



Public Health
England



Department
of Health

hscic Health & Social Care
Information Centre

Alcohol-related admissions: summary of responses to the consultation and future plans

About Public Health England

Public Health England's mission is to protect and improve the nation's health and to address inequalities through working with national and local government, the NHS, industry and the voluntary and community sector. PHE is an operationally autonomous executive agency of the Department of Health.

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Published November 2013

PHE publications gateway number: 2013320

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Introduction

The former North West Public Health Observatory (NWPHO),¹ in partnership with the Health and Social Care Information Centre (HSCIC) and the Department of Health, ran a consultation on the methods used to estimate alcohol-related hospital admissions between May and August 2012. The consultation was driven by an improved understanding of the methodological issues associated with estimating alcohol-related admissions and, linked to that, the inclusion within the Public Health Outcomes Framework (PHOF) of an alcohol-related admissions indicator and the need to ensure that this indicator is the best available for that purpose.

We received 46 responses to the consultation, of which 30 were from NHS organisations or local authorities, four from trade bodies, three from academia, three from voluntary organisations, two from professional medical bodies, one from a pharmaceutical company and three from individuals.

This document summarises the responses to the consultation and our conclusions.

¹ NWPHO is now part of Public Health England.

Background

The main methodological issues that the consultation covered were:

- whether we should retain the figures in their current form
- whether to provide estimates based on primary diagnoses alongside those based on primary and secondary diagnoses
- what ancillary information should be presented to aid interpretation; for example, presenting figures that have been adjusted to try and take account of improvements in coding
- how often the alcohol-related fractions and conditions that are included should be updated
- whether to use more localised alcohol consumption data when calculating attributable fractions for subnational admission figures

Current method of calculation

The current method used to produce estimates of alcohol-related admissions to hospitals uses information on patient characteristics and diagnoses from Hospital Episode Statistics (HES) together with estimates of the proportion of cases of a particular disease or injury that are caused by alcohol consumption (known as alcohol-attributable fractions, alcohol aetiological fractions or AAFs). For some conditions, alcohol consumption causes all cases and so the attributable fraction is 1, meaning all admissions for these conditions are included; for example, alcoholic liver disease. These are also known as alcohol-specific or wholly attributable conditions. Other conditions are partially attributed to alcohol, so only a fraction of these cases can be attributed to alcohol consumption; for example, cancer of the oesophagus.

When a person is admitted to hospital up to 20 diagnoses are recorded. The primary diagnosis is defined as the main condition treated or investigated during the relevant episode of healthcare. Up to 19 secondary diagnoses can be recorded which describe other conditions the patient may have and that are relevant to the treatment being provided. Every episode has a primary diagnosis, but the number of secondary diagnoses depends on circumstance. The current measure of alcohol-related hospital admissions looks at all diagnoses for an episode and selects that which has the highest alcohol-attributable fraction.

The current alcohol attributable fractions used to produce the alcohol-related admissions estimates were produced by NPHO in 2007 as part of a report commissioned by the Department of Health.² All conditions and diseases for which there was sufficient evidence in the epidemiological literature that they were partially or wholly attributable to alcohol were included. The AAFs are estimated by combining information on the increased risk of getting a disease or sustaining an injury that is associated with different levels of alcohol consumption (the relative risk) with information about levels of alcohol consumption in the population.

Information about the levels of alcohol consumption in the population were based on figures for average weekly alcohol consumption from the 2005 General Household Survey (GHS). The estimates of relative risk and alcohol consumption were combined to give age- and sex-specific alcohol attributable fractions for 47 conditions, 13 of which are wholly attributable to alcohol and 34 partially attributable to alcohol consumption (Table 17, *Alcohol-attributable fractions for England*, NPHO, 2007²). Work has been undertaken recently to update these alcohol-attributable conditions and fractions using the latest epidemiological evidence.

