Consultation on the methods used to estimate alcohol-related hospital admissions for England

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1. Introduction

1.1. Estimates of the number of alcohol-related admissions for residents of England are used at a local level for local needs assessments and commissioning, to support policy development such as alcohol strategies and to inform parliamentary and public debate. They are part of the Public Health Outcomes Framework.

1.2. In the past, they were also used to monitor the previous Government's Public Service Agreement and within the NHS and Local Government performance frameworks. The estimates are often still referred to as the "NI39" data, as that was the number of the indicator within the Local Government National Indicator set.

1.3. Provisional alcohol-related hospital admissions (ARHAs) are published quarterly on the North West Public Health Observatory (NWPHO) web site[1], based on the provisional quarterly releases of Hospital Episode Statistics (HES). Final year-end ARHAs are published on the same web page following the release of the finalised annual HES data. The year-end figures are also included in the Local Alcohol Profiles for England and in the Health and Social Care Information Centre's *Statistics on Alcohol* annual compendia publication[2]. Information is also included within each admission record in the Hospital Episode Statistics (HES) data sets.

1.4. This consultation covers these estimates of the number of alcohol-related admissions. The aim is to engage with the users about the methods used to construct the estimates to ensure that the figures remain relevant, easy to interpret and meaningful.

1.5. The consultation has been 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 of an alcohol-related admissions indicator[3] and the need to ensure this indicator is the best available for that purpose.

2. Process

2.1. The consultation is being carried out by the North West Public Health Observatory, as lead Public Health Observatory for substance misuse, in partnership with the Health and Social Care Information Centre and the Department of Health. This consultation will be placed on the NWPHO website[4] for 12 weeks. During that time we will proactively seek the views of known users of the reports whilst also publicising the consultation more widely. Details of how users can respond are contained later within this document. Following the consultation period, all comments we receive will be considered and decisions made on future methods. In reviewing responses, consideration will need to be given to what can be delivered within the resource constraints and the knock-on effect of any additional work.

2.2. We will inform all respondents of the outcome (via email so please ensure you provide your contact details) and publish the outcome on the NWPHO website.

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[1] http://www.lape.org.uk/natind.html
[2] http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/alcohol
[3] http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132358
[4] http://www.nwpho.org.uk

3. Summary of the current methods

3.1. The "NI39" estimates of the number of alcohol-related admissions to hospital are calculated using information on patients' characteristics and diagnoses from the Hospital Episode Statistics (HES), together with estimates for 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 all admissions for these conditions are included e.g. alcoholic liver disease. Other conditions are partially attributed to alcohol, meaning that only a fraction of these cases can be attributed to alcohol consumption e.g. cancer of the oesophagus or assault. Together, the two make up all alcohol-related hospital admissions.

3.2. The approach of using aetiological fractions is presented by the World Health Organisation (WHO) in their *International Guide for monitoring alcohol consumption and related harm* (2000). The approach is applied in a number of other public health areas such as smoking-related deaths and admissions, both internationally and at national and sub-national level - such as in the recently released WHO Global Report on Mortality Attributable to Tobacco (2012)[5], the Health and Social Care Information Centre's *Statistics on Smoking* compendia publication[6] and the network of Public Health Observatories' Local Health Profiles[7] .

3.3. The alcohol-attributable fractions used to estimate alcohol-related admissions were produced by North West Public Health Observatory (NWPHO) in 2007 as part of a report commissioned by the Department of Health[8]. For this report, AAFs were calculated for the 47 conditions where there was sufficient evidence in the recent epidemiological literature of a causal relationship between alcohol consumption and the disease or injury: of which 13 conditions were by definition wholly attributable to alcohol consumption and 34 conditions were partially attributable to alcohol consumption.

3.4. The fractions were generated by combining information on the increased risk of getting a disease or sustaining an injury associated with different levels of alcohol consumption (the relative risk) and information about levels of alcohol consumption in the population.

3.5. Estimates of the relative risk of suffering from a condition or injury for different levels of alcohol consumption compared with abstention were based on a review of the epidemiological literature available at the time. Where gender differences are reported, these were also included.

3.6. 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. Those figures were in turn derived from self-reported consumption of alcoholic drinks on a typical drinking day and self-reported drinking frequency. This provided age and gender specific estimates of alcohol consumption in terms of grams of alcohol per day.

3.7. The estimates of relative risk and alcohol consumption are combined to give age- and sex-specific alcohol attributable fractions for the 47 conditions (Table 17 of the report).

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[5] http://www.who.int/tobacco/publications/surveillance/rep_mortality_attributable_tobacco/en/index.html
[6] http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/smoking
[7] http://www.apho.org.uk/default.aspx?RID=49802
[8] http://www.lape.org.uk/downloads/AlcoholAttributableFractions.pdf

3.8. To construct the "NI39" estimates, the AAFs are applied to the data on admitted patients (inpatients) collected by the Health and Social Care Information Centre as part of their Hospital Episode Statistics (HES)[9]. HES is the national statistical data warehouse for England of the care provided by NHS hospitals and for NHS hospital patients treated elsewhere. For each episode of care in hospital, clinicians record the primary diagnosis and up to 19 secondary diagnoses. The primary diagnosis is defined in the NHS Data Dictionary as "the main condition treated or investigated during the relevant episode of healthcare"[10].

