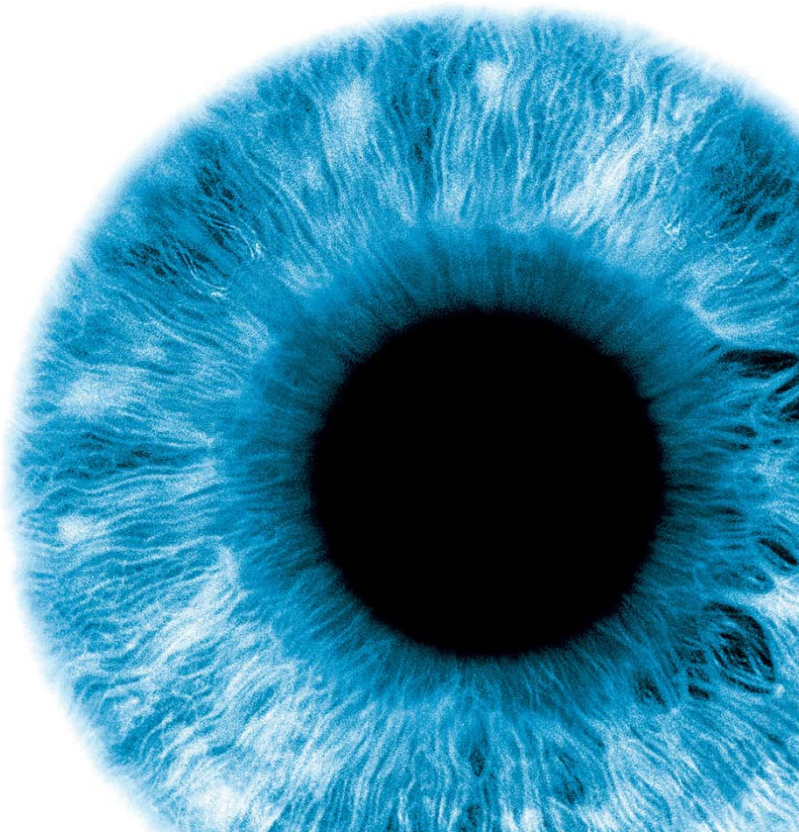
NICE National Institute for Health and Care Excellence

Alcohol-use disorders: preventing harmful drinking

Evidence Update March 2014

A summary of selected new evidence relevant to NICE public health guidance 24 'Alcohol-use disorders: preventing harmful drinking' (2010)

Evidence Update 54



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Introduction

Evidence Updates are intended to increase awareness of new evidence – they do not replace current NICE guidance and do not provide formal practice recommendations.

Evidence Updates reduce the need for individuals, managers and commissioners to search for new evidence. For contextual information, this Evidence Update should be read in conjunction with the relevant public health guideline, available from the NICE Evidence Services topic page for alcohol misuse – prevention.

This Evidence Update provides a summary of selected new evidence published since the literature search was last conducted for the following NICE guidance:

[1] **Alcohol-use disorders: preventing harmful drinking. NICE public health guidance 24 (2010)**

A search was conducted for new evidence from 1 January 2008 to 9 July 2013. A total of 21,207 pieces of evidence were initially identified. After removal of duplicates, a series of automated and manual sifts were conducted to produce a list of the most relevant references. The remaining 79 references underwent a rapid critical appraisal process and then were reviewed by an Evidence Update Advisory Group, which advised on the final list of 40 items selected for the Evidence Update. See Appendix A for details of the evidence search and selection process.

Evidence selected for inclusion in this Evidence Update may highlight a potential impact on guidance: that is, a high-quality study, systematic review or meta-analysis with results that suggest a change in practice. Evidence that has no impact on guidance may be a key read, or may substantially strengthen the evidence base underpinning a recommendation in the NICE guidance.

The Evidence Update gives a preliminary assessment of changes in the evidence base and a final decision on whether the guidance should be updated will be made by NICE according to its published processes and methods.

This Evidence Update was developed to help inform the review proposal on whether or not to update NICE public health guidance 24 (NICE PH24). For further information about the review decision see the NICE PH24 webpage. The process of updating NICE guidance is separate from both the process of an Evidence Update and the review proposal.

