into the many confounding factors that contribute to both risk and, by extension, to AAFs, which are not currently included in the calculation – including deprivation, ethnicity and region. Factors which change over time and vary by social economic group, such as BMI, were also highlighted as areas for further investigation.

The consideration of a possible underestimation of heavy drinkers as a result of selection bias was also noted as an area of improvement, with this bias causing these individuals to omit themselves from taking part in the Health Survey for England.



Respondents also requested that the national and local data be embargoed for several weeks to allow for time to prepare stakeholders as well as the necessary press releases required. In addition to this, one respondent expressed the need for notice be given to Directors of Public Health for when the data can be expected, with delivery of data also including a letter explaining key changes.

One respondent recommended 2 explanations be included relating to Appendix 1 of the consultation report. The first is the rationale for why former and never drinkers have been distinguished for particular diseases. The other is the rationale for the particular method used to take account of BMI and liver metabolism in calculation.

Respondents strongly encouraged that wider estimates of alcohol-related harm based on the calculations included in this report (such as previous PHE estimates on the economic cost of alcohol misuse) are also updated to reflect over a decade of progress in tackling harm. They further encourage PHE work with colleagues in Wales, Scotland and Northern Ireland to also update their underlying assumptions on alcohol-related harm. Furthermore, comments recommend highlighting wider trends which are likely to impact upon acute alcohol conditions such as falls in drink driving incidents and casualties and alcohol related violent crime and anti-social behaviour.

The lack of sensitivity analysis on the robustness of the estimates and their impact was also highlighted as a reason for concern, along with some of the large assumptions used in the methodology, including the ratio of mortality to morbidity across conditions.

## Considerations based on responses

### Time lag between prevalence and outcome

There is an acknowledged limitation with the population attributable fraction methodology associated with the time lag between drinking and the occurrence of drinking-related harms. The revision follows the original Jones and Bellis methodology by including the current distributions of alcohol consumption in the calculation and therefore assumes that there is no time lag between exposure and outcome; this is unlikely to be the case.

The delay in impact is very difficult to ascertain accurately and trying to account for this would add unfeasible complexity into the methodology, a change which would also diverge too much from established methodologies. However, the inclusion of relative risks for former drinkers does mitigate this problem to a certain extent; as historic drinking could potentially lead to a chronic outcome today, then the inclusion of former drinkers in the AAF calculation will capture some of this effect.

## Routine updating of AAFs

For smoking attributable admissions and deaths the relative risks are not updated as frequently as for the alcohol measure, but the consumption figures that are applied are updated annually from local figures and aggregated to England. Adopting a similar approach for alcohol is certainly a consideration for the future; however, replicating the smoking methodology exactly is not currently possible due to a lack of timely alcohol consumption figures at local level.

## The upshift

The debate around whether national surveys underestimate population levels of alcohol consumption is well established (see UK Health Forum and Public Health England update report for list of references). The mean levels of alcohol assumption used in the AAF calculation were upshifted by 40% based on a review of relevant literature (7). Furthermore, applying an upshift is an integral step in the specific methodology PHE sought to replicate and as such could not be abandoned without a fuller overhaul of the methodology. However, the effect on the final AAFs of the change in the upshift assumption for under-reporting (from 59% previously to 40% in the proposed update) is small in comparison to the effect of the change in patterns of alcohol consumption. Regarding differences by age and gender, the variation was assumed to be shifted based on previous analysis (Jones and Bellis, 2013; J. Rehm, and others, 2010).

---

7 Boniface, S., Kneale, J., and Shelton, N. (2013). Actual and perceived units of alcohol in a self-defined "usual glass" of alcoholic drinks in England. *Alcohol Clin Exp Res*, 37(6), 978-983. doi:10.1111/acer.12046

Boniface, S., and Shelton, N. (2013). How is alcohol consumption affected if we account for under-reporting? A hypothetical scenario. *Eur J Public Health*, 23(6), 1076-1081. doi:10.1093/eurpub/ckt016

Meier, P. S., Meng, Y., Holmes, J., Baumberg, B., Purshouse, R., Hill-McManus, D., and Brennan, A. (2013). Adjusting for unrecorded consumption in survey and per capita sales data: quantification of impact on gender- and age-specific alcohol-attributable fractions for oral and pharyngeal cancers in Great Britain. *Alcohol*, 48(2), 241-249. doi:10.1093/alcalc/agt001

## Why former and never drinkers have been distinguished for particular diseases

The updated methodology differs from the original report where lifetime abstainers were used as the reference group, whereas the update uses lifetime abstainers and former drinkers as the reference group. This was because the evidence base for the relative risk for former drinkers was not reliable. Very few publications had disaggregated the non-drinking group into lifetime abstainers and former drinkers. For certain diseases where new relative risk estimates were not available, the original estimates from Jones and Bellis were used. In these cases, relative risk estimates for former drinkers were included in the calculation, if available. This is why former drinkers and lifetime abstainers are distinguished for certain diseases. Detailed information about the data collection and updated dose-response functions for the diseases which were updated from the literature review were summarised in the original report (8).