² <http://www.lape.org.uk/downloads/AlcoholAttributableFractions.pdf>

The questions from the consultation and the surrounding issues are summarised below followed by a summary of the responses received. They are presented in four broad categories, covering:

- what measures of alcohol-related admissions should be presented and what information should accompany them
- how often the alcohol-related conditions and risk ratios should be updated with new epidemiological data and under what circumstances should the previously published figures be revised
- how often the alcohol consumption information should be updated
- whether local alcohol consumption data should be used to calculate attributable fractions for subnational admission figures

What measures of alcohol-related admissions should be presented

Background

At a national level there have been improvements in the diagnosis and recording of secondary conditions. Between 2002/03 and 2010/11, the percentage of admission episodes with at least one secondary diagnosis increased from 58% to 75%. Much of this increase is believed to be due to improvements in diagnosis and recording; creating a more complete picture of the morbidity relating to alcohol. These improvements mean that while recent estimates are likely to be a better reflection of the comorbidity associated with alcohol, estimates from earlier time periods are not directly comparable as they will have underestimated the number of secondary conditions related to alcohol. Estimates from different areas and providers may also not be comparable as some providers may be better at recording and diagnosing the full range of secondary conditions related to alcohol.

While a welcome development, the improvement in diagnostic coding over time means that figures produced using the current methodology cannot easily be used to get a picture of the trend in alcohol-related admissions. It is possible to produce adjusted estimates of what the number of alcohol-related admissions would have been in previous years if the current level of recording had occurred. However, it seems likely that improvements in recording will continue which would mean that these adjustments would need to be updated each year. Furthermore, the adjustment method can be unstable at a local level and can generate highly implausible results.

The current indicator is presented as an estimate of the number of admissions to hospital that are caused by or affected by alcohol consumption and therefore is a useful measure of the wide range of alcohol-related conditions with which people present at hospitals. However, it includes admissions with a secondary diagnosis attributable to alcohol, even when the primary diagnosis is not. For example, an admission with a primary diagnosis of a cataract and a secondary diagnosis of alcoholic liver disease would be included. In this case, it is typically not possible to estimate how much impact the secondary condition, here liver disease, had on the need for the individual to be admitted. However, the treatment for the cataract for a patient with alcoholic liver disease will potentially be different and more costly than treatment for a cataract for a patient without such a complication.

The first set of questions looked at whether it is possible to produce a better or complementary measure of alcohol-related admissions and what information should be published alongside these figures.

Several options for alternative measures were put forward in the consultation for consideration:

- A. Produce estimates of alcohol-related admissions that are based solely on primary diagnoses, using the attributable fraction generated by that primary diagnosis
- B. Produce estimates of alcohol-related admissions based on admissions with a primary alcohol-related diagnosis, but using the attributable fraction generated by both primary and secondary diagnoses
- C. Produce estimates of alcohol-related admissions using the primary diagnoses and some, but not all, secondary diagnoses
- D. Produce estimates of alcohol-related admissions using both primary and secondary diagnoses, but based on a subset of conditions that can be caused by alcohol (for example, those wholly attributable to alcohol or those with a high attributable fraction)

Further discussion about this issue and these options is provided in the consultation document.³

Three questions were asked.

Questions A, B and C

- A. Do you think we should stick with publishing information based on just the current measure?
- B. If not, what other information should be provided? Should this be in addition to, or instead of, the current measure?
- C. Do you agree with the proposal to publish figures based only on primary diagnoses alongside the current estimates?

Responses

The current measure

The majority of respondents supported retaining the current figures, with only a small minority saying the current measure should be discontinued altogether. Those that were in favour of keeping the measure acknowledged the problems with the increase in secondary diagnoses and the impact on trends through time, but overall thought that it gave the best indication of the impact of alcohol on hospital services.