3.9. The estimate of the number of admissions attributed to alcohol is generated by calculating the AAF that applies to each mention of an alcohol-related diagnosis, based on the diagnosis and age and gender of the patient. An alcohol-related condition can be mentioned within the primary diagnosis field or one of the secondary diagnosis fields. Where an episode involves more than one alcohol-related diagnosis, the highest AAF within the record is used as the estimate of the overall alcohol-attributable fraction for that episode. The AAFs for the episodes are then added together to produce an overall estimate. Some worked examples are given below:

Worked examples of the current application of alcohol-attributable fractions

Sex	Age	Primary Diag (AAF)	1st Secndry Diag (AAF)	2nd Secndry Diag (AAF)	3rd Secndry Diag (AAF)	4th Secndry Diag (AAF)	5th Secndry Diag (AAF)	…	19th Secndry Diag (AAF)	Overall AAF
Male	24	**F10 1.00**	n/a	n/a	n/a	n/a	n/a		n/a	1.00
Female	54	**K73 0.59**	K76 0.00	n/a	n/a	n/a	n/a		n/a	0.59
Female	68	I10 0.13	**K70 1.00**	K74 0.48	K86.0 1.00	n/a	n/a		n/a	1.00
Male	18	T42.6 0.00	**X61 0.34**	n/a	n/a	n/a	n/a		n/a	0.34

In the first case, involving a 24 year-old male, only a primary diagnosis is recorded, relating to the disease code F10 (mental and behavioural disorders due to alcohol). This condition is wholly attributable to alcohol and so the attributable fraction is 1. As there is only one diagnosis, the overall AAF is also 1.

In the second case, involving a female aged 54, there is one secondary diagnosis as well as a primary diagnosis. However, only the primary diagnosis is one that can be caused by alcohol (K73 - Chronic hepatitis). The attributable fraction for a woman aged 54 for that condition is 0.59, indicating that 59% of cases among such women can be attributed to alcohol. As there is only one alcohol-related diagnosis, the overall AAF is also 0.59.

In the third case, four conditions are diagnosed, all of which can be caused by alcohol. As two of the conditions are wholly attributable to alcohol, the overall attributable fraction applied to that case is 1.

In the fourth case, the only condition that can be caused by alcohol (X61, intentional self-harm) is in the first secondary diagnosis field and is associated with an attributable fraction of 0.34.

Together, the four records generate an estimated number of admissions with an alcohol-related condition of 2.93.

[9] http://www.hesonline.org.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=537
[10] http://www.datadictionary.nhs.uk/data_dictionary/attributes/p/prev/primary_diagnosis_de.asp?shownav=1

4. Measure of patients admitted to hospital during the year for alcohol-related conditions

4.1. As well as the "NI39" estimates of the number of alcohol-related admissions, the NWPHO's Local Alcohol Profiles for England (LAPE) also contain estimates of the number of patients admitted to hospital during the year for alcohol-related conditions. If an individual is admitted on a number of occasions within the year, then they are only counted once.

4.2. The "NI39" admission-based figures give a measure of the pressure on health systems caused by alcohol consumption. It is based on all admission episodes that involve an alcohol-related diagnosis. If a patient is admitted more than once during the period with an alcohol-related diagnosis, all those episodes are included in the calculation.

4.3. The patient based measure offers an estimate of the number of people who experience a spell in hospital involving an alcohol-related condition at least once during the year. This provides an estimate of period prevalence i.e. the population risk of being admitted to hospital at least once during the course of a financial year.

4.4. This consultation does not cover the patient based measure.

5. Aims of Consultation

5.1. As stated above, this consultation covers the "NI39" estimates of the number of alcohol-related admissions. It does not cover the estimates of the number of patients admitted to hospital on one or more occasion during the year for alcohol-related conditions.

5.2. The aim is to engage with the users about the methods used to construct the estimates to ensure that the figures remain relevant, easy to interpret and meaningful. There are a number of aspects of the approach described above that could potentially be done in different ways. To some extent, the best approach depends on the purpose to which the results are to be applied and one approach is unlikely to meet all requirements. The main methodological issues discussed below are:

- 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. As is explained in detail below, the estimates based on primary and secondary diagnoses are affected by improvements and differences in the recording of secondary diagnoses. Supplementary estimates based on primary diagnoses could be made available to provide data that is more comparable over time and between areas.

- 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.