## Acknowledged limitations

PHE accepts that the absence of a sensitivity analysis (for example, through the use of confidence intervals around each relative risk) due to a lack of information in the published papers on the relative risk estimates and their variance, and the assumptions around the ratio of mortality and morbidity for certain conditions, are limitations to the current methodology. These are well reported limitations and follow the original Jones and Bellis methodology.

It is also true that the Health Survey for England may underestimate heavy drinkers due to sample bias. This is a limitation of all surveys that measure population-level alcohol consumption. However, Health Survey for England is one of the most robust, transparent, detailed, widely used and well-respected sources available for research.

## Accounting for differences in deprivation, ethnicity, region and others

PHE has previously stated that future developments could explore differences in alcohol risk by deprivation, ethnicity, locality, and drink type.

The updated methodology does not consider how BMI, liver metabolism, and similar factors that change over time impact upon the calculation of the AAFs.

---

8 UK Health Forum and Public Health England (2020) [Alcohol-attributable fractions for England: An update](#)

This would represent a divergence from the established methodology PHE aimed to replicate. Before any considerations were made, the feasibility of such approaches would have to be thoroughly explored.

## Clear explanation of change

The main issue from the consultation was to publish the update alongside a clear explanation of the change to help stakeholders accept the new figures and to prevent the harm alcohol causes to society from being misrepresented.

At time of publication all revised rates and documents which reference them will be accompanied by the following statement:

The calculation that underlies all alcohol-related indicators has been updated to take account of the latest academic evidence and more recent alcohol-consumption figures. The result has been that the newly published mortality and admission rates are lower than those previously published. This is due to a change in methodology, mainly because alcohol consumption across the population has reduced since 2010. Therefore, the number of deaths and hospital admissions that we attribute to alcohol has reduced because in general people are drinking less today than they were when the original calculation was made.

Figures published previously did not misrepresent the burden of alcohol based on the previous evidence – the methodology used in this update is as close as sources and data allow to the original method. Though the number of deaths and admissions attributed to alcohol each year has reduced, the direction of trend and the key inequalities due to alcohol harm remain the same. Alcohol remains a significant burden on the health of the population and the harm alcohol causes to individuals remains unchanged.

In addition, a similar note will be added to published figures and tables. The quantification of the change has been published in the original consultation paper (9). There will be no mechanism to allow for longer term comparisons because the original methodology has been superseded and is no longer suitable to produce Official Statistics. In addition, it would be

---

9 PHE (2021) [Consultation on proposed changes to the calculation of alcohol-related mortality and hospital admissions](#)

inappropriate to apply the method retrospectively because the AAFs have been developed based on alcohol consumption from 2016.

Future PHE publications that include estimates based on the alcohol-related indicators (that is, economic cost of alcohol-related admissions) will be based on the revised rates. However, it is not the purpose of the current publication to highlight wider trends that may impact upon admissions or deaths such as drink driving incidents or casualties, alcohol related violent crime, and anti-social behaviour.

PHE would welcome further collaboration with colleagues in Wales, Scotland and Northern Ireland on this topic. PHE leads the English Health Statistics Steering Group alcohol theme group and through this group also liaises with colleagues in the devolved administrations. This possibility could therefore be raised through that group.

## Embargo

A minority of respondents requested that the new data be embargoed for several weeks to allow for time to prepare stakeholders, press releases, and a letter informing of the change to be sent to Directors of Public Health. Because the publications produced are Official Statistics, they are governed by the Code of Practice for Statistics (10) and regulated by the Office for Statistics Regulation. Part of the code (11) strictly limits access to statistics in their final form before they are published to a period of not more than 24 hours and only to those ministers and government officials who may need to make a statement at or closely after release.

Like all government departments, PHE complies (12) with the code of practice and for this reason early access to the data is not possible. PHE does make Directors of Public Health aware of planned releases (but not their findings) through the Gateway process.

---

10 UK Statistics Authority (2021) [Code fo Practice for Statistics](#)

11 Legislation.gov.uk (2021) [The Pre-release Access to Official Statistics Order 2008](#)

12 Gov.uk (2021) [Statistics at PHE](#)

## Conclusion

In conclusion, having considered all the responses we have received, we plan to implement the updated AAFs as proposed in the consultation document.

The affected indicators will need to be reviewed by PHE's Indicator Methodology Review Group who will ensure that they are statistically robust. PHE will produce a new time series of data going back to 2016.

Updated data will be made available in the Local Alcohol Profiles for England (LAPE) during 2021 to 2022.

# About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

Public Health England  
Wellington House  
133-155 Waterloo Road  
London SE1 8UG  
Tel: 020 7654 8000  
[www.gov.uk/phe](http://www.gov.uk/phe)  
Twitter: [@PHE\\_uk](https://twitter.com/PHE_uk)  
Facebook: [www.facebook.com/PublicHealthEngland](https://www.facebook.com/PublicHealthEngland)

Prepared by: Mark Cook  
For queries relating to this document, please contact: [lape@phe.gov.uk](mailto:lape@phe.gov.uk)



© Crown copyright 2020

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit [OGL](https://www.ogilicence.gov.uk). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published September 2021  
PHE publications  
gateway number: GOV-9693  
Goals

PHE supports the UN  
Sustainable Development