³ <http://www.lape.org.uk/downloads/Alcohol%20Related%20Hospital%20Admissions%20Consultation.pdf>

Many respondents highlighted the need for careful commentary around this measure of alcohol-related admissions; specifically, commentary highlighting the lack of comparability over time arising from improvements in the coding of secondary diagnoses.

The reasons given for opposing the retention of the current measure were all linked to the lack of comparability over time.

Supplementary admissions figures

The majority of respondents thought that supplementary admissions figures should be produced, but differed in how they thought those figures should be calculated. Views reflected different positions on the trade-off between capturing as much information as possible and ensuring that the measure would be comparable over time and between areas.

Some respondents expressed concern about the presentation of multiple admissions figures as these could create a confusing message, and in particular allow either deliberate or misinformed choice of measure to suit the purpose of the user of the information. As a result of this, a few respondents preferred that only one measure be published, either the current or a new measure, while others highlighted the need for careful explanation of the context of each set of figures and how each should be used and interpreted.

Preferred measures

There was some support for presenting estimates that are adjusted for the increase in secondary diagnoses.

Of the four options highlighted there was little support for options B (counting only those admissions with a primary alcohol-related diagnosis, but using the attributable fraction generated by both primary and secondary diagnoses) and C (using some, but not all, secondary diagnosis fields).

There was reasonable support for using option A (the primary-only measure). However, a number of respondents expressed concern about the exclusion of admissions with an external cause code from that measure.

Consequently, there was also reasonable support for option D (using secondary diagnoses for a subset of conditions that can be caused by alcohol). Where respondents specified which conditions they thought were important to include, these were mainly given as one or both of wholly-attributable (alcohol-specific) conditions and external causes.

Any secondary measure should be reliable in terms of facilitating comparisons over time and between areas, so that it is complementary to the current measure. In light of the support for option D, we looked at secondary diagnosis of alcohol-specific conditions and external causes to determine how much these are affected by improvements in coding.

Alcohol-specific admissions

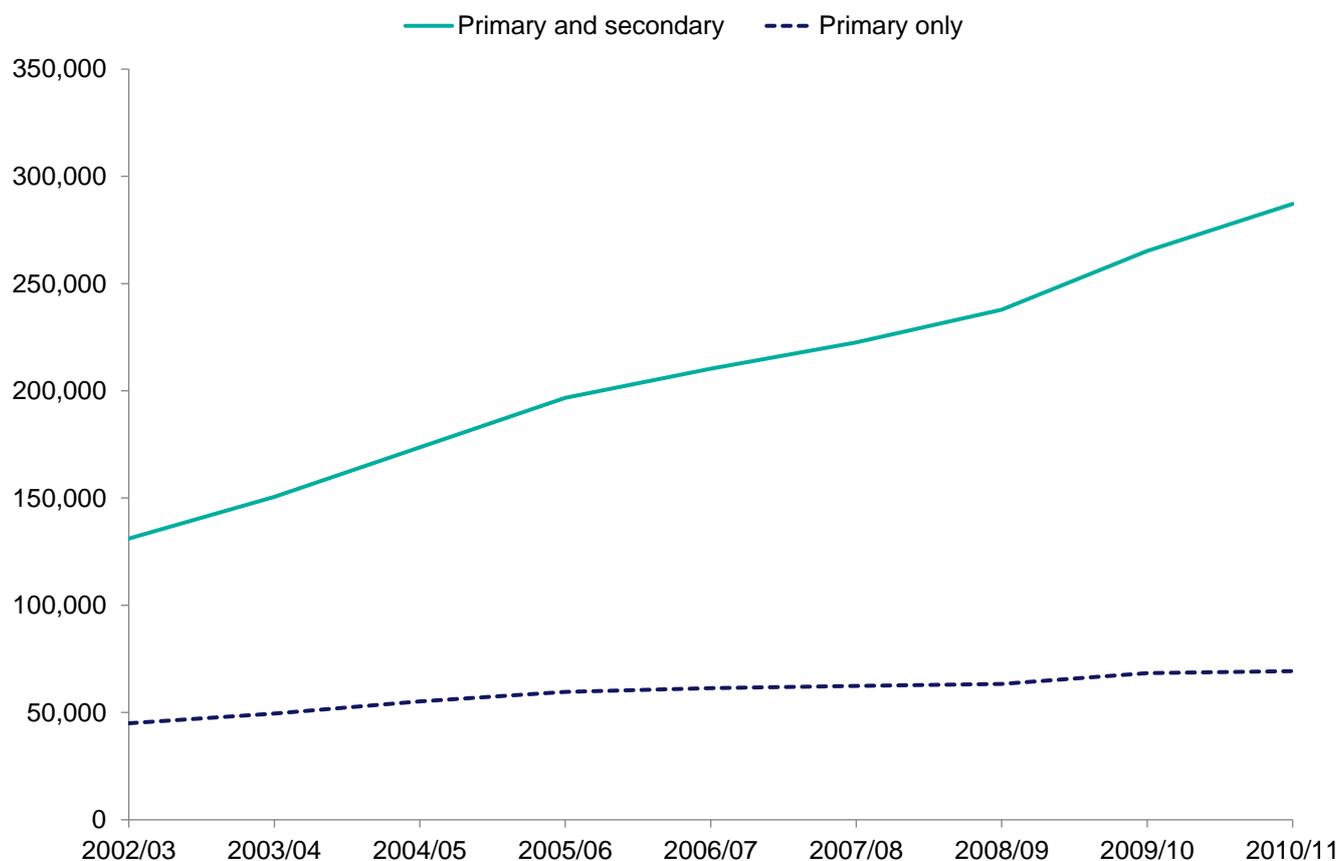
Alcohol-specific admissions are those that involve a condition that is wholly attributable to alcohol consumption. The evidence shows that the trend in these admissions is also heavily affected by improvements in coding. Limiting the measure to wholly attributable conditions would not resolve the problem of lack of comparability.