- Whether to use more localised alcohol consumption data when calculating attributable fractions for sub-national admission figures. Current sub-national estimates are produced using attributable fractions based on the national profile of alcohol consumption. It may be possible to refine the fractions to take account of differences in drinking behaviours across England; and

- How often the alcohol-related fractions and conditions that are included should be updated, either by using more recent consumption data, by using more recent estimates of relative risks, or by reviewing the latest evidence on the causal relationship between alcohol consumption and diseases.

5.3. These are main issues on which we would welcome comments. However, we would also be interested to receive comments on other aspects of the estimates – both their production and reporting.

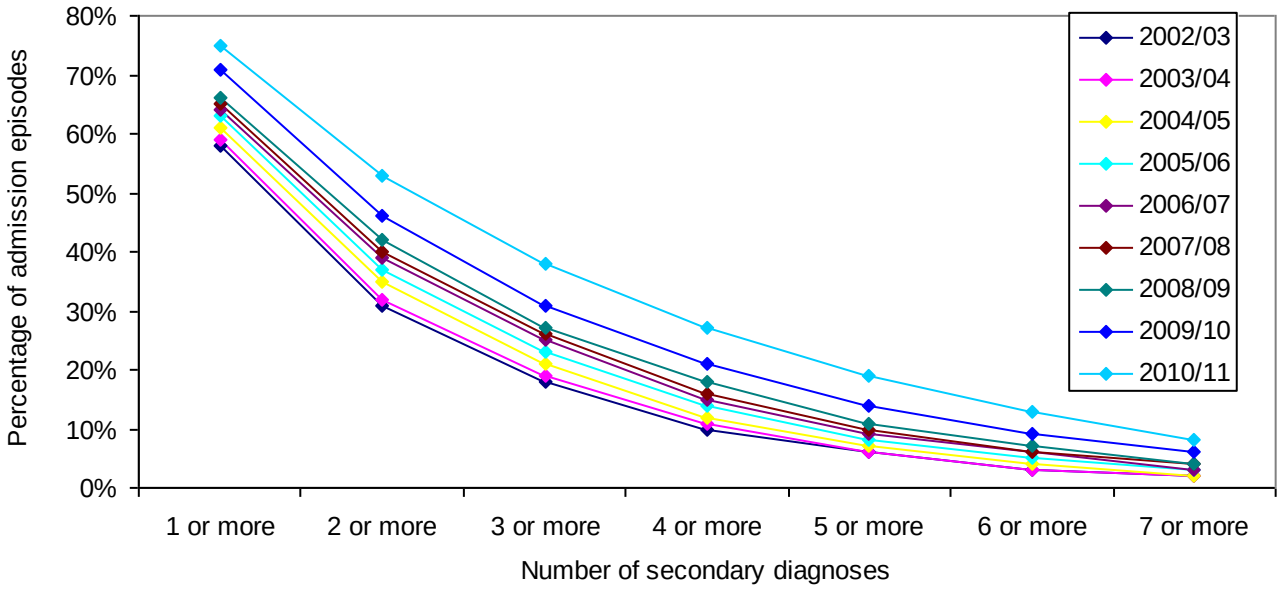
6. Primary versus all diagnoses

6.1. Up to 20 diagnoses can be recorded for each hospital episode. The primary diagnosis is defined as the main condition treated or investigated during the relevant episode of healthcare. There are up to 19 secondary diagnoses, which describe other conditions the patient may have and that are relevant to the treatment being provided. All episodes have a primary diagnosis, but the number of secondary diagnoses used depends on the circumstance. In 2010/11, three quarters of admission episodes involved at least one secondary diagnosis, over half had two or more, over a third had three or more, and over a quarter had four or more. Less than one per cent had twelve or more. The average (mean) number of secondary diagnoses was 2.5.

6.2. Currently the "NI39" alcohol-related hospital admissions figures that are published are based on the diagnosis most strongly related to alcohol (with the highest attributable fraction) out of both the primary and secondary diagnoses.

6.3. At a national level there has been an increase in the coding of secondary conditions (see Figure 1 below). For example, between 2002/03 and 2010/11, the percentage of admission episodes with at least one secondary diagnosis increased from 58% to 75% and the number with four or more secondary diagnoses increased from 10% to 27%.

Fig 1. Growth in coding of secondary diagnoses, 2002/03-2010/11



6.4. It seems plausible that this increase in secondary diagnoses is due more to improvements in diagnosis and improvements in recording, than a real increase in the