See the NICE public health process guide for further information about updating public health guidance.

NICE Pathways

NICE pathways bring together all related NICE guidance and associated products in a set of interactive topic-based diagrams. The following NICE Pathways cover advice and recommendations related to this Evidence Update:

- Alcohol-use disorders. NICE Pathway

[1] NICE-accredited guidance is denoted by the Accreditation Mark

Quality standards

- Alcohol dependence and harmful alcohol use. NICE quality standard 11

Other relevant NICE Evidence Updates

- Alcohol-use disorders: harmful drinking and alcohol dependence. NICE Evidence Update 28 (2013)
- Alcohol-use disorders: physical complications. NICE Evidence Update 10 (2012)

Feedback

If you would like to comment on this Evidence Update, please email contactus@evidence.nhs.uk

Key points

The following table summarises the key points for this Evidence Update and indicates whether the new evidence may have a potential impact on NICE PH24. Please see the full commentaries for details of the evidence informing these key points.

The section headings used in the table below are taken from NICE PH24.

Evidence Updates do not replace current NICE guidance and do not provide formal practice recommendations.

	Potential impact on guidance	
Key point	**Yes**	**No**
Policy		
Price ***Affordability of alcohol*** • Harm from alcohol-use disorders costs a substantial amount of money and increases in prices of alcoholic drinks may be associated with reductions in drinking and in harms, including deaths, associated with drinking. ***Minimum unit pricing*** • Minimum unit pricing seems to affect the population of drinkers at highest risk across all socioeconomic categories. People with the lowest income do not seem to be particularly disadvantaged by minimum unit pricing because this group drinks less than people with higher income. ***Taxation*** • Increases in tax on alcohol seem to be associated with reductions in drinking, and reductions in tax seem to be associated with increases in drinking. The level of increased drinking after tax reductions may differ across age groups, gender and socioeconomic status. However, tax levels may not directly affect binge drinking in young people. There is potential for tax models to be tailored so that benefits of increased tax spending offset the disadvantages to consumers of higher alcohol prices.		✓ ✓ ✓
Availability • A higher density of off-premises alcohol outlets may be associated with increases in mortality, rates of admission to hospital because of assault or alcohol-related disease, and domestic violence. Higher density of other types of licensed premises may also be associated with increases in admission to hospital because of assault or alcohol-related disease.		✓
Marketing • Young people in the UK may have high levels of exposure to alcohol advertising on television and online media, and may own a substantial amount of alcohol-branded items. Young people who drink or binge drink may have higher exposure to alcohol advertising than those who do not drink or binge drink.		✓

Practice		
Licensing • Environmental factors of licensed premises, such as loud music, may be associated with increases in risky drinking, intoxication, and violence.		✓
Resources for screening and brief interventions • Healthcare professionals seem to have a generally negative attitude towards people with alcohol-use disorders, but this perception may be improved with education and training.		✓
Extended brief interventions with young people aged 16 and 17 years • Extended brief interventions may be effective in reducing drinking and harm from drinking in people aged under 21 years. However, evidence of effectiveness in people younger than 17 years remains limited.		✓
Screening adults • Simply asking questions about drinking does not seem to affect drinking behaviour.		✓
• Universal alcohol screening may result in more people being asked about alcohol use than consultation-based targeted screening, but neither screening system seems to consistently identify people with risky alcohol-use who should then receive brief intervention. However, universal screening may detect risky drinking at an earlier stage than consultation-based screening.		✓
Brief advice for adults • Brief interventions in people admitted to hospital for reasons other than alcohol use may be effective in reducing alcohol consumption, particularly those interventions that involve multiple sessions.		✓
• Brief advice or lifestyle counselling may not reduce drinking more than personalised feedback after screening plus a patient information leaflet; the effect of lifestyle counselling may have been reduced because many patients did not attend a subsequent counselling session.		✓
• Costs of implementing schemes to increase screening and brief interventions for alcohol-use disorders may be offset by long-term savings.		✓
• Nurse-led brief interventions to reduce alcohol use delivered in a sexual health clinic may be acceptable to patients in this setting but may be not effective in reducing harmful or hazardous drinking.		✓
• Brief intervention to reduce alcohol use delivered in the emergency department may not reduce subsequent injuries.		✓
Extended brief interventions for adults • Brief or extended multicontact interventions delivered in primary care may be effective in reducing alcohol consumption.		✓