The evidence comes from comparing the growth in such admissions when both primary and secondary diagnoses are used, with the growth when only primary diagnoses are used.

Figure 1 shows the change over time of admissions involving primary or secondary diagnoses that are wholly attributable to alcohol consumption. It shows an increase of 119% from 2002/03 to 2010/11. (This is similar to the current measure which increased by 129% over the same period).

Figure 1 also shows the growth of admissions involving a primary diagnosis that is wholly attributable to alcohol consumption. This showed smaller growth of only 54% from 2002/03 to 2010/11. (This is comparable with growth of 40% in the primary-only measure, which also includes admissions that are only partially related to alcohol). The fact that using primary and secondary diagnoses generates a much higher growth rate for alcohol-specific admissions indicates that they are significantly affected by improvements in coding, compromising their comparability over time.

Figure 1. Number of admissions involving a diagnosis that is wholly attributable to alcohol consumption. England, 2002/03 to 2010/11.



Source: Hospital Episode Statistics, HSCIC.

External cause diagnoses

External cause codes are secondary diagnosis codes that enable health care providers to record certain root causes of admissions to hospital. As the name suggests, they relate to events that are ‘external’ to the patient, rather than medical conditions relating to the patient’s mental or physical state. The external causes covered within the International Classification of Diseases includes poisoning, accidents, intentional self-harm and assault.