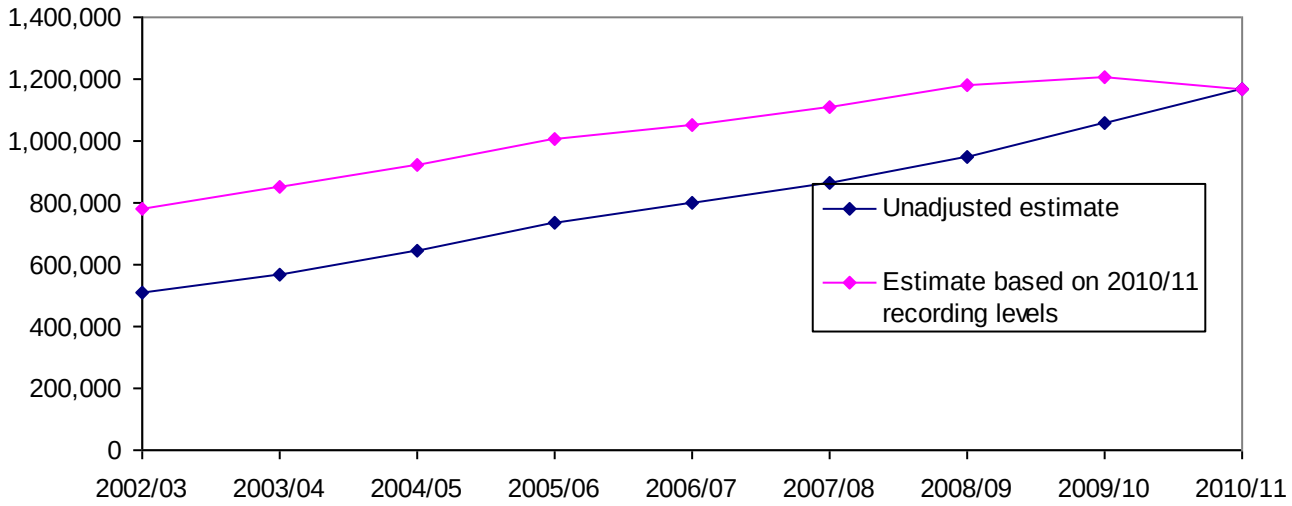
prevalence of co-morbidities. This means that recent estimates of alcohol-related admissions are likely to be a better reflection of the co-morbidity associated with alcohol. Equally, however, it also means different time periods are not directly comparable, as historical data are more likely to have excluded alcohol-related diagnoses. It is likely that healthcare providers will continue to make improvements and that the current estimates will therefore not be directly comparable with estimates for future time periods. As this can distort trends, it makes it more difficult to reach conclusions about whether actions taken to avert alcohol-related conditions have had the desired effect.

6.5. The issue may also affect comparisons between areas and between providers, as some providers may be better at recording secondary conditions than others. The average number of diagnoses recorded by NHS and Foundation Trusts (excluding mental health trusts) ranged from 1.0 at Northumberland, Tyne and Wear NHS Foundation Trust and Oxford Health NHS Foundation Trust to 8.1 at Liverpool Heart and Chest NHS Foundation Trust. Whilst some of this difference will reflect patient mix, differences in recording practice makes it more difficult to reach conclusions about whether the rate of alcohol-related admission in an area is genuinely higher or lower than rates in other areas.

6.6. It is possible to produce estimates of what the admission numbers in previous years would have been had the current level of recording of secondary diagnoses existed in those years. One option would be to include these adjusted estimates in one or more of the publications.

6.7. Analysis suggests that admission numbers in 2002/03 would have been estimated at about 783,000 if recording of secondary conditions had been at 2010/11 levels (see figure 2 below)[11]. This reflects a much greater figure than the unadjusted estimate of 511,000. Consequently, admission numbers might have grown by around 49% over the period, rather than the 130% given by the unadjusted figures. Also, whilst the unadjusted series shows continued increases in admission numbers, the adjusted series suggests a slight fall between 2009/10 and 2010/11.

Fig 2. Number of alcohol-related admissions, 2002/03 - 2010/11



6.8. As a minimum, this calculation should be done for the national series in each release of standard tables (currently quarterly). Ideally, the calculation ought also to be applied to

[11] For an explanation of how this estimate was derived please see the Health and Social Care Information Centre's *Statistics on Alcohol 2012* at http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/alcohol.

the regional and local figures in those releases, so that users of local data can monitor their position over time and relative to other areas. This would be particularly the case if the indicator were used for the Public Health Outcomes Framework. However, the adjustment method can be unstable at a local level and can generate highly implausible results. Also, as the process is computationally demanding, this presents a significant practical issue.

6.9. Care would need to be taken to reduce the risk of misinterpretation and ensure debate is well informed and focuses on the implications of the statistics rather than statistical methodology.

6.10. The attributable fractions represent the likelihood that the condition is the result of alcohol consumption, rather than the likelihood that the admission is the result of alcohol consumption. In some of the cases where an admission episode contains an alcohol-related condition in a secondary diagnosis field but not the primary diagnosis field, the condition may not have been a causal factor leading to the admission. Rather, it may be a complicating factor or affect the care that is given to the patient. For example, a patient may be admitted to hospital with a primary diagnosis of a cataract but also have cirrhosis resulting from alcohol consumption. As there is no evidence of a direct link between alcohol consumption and the development of cataracts, alcohol cannot be said to have directly resulted in the admission. Whilst they aren't directly linked, the treatment for cataract for a patient with alcohol-related cirrhosis will potentially be different and more costly.