Areas not currently covered by NICE PH24		
• Computer-based interventions may be effective for reducing drinking but the evidence base seems to be inconsistent in both results and quality of studies. • Social norms interventions may not be effective in reducing quantity of drinking and effects on binge drinking seem to be inconsistent, but interventions involving web-feedback may reduce alcohol-related problems.		✓ ✓

1 Commentary on new evidence

These commentaries focus on the ‘key references’ identified through the search process and prioritised by the EUAG for inclusion in the Evidence Update, which are shown in bold text. Supporting references provide context or additional information to the commentary. Section headings are taken from NICE PH24.

Glossary of terms

This glossary explains selected terms used in this Evidence Update.

Brief intervention

Aims to help someone reduce their alcohol consumption (sometimes even to abstain) and can be carried out by non-alcohol specialists. It can comprise either:

brief advice – a short session of feedback and structured advice that aims to help someone reduce their alcohol consumption.

extended brief intervention – a longer, motivationally-based session that can take the form of motivational-enhancement therapy or motivational interviewing. The aim is to motivate people to change their behaviour by exploring with them why they behave the way they do and identifying positive reasons for making change. In NICE PH24, all motivationally-based interventions are referred to as 'extended brief interventions'.

In the literature, brief advice and extended brief interventions are often included in the term ‘brief interventions’.

Alcohol duties

Duty is the form of tax applied to alcoholic products in the UK. The rate of duty depends on the type of product (beer, cider, wine and spirits) and its strength.

Harmful drinking

A pattern of alcohol consumption that is causing mental or physical damage.

Hazardous drinking

A pattern of alcohol consumption that increases someone's risk of harm. Some would limit this definition to physical or mental health consequences (as in harmful use). Others would include social consequences. The term is currently used by the World Health Organization (WHO) to describe this pattern of alcohol consumption. It is not a diagnostic term.

Higher-risk drinking in adults

- Men – regularly consuming more than 50 units per week.
- Women – regularly consuming more than 35 units per week.

Increasing-risk drinking in adults

- Men – regularly consuming 22–50 units per week.
- Women – regularly consuming 15–35 units per week.

Lower-risk drinking

- Men – regularly consuming 21 units or less per week.
- Women – regularly consuming 14 units or less per week.

Screening

For the purposes of NICE PH24, screening involves identifying people who are not seeking treatment for alcohol problems but who may have an alcohol-use disorder. Practitioners may use any contact with clients to carry out this type of screening. The term is not used here to refer to national screening programmes such as those recommended by the UK National Screening Committee (UK NSC). Screening can be universal or targeted. Universal screening is offered to all people, for example on registering with a general practice. Targeted screening uses criteria such as risk factors to identify populations who are more likely to benefit more from further investigation.

Unit

In the UK, alcoholic drinks are measured in units. Each unit corresponds to about 8 g or 10 ml of ethanol. The same volume of similar types of alcohol (for example, 2 pints of lager) can comprise a different number of units depending on the drink's strength (that is, its percentage concentration of alcohol).

Policy

Population versus individual approach

NICE PH24 notes that population-level approaches to public health are important because they can help reduce the aggregate level of alcohol consumed and therefore lower the whole population's risk of alcohol-related harm.

Health, social and economic costs of alcohol

Johnston et al. (2012) conducted a cost-of-illness study assessing the cost of alcohol-use disorders in Scotland, based on a literature search to identify the potential harmful effects of alcohol. It included direct public sector costs, indirect costs to the economy and intangible costs. The overall cost was estimated to be £7.5 billion (range £3.2–11.8 billion), nearly 80% of which was due to intangible costs such as morbidity and mortality, and 40% of which arose in the most deprived quintile of the population. However, the authors recognised that data were inadequate for several measures, which could affect the robustness of the results. For example, intangible health costs were taken from calculated intangible costs of death in a road traffic accident and applied directly to alcohol-related deaths.