In trying to ascertain the extent to which improvements in coding apply to alcohol-related external causes, it is not possible to compare growth in the number of admissions where an alcohol-related external cause is recorded as a primary or secondary diagnosis with growth in the number of admissions where an alcohol-related external cause is recorded as a primary diagnosis. This is because external causes are never recorded as a primary diagnosis. We have instead compared growth in the number of admissions where an alcohol-related external cause is recorded as a primary or secondary diagnosis with:

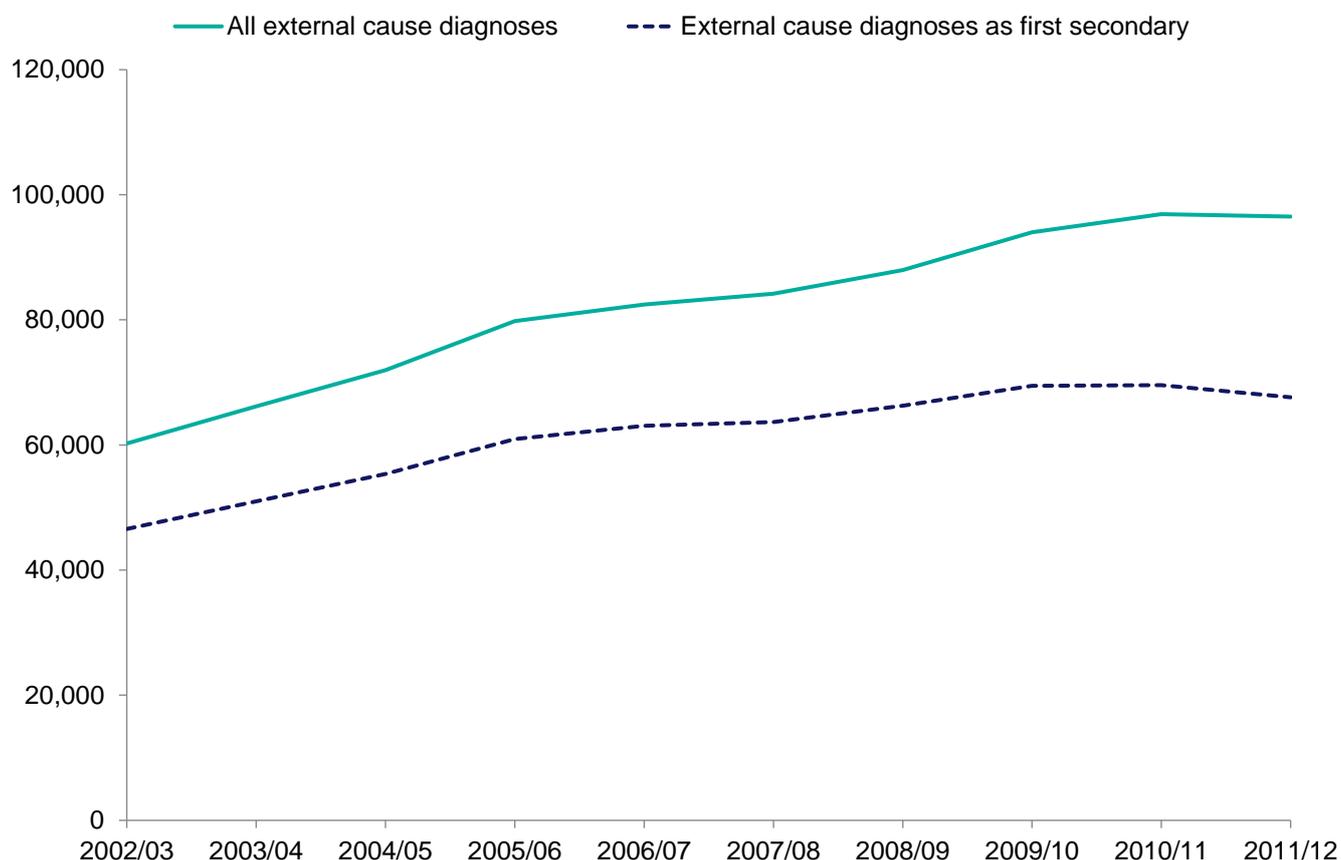
- admissions involving an alcohol-related primary diagnosis

- admissions involving an alcohol-related external cause in the first secondary diagnosis field

The number of admissions where an alcohol-related external cause is recorded as a primary or secondary diagnosis increased by 61% over the period 2002/03 to 2010/11. This is a similar order of magnitude to growth in both (a) admissions involving an alcohol-related primary diagnosis (40%) and (b) admissions involving an alcohol-related external cause in the first secondary diagnosis field (49%). See Figure 2.