6.11. To derive an estimate of admissions caused by alcohol, we would ideally have separate attributable fractions for primary and secondary diagnosis fields that reflected the likelihood that the admission is the result of alcohol consumption given the presence of the condition in that diagnostic position. However, such epidemiological information is unavailable.

6.12. The indicator is therefore presented (and should be treated) as an estimate of the number of admissions to hospital caused or affected by alcohol consumption and a proxy for the additional pressures on the health system, rather than a measure of admissions directly caused by alcohol. We are interested to receive comments on whether it is possible to produce a better proxy, as an alternative or addition to the existing measure.

6.13. A range of options are put forward 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 (eg those wholly attributable to alcohol or those with a high attributable fraction).

Option A: Produce estimates of alcohol-related admissions that are based solely on primary diagnoses, using the attributable fraction generated by that primary diagnosis

6.14. In the case of Option A, as primary diagnoses are recorded for all episodes, such estimates are not affected by the improvements in recording practice.

6.15. Such estimates are derived by including only those admissions which contained an alcohol-related condition in the primary diagnosis field. Where the primary diagnosis is of a condition partially attributable to alcohol, the alcohol attributable fraction for that primary diagnosis is used. This approach is illustrated below using the same hypothetical admission records as before:

Worked examples of the application of alcohol-attributable fractions to just the primary diagnosis field

Sex	Age	Primary Diagnosis (AAF)	Overall AAF
Male	24	F10 1.00	1.00
Female	54	K73 0.59	0.59
Female	68	I10 0.13	0.13
Male	18	T42.6 0.00	0.00

Using this method, the overall attributable fractions applied to the first two cases are the same. In the third case, the fraction of 0.13 associated with the primary diagnosis is used, rather than the fraction of 1.00 associated with the first secondary diagnosis. The fourth case drops out entirely, as the primary diagnosis is not one for which an attributable fraction is assigned.

Together, the records generate an estimated number of admissions with a primary alcohol-related condition of 1.72, less than the total based on both primary and secondary diagnoses of 2.93.

6.16. These estimates offer a more directly comparable set of figures over time. However, while all providers complete a primary diagnosis (increasing consistency) they may form different judgements about what condition should be entered into the primary diagnosis field; and so differences in diagnostic coding between providers and changes in diagnostic coding over time could affect comparability of this series as well.

6.17. Further, such figures provide an incomplete picture of admissions resulting from or affected by alcohol consumption. The 2010/11 estimate of admissions with a primary or secondary alcohol-related diagnosis is 1.2 million. Of these, only 200,000 (17%) are admissions where there is a primary alcohol-related diagnosis.

6.18. Moreover, some types of alcohol-related admissions are more affected than others. Particularly affected are those associated with what are known as external causes, such as accidents, injuries and violence. That is because external causes are never recorded as the primary diagnosis and so would only be picked up in the figures if there was another alcohol-related condition in the primary diagnosis field. For example a patient admitted for a drink-driving accident resulting in a broken leg would typically have a primary diagnosis of a broken leg and road traffic accident would appear as a secondary diagnosis. Importantly, these events are typically strongly related to alcohol

consumption. For example, 46% of pedestrian traffic accidents involving men aged 25 to 44 are estimated to be attributable to alcohol.

6.19. There is the potential for the subset of alcohol-related admissions captured by the primary-only based measure to grow more slowly or more quickly than alcohol-related admissions as a whole and so give a misleading picture of trends. Some policies (for example, changes in drink driving or policing measures) may result in rapid changes in external causes that would largely be missed by the primary diagnosis measure.

6.20. If the primary-only based measure is used to assess performance in tackling alcohol-related harm, there is a risk that it will skew activity towards those members of the population who are most likely to contribute to the measure – that is, those admitted for mental and behavioural disorders due to alcohol (23.5%), cardiac arrhythmias (17.4%) and epilepsy and status epilepticus (9.5%). Whereas when both primary and secondary diagnoses are used, the leading cause of admission is hypertensive diseases making up 37.4% of alcohol-related admissions.

6.21. Whilst the incentives for doing so are likely to be relatively small, there is also the potential for healthcare providers to achieve a reduction in the recorded numbers by coding alcohol-related conditions as a secondary rather than the primary diagnosis. Conversely, there is the potential for providers to achieve a reduction in the broader measure by reducing the extent to which alcohol-related conditions are recorded as secondary diagnoses.

Option 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

6.22. Option B is similar to A, in that the same admission episodes are used, but the attributable fraction used for those admissions may differ. This occurs if the admission contains an alcohol-related condition with a higher attributable fraction than the primary diagnosis. For example, if an admission contains a primary diagnosis with a fraction of 0.5 and a secondary diagnosis with a fraction of 1.0, then the record will contribute 0.5 to measure A, but 1.0 to measure B.