Key reference

Johnston MC, Ludbrook A, Jaffray MA (2012) Inequalities in the distribution of the costs of alcohol misuse in Scotland: a cost of illness study. Alcohol and Alcoholism 47: 725–31

1.1 Price

NICE PH24 recommends:

- considering the introduction of a minimum price per unit. The level should be set by taking into account the health and social costs of alcohol-related harm and its impact on alcohol consumption. Initiating a review of the excise duty regime with fellow EU member states should be considered. The aim would be to obtain a pan-EU agreement on harmonisation which links alcohol duty to the strength of each product.
- reviewing the minimum price per unit regularly to ensure alcohol does not become more affordable over time.
- reviewing alcohol duties regularly to make sure alcohol does not become more affordable over time.

Affordability of alcohol

UK data on affordability

Crawford et al. (2012) conducted a cross-sectional survey in 7 towns and cities in England of 515 people (median age band 31–40 years, 57% male) who had recently purchased alcohol for their own consumption. Interviews were conducted at a range of shopping locations on various days and at differing times. Participants were asked about alcohol purchased in the previous 7 days. Prices for products were confirmed by receipt if possible, or by checking the online prices of the stores at which alcohol had been purchased. Alcohol consumption was assessed using the 3-item Alcohol Use Disorder Identification Test-Consumption (AUDIT-C), with a score of 5 or more classed as excessive alcohol consumption and a score of 10 or more classed as probable alcohol dependence.

A small proportion of participants (4.1%) did not report their household income; of those who did, annual income ranged from below £5000 to over £90,000. A third of participants had a low income (defined as less than £15,000). Two-thirds of participants (65.7%) consumed excessive amounts of alcohol and 1 in 10 (9.6%) were probably dependent on alcohol.

The median spending on alcohol was £10 (range £1–142), and three-quarters of people (75.2%) said they had paid a fair price for the alcohol. Of people with a low income, those who drank excessively or were probably alcohol dependent paid significantly less per unit of alcohol (median £0.48) than those whose drinking was low risk (£0.56, p=0.003).

It was noted that the alcohol consumption reported in this study was higher than previously seen in epidemiological studies, which the authors thought was probably because their sample excluded people who had not purchased alcohol in the previous 7 days.

Worldwide data on affordability

Wagenaar et al. (2010) conducted a systematic review to analyse the effects of changes in alcohol prices or taxes and the resulting effects on alcohol-related morbidity and mortality. Fifty articles containing 340 estimates of effects of alcohol prices or taxes were identified. Standardised effect sizes were calculated from the statistics reported in each study.

Of 13 studies specifically examining the effects of alcohol prices or taxes on alcohol-related disease or injury, 22 of 29 estimates of effects showed a statistically significant association between alcohol costs and related health problems. The overall inverse variance-weighted effect size (r) was −0.347 (p<0.001). For 10 studies assessing the effects of alcohol costs on measures of violence, 29 of 70 estimates of effects showed a significant association (overall r=−0.022, p<0.001). For traffic safety outcomes, 23 of 34 independent estimates were significant, (overall r=−0.112, p<0.001). For 4 articles on sexually transmitted diseases and risky sexual behaviour, 10 of 12 estimates were significant (overall r=−0.055, p<0.001). Smaller significant effect sizes were seen for other drug use and for indicators of crime. Effects on all-cause mortality, industrial injury and suicide were not significant.

The authors noted considerable heterogeneity between study designs, and an assessment of publication bias suggested that some studies might have been missed. Additionally, most studies were based in the USA, which might limit the applicability of the results elsewhere.

Ayyagari et al. (2011) analysed longitudinal data from the US Health and Retirement Study, a survey of people aged over 50 years and their spouses. The survey was conducted every 2 years from 1992; this study focused on data for people who completed the survey from 1996 to 2004. After excluding people with incomplete data of interest (demographics, drinks per day, and alcohol price for the state of residence) a sample of 65,002 observations was available. A best-fit 2-component finite-mixture model was developed with number of drinks consumed per day as the dependent variable.