From this we can see that external cause diagnoses are less affected by the improvements in coding than wholly attributable (alcohol-specific) diagnoses, where using secondary diagnoses more than doubled the growth rate.

Figure 2. Number of admissions with an alcohol-related external cause diagnosis. England, 2002/03 to 2010/11.



Source: Hospital Episode Statistics, HSCIC.

Other supplementary information requested

A few respondents suggested that data on the effect of alcohol on other parts of the NHS should also be presented alongside the hospital admissions data. For example, accident and emergency attendances, activity at urgent care clinics and ambulance data. Respondents also noted that information about repeat admissions or from sources

such as health checks and health trainer could be useful. We agree that admissions figures on their own represent only a partial picture of the impact of alcohol on the NHS. These types of information are outside the scope of this consultation, but we will ensure that the comments are factored into broader work on alcohol information.

Conclusions

In the light of the responses, we plan to continue to publish alcohol-related admissions figures using the current method. However, this will be updated to take account of the revised alcohol-related conditions and fractions that have been produced.

When publishing a national time series, we will also give an adjusted series based on current levels of coding.

We will supplement the current figures with a new series calculated using primary diagnoses, plus mentions of alcohol-related external causes in secondary diagnosis fields. Figure 3 shows this measure from 2002/03 to 2011/12, using the current set of alcohol-related conditions and alcohol-attributable fractions. The Department of Health has decided that this will be the measure used in the PHOF. This series will also be based on the revised alcohol-related conditions and fractions. The use of this measure for the PHOF is preferred as it will capture the progress made by local authorities and their partners in reducing alcohol-related accidents, injuries, assaults and self-harm. Compared with the primary-only measure, it offers a more complete picture of admissions resulting from alcohol consumption.

While this new measure offers a more reliable measure of trends, the existing measure based on alcohol-related primary and secondary diagnoses should be considered a better measure of the broader impact of alcohol on hospital services.

Figure 3. New primary diagnosis and external-cause measure of alcohol-related hospital admissions (based on existing alcohol-related conditions and fractions). England, 2002/03 to 2011/12.



Source: Hospital Episode Statistics, HSCIC.

We will also carefully consider the content and format of publications in which these measures appear to ensure that the advantages and limitations of each set of figures is clearly communicated to users and that users are supported to apply them in an informed way. Breakdowns of both the current and new measures by type of condition will continue to be provided in the *Statistics on Alcohol* publication from the HSCIC; and breakdowns by local authority will continue to be provided on the national indicator page of the Local Alcohol Profiles for England website.

How often the alcohol-related conditions and risk ratios should be updated

Background

Both the list of conditions and the estimates of the relative risk used to produce the attributable fractions were produced in 2007 by NWPHO based on a review of the epidemiological literature available at that time.

Incorporating the most up-to-date scientific knowledge on conditions and relative risks should lead to more accurate estimates of alcohol-related hospital admissions. The benefits of this need to be weighed against the time taken to conduct the literature review and, if necessary, to update previously calculated alcohol-related hospital admissions (ARHAs) to maintain comparability. It also needs to be weighed against the effects on users of having to deal with revisions.

The epidemiological studies used to derive the current conditions and risk estimates were meta-analyses published in 1995, 1996, 1999, 2002 and 2004. The frequency of these meta-analyses indicates that there is little benefit in reviewing the literature on an annual basis, as the body of evidence will not have changed much. We suggested that reviews could be carried out on a three-yearly basis or following publication of a meta-analysis.