6.23. The advantage of Option B over Option A is that it arguably offers a better estimate of the attributable fraction for the admissions concerned: the presence of alcohol-related conditions in multiple diagnosis fields suggests the attributable fraction may be greater than that given by the primary diagnosis alone. As well as the added complexity, the disadvantage is that the use of secondary diagnoses, albeit only in estimating the attributable fraction, means the measure is affected by coding growth – although by much less than the current measure.

Option C: Produce estimates of alcohol-related admissions using the primary diagnoses and some, but not all, secondary diagnoses.

6.24. This approach represents a trade-off between the current, broad measure and Options A and B. Under this option, the estimate is based on admissions where there is a mention of an alcohol-related condition in the primary and/or first few secondary diagnosis fields. The more secondary diagnosis fields are used, the closer the measure is to the current one. The fewer diagnosis fields are used, the closer the measure is to Options A and B.

6.25. Similar to Options A and B, there is a choice between using the highest fraction in the first n diagnosis fields or the highest fraction across all diagnosis fields.

6.26. This option goes someway to alleviating the disadvantages of the broad and narrow measures, but conversely means that it does not have the total advantages of either. It is affected by coding growth to a lesser extent than the current measure, but – even when limited to the first secondary diagnosis field – it is still affected by coding growth to a degree. Equally, it provides a more comprehensive picture of alcohol harm, but still only a partial one. Also, there is the potential to influence the figures by altering the order in which secondary diagnoses appear.

6.27. It should also be borne in mind that NHS data standards do not stipulate the order in which secondary diagnoses should be recorded. The ordering may reflect the seriousness of the conditions, the relevance of the conditions to the treatment being provided, the contribution of the conditions to admission or other factors. Using a subset of secondary diagnoses therefore introduces a degree of arbitrariness.

Option 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 (eg those wholly attributable to alcohol or those with a high attributable fraction).

6.28. Figures for individual conditions, including sub-totals for conditions wholly attributable to alcohol are already published on both the NWPHO web site[12] and in the Health and Social Care Information Centre's *Statistics on Alcohol*. Estimates for conditions wholly attributable to alcohol will not be affected by confounding factors, but estimates for conditions partially attributable to alcohol may be. For example, the risk of hypertension is also affected by salt intake. Changes in admissions with a mention of hypertension may therefore be the result of changes in salt intake, as well as changes in alcohol consumption.

6.29. Estimates based on mentions of wholly-attributable conditions in both primary and secondary diagnosis fields will be affected by coding growth. Improvements in coding have not been limited to partially attributable conditions such as hypertension or cardiac arrhythmias. This, on its own, is therefore not a solution to the issue of coding growth. We therefore recommend that breakdowns by condition continue to be given for whichever measure or measures are reported.

6.30. None of the options meets all requirements. Our proposal is therefore to offer the two extremes – that is, supplement the existing estimates for admissions with a primary or secondary alcohol-related condition with figures based only on primary diagnoses. The figures based on all diagnoses will continue to give a better estimate of the number of admissions to hospital caused or affected by alcohol consumption at a particular time or place and hence the pressure put on the health system. Information based only on primary diagnoses offers an uncomplicated picture of trends in alcohol-related admissions over time and offers some benefits for direct comparisons between areas.

[12] See subanalyses by 10 conditions at http://www.lape.org.uk/natind.html

6.31. In publishing additional information, there is the potential to generate confusion and it would be important to be clear about the difference between the measures, the circumstances under which each should be used and the shortcomings of each.

Questions:

A. Do you think we should stick with publishing information based on <u>just</u> 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?

7. Taking account of the latest epidemiological literature

7.1. Both the list of conditions attributable to alcohol and the estimates of relative risk are based on a review of the epidemiological literature carried out in 2007. Consideration needs to be given to:

- whether there is sufficient benefit in updating the conditions and risk estimates by reviewing the epidemiological literature published since the last review;
- the frequency with which future reviews need to take place;
- how any changes in conditions and risk estimates should be handled.

7.2. Updating the conditions and risks should lead to more accurate estimates of alcohol-related admissions, based on the most up-to-date scientific knowledge. As further studies are performed, the evidence of a causal link may become significant, the risk estimates may become more precise as further cases are pooled together, and risk estimates may become available by age group and gender for those conditions where they were previously unavailable.

7.3. The benefits of this need to be weighed against the time taken to conduct the literature review and, where appropriate, to update previously calculated ARHAs to maintain comparability. Constant revision of the ARHA estimates for previous years is likely to result in confusion and misinterpretation; and risks undermining confidence in the figures.

7.4. The epidemiological studies used to derive the current conditions and risk estimates were meta-analyses carried out in 1995, 1996, 1999, 2002 and 2004. The frequency of these meta-analyses indicates that reviewing the literature on an annual basis would add little value, as the body of evidence would have changed little. Instead, reviews could be carried out following publication of a further meta-analysis or, alternatively, every three years.