Results suggested that the larger group (component 1) consisted of people who would significantly reduce alcohol consumption as prices rise (coefficient=−1.686, p<0.01). This group had low alcohol consumption (average 0.13 drinks per day) and was more likely to include people who were female, older, less educated, in poorer health, or financially disadvantaged. However, people in the smaller group (component 2) would not significantly reduce alcohol consumption with rising prices (coefficient=0.0131); this group had higher alcohol consumption (average 1.86 drinks per day).

The authors noted that the amount of alcohol in a standard drink was not defined and separate data for beer, wine and spirits were not available. Although characteristics of people who would reduce alcohol consumption can be identified in modelling, this population could not be observed easily in a real-life study to monitor the effects of changes in alcohol prices.

Byrnes et al. (2013) used data from the Australian National Drug Strategy Household Surveys, conducted in 2001, 2004, and 2007 to identify patterns of consumption of alcohol corresponding to changes in price, derived from national sales data, adjusted to derive a state-specific alcohol price. The total sample was 79,545 respondents.

Results showed that respondents drank on an average of 122 days per year, consuming an average of 3 drinks on each occasion. An increase in the price of alcohol of 1% was significantly associated with an increase of 6.41 non-drinking days per year (p≤0.049) and a decrease of 7.30 days in which 1–4 drinks were consumed (p≤0.021). Drinking at higher levels was not significantly affected by a 1% price increase.

The authors noted that price indices may not reflect price variations of particular products, or special offers or a shift from off-premises to on-premises consumption. Additionally, the volume of alcohol in each drink was not known.

Studies of minimum pricing in Canada

Stockwell et al. (2012) conducted an observational study of alcohol sales, alcohol prices and economic indicators in the Canadian province of British Columbia from 1989 to 2010. British Columbia has government monopoly on the sale of alcohol and has implemented minimum pricing. Although the minimum prices vary depending on the type of alcohol, with stronger types of drink generally having higher minimum prices, prices are not calculated per unit of alcohol. The British Columbia Liquor Distribution Branch sets prices each month across government stores, and supplies privately owned stores at a fixed price. Prices of beer and cider differ for draft or packaged drinks; mean prices were calculated only for packaged beer and cider.

The most commonly consumed drink was packaged beer, with 16.49 litres drunk each quarter per person aged 15 years and older. The next most common drink was draft beer at 4.31 litres consumed, then wine at 3.10 litres and spirits and liqueurs at 1.63 litres consumed. The mean price per litre of these types of drink over the 20-year study were CAN $1.32 (range $0.97–1.46) for packaged beer, CAN $1.40 (range $1.30–1.59) for spirits and liqueurs, and CAN $1.74 (range $1.36–2.07) for wine.

In longitudinal modelling, a 10% increase in the minimum price of any alcoholic drink reduced its consumption by 14.6% in a model with a linear time-control variable and by 16.1% in a 2-way fixed-effects model (both p<0.001). Time-series modelling suggested that a 10% increase in the price of packaged drinks was associated with a reduction in total alcohol consumption of 3.4%. This study did not capture the extent to which price rises in off-premises alcohol may affect on-premises alcohol sales.

Stockwell et al. (2013) designed a cross-sectional versus time series study to test associations between minimum alcohol prices and alcohol outlet density and rate of admission to hospital with alcohol-related diseases for 2002–09. Data on minimum alcohol prices and licences for alcohol outlets were provided by the British Columbia Liquor Distribution Branch.

Data for 89 local health areas in the region of British Columbia, Canada were supplied by the Ministry of Health, and the number of hospital admissions in 60 categories of disease and injury was multiplied by a factor calculated by the authors to represent the risk of that disease being attributable to alcohol. The estimates of alcohol exposure were adjusted for local per-capita alcohol consumption for each of 5 health authorities.

Over the study period 142,615 hospital admissions were attributable to alcohol, 17.57% of which were classed as 100% attributable to alcohol. About half were acute illnesses and the other half were chronic diseases. All alcohol-related admission rates increased significantly over the time period studied (all $p<0.016$). A 10% increase in minimum price was significantly associated with a 9% reduction in acute alcohol-related admissions ($p<0.01$), but no significant reduction in chronic or 100% alcohol-attributable admissions was observed. The authors recognised that although they tried to control for sociodemographic and economic factors, uncontrolled confounding that could have affected the results was likely.