It would make sense for previous estimates of alcohol-related admissions to be revised when the attributable fractions are updated, as it is likely that changes in conditions and relative risks are due to increased knowledge about the relationship between alcohol consumption and morbidity rather than a change in the relationship itself. However, due to the costs involved with making retrospective changes and the risk that revisions to historical estimates will generate confusion among users, we proposed that revisions should only be applied retrospectively if the scale of the revisions is likely to affect use of the statistics significantly. Our suggestion was that revisions would be justified if the national total would change by more than 2% or the average annual growth rate at national level would be affected by more than half a percentage point.

Questions D and E

D. Should the conditions and relative risks be updated and, if so, how often?

Yes: 44. No: 0.

- E. Do you support the proposal to apply revisions retrospectively only if the scale of revisions is sufficiently large?

Yes: 39. No: 2.

Comments

All respondents who answered these questions agreed that the conditions and relative risks should be updated. The majority of respondents favoured a three-yearly review, a few favoured five-yearly reviews or following publication of a meta-analysis, and one an annual review. Several respondents thought that the timing of updates was a decision for NWPHO and the Department of Health.

Nearly all respondents agreed that revisions should only be applied retrospectively if the scale of revisions is sufficiently large. A very small minority thought that revisions should be applied whenever the conditions and relative risks were updated. A few respondents noted that while they thought that applying revisions retrospectively would be preferable, they acknowledged that if the resource implications were a significant impediment then applying a threshold as suggested seemed reasonable.

Conclusions

Based on the responses to these questions we propose to examine the value of updating the alcohol-related conditions and risk ratios roughly every five years, taking account of the volume of new evidence that has emerged. When the conditions and fractions are updated, we will revise data for previous periods only if the scale of the revisions is sufficiently large.

As mentioned above, work has recently been undertaken to update the conditions and estimates of relative risk using the latest epidemiological evidence.

Updating population level alcohol consumption estimates

Background

Alcohol-attributable fractions are based on both relative risks and alcohol consumption estimates. So as the level of alcohol consumption across the population changes, we would expect a change in alcohol-attributable fractions. For some conditions this would be immediate; for example, injury. For others, such as alcoholic liver disease, it may take longer for the full effect to take place.

The consumption estimates that were used to calculate the current AAFs come from the 2005 General Household Survey (GHS). More recent alcohol consumption estimates are available. These show a reduction in consumption. For example, results from the 2010 the GHS show that 21% of men and women were drinking more than 21 units and 14 units respectively, compared with 26% in 2005.

The GHS was discontinued in 2012 and so the alcohol consumption questions were added to the Health Survey for England (HSE) in 2011. For any updates from 2012 onwards, the HSE would therefore need to be used. As the sample size for the HSE is smaller, the estimates will be less precise. The overlap in 2011 could be used to assess and possibly adjust for any discontinuity arising from the change in source.

We proposed to update the estimates annually using GHS/General Lifestyle Survey (GLF) data up to 2011 and the HSE data from 2011. To maintain a reasonable degree of stability we proposed to combine three years' data from the HSE.

The microdata from the surveys are released approximately 15 months after the year end. This means that they will not be available at the time when the Hospital Episode Statistics are released and the ARHA estimates are produced. Because of the cost and potential for confusion to users of continually revising the ARHA estimates until the relevant consumption data is available, we proposed to continue to use the consumption estimates that were available when the ARHA estimates for a particular time period were first published.

Questions F, G and H

- F. Do you agree with the proposals to update consumption estimates annually, using GHS/GLF data up to 2011 and the HSE data from 2011?
Yes: 39: No: 2.

- G. Do you agree with the proposal to use three years' worth of HSE data to produce consumption estimates?
Yes: 41: No: 1.
- H. Do you agree with the proposal to continue to use the consumption estimates that were available when the alcohol-related admission estimates for a particular period were first produced?
Yes: 41. No: 2.

Comments

Nearly all respondents agreed that the consumption estimates should be updated annually using GHS/GLF data up to 2011 and the HSE data from 2011. A few respondents highlighted that the period where the changeover happens needs to be carefully considered to avoid a step change.