7.5. Where a review leads to the inclusion of additional conditions or changes to estimates of relative risk, it would typically be appropriate to apply those changes retrospectively as it is likely that the new evidence represents an improved understanding about the relationship between alcohol consumption and morbidity, rather than a recent change in the relationship itself.

7.6. However, there are costs associated with making retrospective changes, particularly as the attributable fractions are currently applied to the Hospital Episode Statistics data sets. Also, as noted before, there is a risk that revisions to historical estimates will generate confusion among users.

7.7. There is therefore a trade off between, on the one hand, making sure historical estimates are based on all available evidence and are comparable with current estimates; and, on the other hand, cost to producers and ease of use. Our proposal is that revisions should be applied retrospectively only if the scale of revisions is likely to affect the use made of the statistics significantly. We would welcome comments on the scale of change that would warrant revision. Our current thinking is that revisions would be justified if the national total would change by more than two per cent or the average annual growth rate at national level would be affected by more than half a percentage point.

7.8. The effect of a change in the attributable fractions would be greatest for those partially-attributable conditions which account for the largest number of alcohol-related admissions. In the case of the narrow measure, this is cardiac arrhythmias, where an increase in the attributable fractions of 10% across all age groups for men and women would result in an increase in the overall estimate of about 2%. In the case of the broad measure, this is hypertension, where an increase in the attributable fractions of 10% across all age groups for men and women would result in an increase in the overall estimate of about 4%.

Questions:

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

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

8. Updating Population Level Alcohol Consumption Estimates

8.1. As the level of alcohol consumption across the population changes, we would expect a change in the alcohol-attributable fractions. For some conditions, such as acute conditions like intoxication and injury, the change will be immediate. For other conditions, including chronic conditions such as cancer or cirrhosis, some effect is likely to occur immediately, but it will take time for the full effect to be observed.

8.2. The consumption estimates used in the calculation of the AAFs have not been revised; and continue to be based on information from the 2005 General Household Survey on the amounts of different types of alcohol usually drunk on any one day during the last 12 months. It would be possible to update the AAFs using more recent consumption estimates and to continue to do so on a regular basis.

8.3. The importance of doing so is affected by the extent to which consumption levels have changed. Results from the 2010 survey suggest that average weekly alcohol consumption has fallen from 14.3 units in 2005 to 11.5 units in 2010. The percentages of men and women drinking more than 21 and 14 units per week in 2010 were 26% and 17% respectively, down from 31% and 21% in 2005. The percentages of men and women drinking more than 50 and 35 units per week in 2010 were 6% and 3% respectively, down from 9% and 5% in 2005.

8.4. The survey was discontinued in 2012. In future, information on average weekly alcohol consumption will need to be sourced from the Health Survey for England (HSE), to which the relevant questions were added in 2011. If we want to update the AAFs on a regular basis in the future, we would therefore need to use the GHS up to 2011 and the HSE from 2011. The overlap in 2011 could be used to assess, and possibly adjust for, any discontinuity arising from the change in source.

8.5. As the sample for the HSE is smaller, the estimates will be less precise. This raises the possibility that the estimates, particularly for individual age groups, might fluctuate considerably as a result of sampling variability. To maintain a reasonable degree of stability, we think it would be necessary to combine results for more than one year. There is a trade off between stability and currency of estimates, which we think would be balanced by using three years' data. For example if we look at the percentage of abstainers in the 16-24 male age group, using data from a single year (2009), the estimate is 22.2% and the precision of the estimate is ±3.4%, meaning that we would expect the actual percentage of abstainers to be between 3.4 percentage points below the estimate and 3.4 percentage points above the estimate. If we use data from 3 years (2007-2009) the precision of the estimate is 1.8%.

8.6. Consumption estimates for the corresponding time period are not available at the point the admission data are released. It would be necessary to use consumption estimates for a previous period to produce initial estimates of alcohol-related admissions and we might then want to issue revisions once the relevant consumption estimates became available. Summary results from the Health Survey for England are available about twelve months after the end of the survey fieldwork period and the micro-data are released after about fifteen months. So, for example, summary results for 2011 are expected to become available in December 2012 and the micro-data are expected in March 2013. In contrast, provisional monthly data for admitted patients are released within four months and final annual data are released within eight months. For example, provisional figures for April 2011 were published in August 2011 and final figures for the financial year 2011/12 should be published by November 2012.

8.7. Pooling three-years' consumption data would compound this problem and raises the prospect of having to revise provisional estimates for three years after initial release – which would be both costly and potentially confusing for users. For example, final data for 2014/15 might not be available until early 2018.

8.8. An alternative would be to revise the AAFs based on the latest consumption estimates only every few years. However, this might result in step changes in estimates of alcohol-related admissions at the point of revision.

8.9. Another option would be to use the latest consumption estimates available at the time the admission data are released and not revise the resultant estimates of alcohol-related admissions even when more appropriate consumption estimates became available. For example, consumption estimates based on the period 2011-2013 would continue to be used to produce estimates of alcohol-related admissions for the year 2015/16. The downside of this is that the alcohol-related admissions would be overestimated during periods of decreasing consumption and underestimated during periods of increasing consumption.