In a subsequent study, **Zhao et al. (2013)** conducted a cross-sectional versus time series study similar to that of Stockwell et al. (2013), this time analysing the effect of minimum prices and outlet density on deaths attributed to alcohol. The methods were analogous to the previous study, and death data were obtained from the British Columbia Statistics Agency.

Overall, 9484 deaths were attributed to alcohol over the study period; 38% of these were from acute conditions, 62% were because of chronic conditions and 15% of the total were considered to be wholly attributable to alcohol. The mortality rates differed significantly across the 16 health authorities studied for acute, chronic and wholly alcohol-attributable deaths (all $p<0.0001$). Wholly alcohol-attributable deaths decreased by 31.7% with an increase in minimum price of 10% ($p<0.05$). However, the authors could not determine which sections of the population were most affected by changes in price or outlet density (see the section 'Alcohol outlet density' below for details of this study's findings on outlet density).

Limitations of the evidence base on affordability of alcohol

In addition to limitations recognised by the authors of individual studies, the evidence base has several general limitations. Most of the evidence is derived from surveys and causal relationships cannot be confirmed with cross-sectional data. Surveys may not be representative of an entire population because of possible selection biases in inviting participants or in those who choose to respond. Self-reporting of drinking behaviour may not be accurate, either because of poor recall or respondents not wishing to admit to drinking too much. Finally, results of studies not conducted in the UK may not be directly applicable to the UK population.

Conclusions on affordability of alcohol

Despite its limitations, the evidence base generally shows that harm from alcohol-use disorders costs a substantial amount of money and that increases in prices of alcoholic drinks may be associated with reductions in drinking and in harms, including deaths, associated with drinking. These findings strengthen the recommendations in NICE PH24.

Key references

Ayyagari P, Deb P, Fletcher J et al. (2011) Understanding heterogeneity in price elasticities in the demand for alcohol for older individuals. Health Economics 22: 89–105 [NIH Public Access author manuscript – full text]

Byrnes J, Shakeshaft A, Petrie D et al. (2013) Can harms associated with high-intensity drinking be reduced by increasing the price of alcohol? Drug and Alcohol Review 32:27–30

Crawford MJ, Parry AM, Weston AR et al. (2012) Relationship between price paid for off-trade alcohol, alcohol consumption and income in England: a cross-sectional survey. Alcohol and Alcoholism 47: 738–42

Stockwell T, Auld MC, Zhao J et al. (2012) Does minimum pricing reduce alcohol consumption? The experience of a Canadian province. Addiction 107: 912–20

Stockwell T, Zhao J, Macdonald S et al. (2013) Minimum alcohol prices and outlet densities in British Columbia, Canada: estimated impacts on alcohol-attributable hospital admissions. American Journal of Public Health 103: 2014–20

Wagenaar AC, Tobler AL, Komro K et al. (2010) Effects of alcohol tax and price policies on morbidity and mortality: a systematic review. American Journal of Public Health 100: 2270–8 [NIH Public Access author manuscript – full text]

Zhao J, Stockwell T, Martin G et al. (2013) The relationship between minimum alcohol prices, outlet densities and alcohol-attributable deaths in British Columbia, 2002–09. Addiction 108: 1059–69

Minimum unit pricing

Modelling the effects of minimum unit pricing in the UK

Meng et al. (2013) produced a report at the request of the UK Government, which modelled the effects of minimum unit pricing for alcohol by socioeconomic groups. The model used to inform the report was the Sheffield Alcohol Policy Model (version 2.5). Version 2.0 of this model was used in the development of NICE PH24.

The updated model included more recent data for alcohol consumption and price and new modelling for price elasticity. The population was stratified as low income (below the relative poverty line), and higher income (above the relative poverty line). Cider was added as a specific beverage type; previously it was included with beer. The model focused on people 16 years and older.