Nearly all respondents agreed with the proposals to use three years' worth of HSE data to produce consumption estimates and to continue to use the consumption estimates that were available when the alcohol-related admissions for a particular period were first produced. A couple of responses noted that there was the potential for step changes in alcohol consumption estimates if the methodology for collecting or calculating these changed, and hence that it might be necessary to calculate revisions retrospectively to the consumption estimates and alcohol-related admissions estimates if this occurred for comparability.

Conclusions

Having given further consideration to the resource implications, we have concluded that the only practical course of action is to update the consumption estimates as part of each periodic review of the attributable conditions and relative risks described above. The resultant fractions will then be applied to the latest and historic data on alcohol admissions.

Using local consumption estimates to produce local fractions

Background

Currently national consumption estimates are used to calculate the attributable fractions which are used for all ARHA estimates, including those for local areas. It would be possible to produce model based estimates of alcohol consumption for local areas to feed into AAFs for local area ARHA estimates. These could be at either local or regional level.

The benefit of this would be that the estimate of alcohol-related admissions would reflect more local, rather than national, consumption estimates. The disadvantages include that:

- the variability in the estimates at local level would be large, which means that the ARHAs could vary considerably from year to year as a result of the consumption estimates, obscuring any trend
- the differences in alcohol-related admissions estimates between areas could be due to random variation between consumption estimates, even when the consumption estimates may not be statistically significantly different from one another
- at a regional level there is almost as much variation in consumption within regions as there is nationally – so applying regional consumption estimates at local level can in many instances be as unrepresentative as national estimates
- at all these geographic levels there would also be the significant practical challenge associated with applying different AAFs for each area as well as for each condition, each age group, each gender and potentially each time period

Our proposal was to retain the current practise of using national consumption estimates to generate the AAFs.

Question 1

- I. Do you agree with the proposal to retain the current practice of using national consumption estimates to generate the AAFs?
Yes: 36. No: 7.

Comments

The majority of respondents agreed that national consumption estimates should continue to be used to calculate the AAFs. The comments received indicated that for

many, the decision was guided by the current level of data available at a local level, and that they would prefer local estimates if they were reliable. Local alcohol consumption data was highlighted as an area which several thought needed following up.

Conclusion

We will continue to use national consumption estimates to generate the AAFs used for all admission estimates.

Next steps

What is planned

A summary of the planned course of action relating to each consultation question is provided below.

Question	Plan
1. What measures of alcohol-related admissions should be presented	The current method of alcohol-related admission figures using primary and secondary diagnosis fields will continue to be published. This will be supplemented by a new measure which uses primary diagnoses, plus mentions of alcohol-related external causes in secondary diagnosis fields.
2. How often the alcohol-related conditions and risk ratios should be updated	We will examine the value of updating the alcohol-related conditions and risk ratios roughly every five years, taking account of the volume of new evidence that has emerged.
3. Updating population level alcohol consumption estimates	Consumption estimates will be updated as part of each periodic review of the attributable conditions and relative risks. The resultant fractions will then be applied to the latest and historic data on alcohol admissions.
4. Using local consumption estimates to produce local fractions	We will continue to use national consumption estimates to generate the AAFs used for all admission estimates.

As mentioned above, work has been carried out recently to update the alcohol-attributable conditions and fractions using the latest epidemiological evidence. Those fractions will be applied to admissions data for the period from 2002/03 and results made available as soon as possible.

- We will produce the baseline figures for the primary and external cause measure and include them within the PHOF tool.

- Time series for both measures, along with the national adjusted series, will be included in the material currently published on the Local Alcohol Profiles for England National Indicator webpage and the HSCIC's *Statistics on Alcohol in England* report.

Our aim is to make the first data available by February 2014.

In the meantime, we will continue to publish and provide information based on the current method.