8.10. Our proposal is to update the consumption estimates, and therefore the AAFs, on an annual basis using a rolling three-years' worth of data, but to continue to use the consumption estimates that were available when the alcohol-related admission estimates for a particular period were first produced.

Questions:

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?

G. Do you agree with the proposal to use three years' worth of HSE data to produce consumption estimates?

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?

9. Calculating AAFs by area

9.1. The quarterly and annual reports published on the NWPHO web site contain alcohol-related admissions estimates broken down by Strategic Health Authority (SHA), Local Authority (LA) and Primary Care Organisation (PCO) of residence. Currently we use a single set of national alcohol-attributable fractions to estimate admissions for each of these areas. Consideration could be given to estimating and applying a separate set of fractions for each area.

9.2. To do this, we would need local estimates for the consumption categories used in calculating the AAFs. Model-based estimates of alcohol consumption (split by higher risk drinkers, increasing risk drinkers, lower risk drinkers and abstainers) are available in the Local Alcohol Profiles for England. It would in theory be possible to produce similar estimates for the AAF consumption categories.

9.3. The benefit of doing so is that local estimates of alcohol-related admissions would then reflect local, rather than national, consumption levels. Estimated consumption levels vary considerably across England. The estimated proportion of abstainers varies from 6% in the Isles of Scilly to 48% in Newham, and the estimated proportions of drinkers who report drinking at higher risk levels i.e. more than 50 units of alcohol per week for males, and more than 35 units for females, varies from 2% in Peterborough to 16% in Hounslow.

9.4. As with considering the frequency of updating the population level consumption estimates, we need to consider the variability in the estimates available for these smaller areas. The confidence intervals associated with local estimates are very large. For every local authority, the 95% confidence interval for the proportion of higher risk drinkers contained the estimated proportion of higher risk drinkers in England, and hence they all also overlap with the confidence interval for England[13]. If future model-based estimates were produced using the Health Survey for England, then the smaller sample size would result in even wider confidence intervals. Precision would be even poorer if separate estimates were produced by age and sex. This has implications for the comparability of ARHAs, both across areas for a given time period and over time for a particular area. If the alcohol consumption estimates for two LAs are not statistically significantly different, but different consumption estimates are used to determine the AAFs then it is possible that the resulting difference observed in ARHAs may be solely due to random variation in the consumption estimates rather than true differences in the number of admissions. Similarly, estimates for a particular area could vary considerably from year to year due to the random variation, effectively drowning out any real trend.

9.5. There is also the issue that these are model-based, rather than direct, estimates of consumption and so reflect the consumption patterns that would be expected given the characteristics of the local population. The use of such estimates, particular in monitoring performance, is likely to be contentious.

9.6. An alternative might be to use regional estimates for localities within each region (eg the four recently formed SHA clusters). However, even SHA estimates (direct or model-based) have large confidence intervals associated with them: for every SHA, the 95% confidence interval for the proportion of higher risk drinkers contained the estimated proportion of higher risk drinkers in England. Also, there is almost as much variation within regions as there is nationally – so regional estimates can in many instances be as unrepresentative as national estimates. This problem could be reduced by using estimates for clusters of Local Authorities, such as that offered by the ONS area classification.

9.7. Perhaps the greatest problem, however, is the practical challenge associated with applying different AAFs for each region as well as for each condition, each age group, each gender and potentially each time period.

9.8. Our proposal is therefore to retain the current practice of using national consumption estimates to generate the AAFs.

[13] The fact that the confidence intervals overlap does not imply that a significant difference does not exist. However, it gives an indication of the imprecision of the local estimates.

Questions:

I. Do you agree with the proposal to retain the current practice of using national consumption estimates to generate the AAFs?

10. How to Respond

10.1. This consultation will run for 12 weeks from 31st May 2012 to 23rd August 2012. Please ensure that you submit any comments prior to the closing date so they can be considered.
Comments can be returned by email to consult@nwpho.org.uk or by post to:

Clare Perkins
Deputy Director
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Henry Cotton, 2nd Floor,
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10.2. Comments are invited from all interested parties.
A response form can be downloaded from www.lape.org.uk/download/response.doc. When responding, please state whether you are doing so as an individual or representing an organisation. So that we can keep you informed of the outcome, could you please ensure that you provide contact details (name, email address, organisation).

10.3. If you would like to know more about the consultation or if you have any queries, please contact us via email on consult@nwpho.org.uk.

11. Confidentiality and Data Protection

11.1. Please note that if you want the information that you provide to be treated as confidential, be aware that, under the Freedom of Information Act, there is a statutory Code of Practice with which public authorities must comply and which deals, among other things, with obligations of confidence. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information, we will take full account of your explanation but we cannot give assurance that confidentiality can be maintained in all circumstances.

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