The main conclusions of this report were that a minimum unit price of £0.45 in England would:

- reduce alcohol consumption, alcohol-related harms and the costs associated with those harms (total saving of £3.4 billion) including:
  - 123 fewer alcohol-attributable deaths in the first year, rising to 624 fewer deaths by year 10 (554 of 624 deaths avoided would be in people with higher-risk drinking)
  - 23,700 fewer admissions to hospital per year across all drinking risk groups after 10 years
  - 34,200 fewer crimes, with about 43% of this reduction attributed to people with higher-risk drinking and 31% attributed to people with increasing-risk drinking
  - 247,600 fewer days of workplace absence per year.
- reduce drinking by 1.6% at the population level (or 11.7 units per person per year) including:
  - 0.6% in people with low-risk drinking
  - 0.7% in people with increasing-risk drinking
  - 3.7% in people with higher-risk drinking (7.5% in people with higher-risk drinking and low income and 2.3% in people with higher-risk drinking and higher income).
- have a larger effect on people with increasing-risk drinking and low income (−297 units per person per year) than on people with increasing-risk drinking and higher income (−85.2 units per person per year); although both would be affected substantially. The overall effect on people with lower-risk drinking and low income would be small (−3.5 units per person per year).

Additionally, a minimum unit price of £0.45, for off-premises sales, would affect 70% of cider prices, 45% of beer prices, 39% of spirits prices, 25% of wine prices, and 1% of ready-mixed drinks. However, only 0.6% of on-premises sales would be affected. Off-premises retailers would see a 5.6% increase in revenue, but on-premises revenue would decline by 0.7%. The authors noted that the results for retail revenues should be interpreted with caution because of a lack of statistical significance for many comparisons.

A further report from the Sheffield Alcohol Policy Model (version 2.6) has been published (Holmes et al. 2014). This publication covers estimated reductions in drinking by risk level, income quintile and socioeconomic grouping by occupation type as well as reductions in health-related harms from drinking.

UK studies of purchasing habits

Ludbrook et al. (2012) evaluated a UK survey of household purchasing of cheap alcohol, defined as less than £0.45 per unit, against equivalised household income. Equivalised household income takes the size and composition of the household into account, and in this study was used as a marker of deprivation. The data were from the Expenditure and Food Survey, an annual cross-sectional sample of UK households that records all food and drink purchasing over a 2-week period. Data from 2006, 2007 and 2008 were used, with all prices standardised to 2008 levels, overall data for 18,624 households were analysed.

In terms of drinking risk, 32% of households purchased no alcohol; 50% of households in the lowest income quintile purchased no alcohol compared with 15% of households in the highest income group. A low-risk amount of alcohol was purchased by 45% of households; 17% purchased an increasingly risky amount of alcohol, and 6% purchased a high-risk amount of alcohol. The risk levels were based on the UK Department of Health's advice on individual weekly consumption.

Overall, the mean units of alcohol purchased increased with equivalised household income. The difference between each quintile was significant for all except for the 2 highest quintiles. However, after removing households that purchased no alcohol, the differences in purchasing were smaller and less significant.

Excluding households that bought no alcohol, households in the highest income quintile bought significantly less alcohol at less than £0.45 per unit than households in the lowest 2 quintiles. Of households that purchased some off-premises alcohol, those purchasing high-risk amounts of alcohol had the highest probability of purchasing some alcohol at less than £0.45 per unit, across all income quintiles.

Although people in the 2 lowest income quintiles were least likely to purchase alcohol, those who did purchase some alcohol were more likely to purchase cheap alcohol than those in higher quintiles. In discussing health inequity, the authors noted that reducing alcohol consumption could be more beneficial in people with lower income than in those with higher income. This conclusion was based on previous findings that disadvantaged groups (such as those with low income) have worse health outcomes than others at the same level of alcohol consumption.

The authors noted that purchasing data do not directly translate to consumption data. A household identified as purchasing high-risk amounts may consume alcohol over a long period of time or drink it with people who do not live in the household. Conversely, a household may purchase a low-risk amount of alcohol, but it may be consumed by only one person, who could be drinking at a higher risk level. Additionally, the effects of special offers on the quantity of alcohol purchased could not be tested, which is a potential limitation.

Black et al. (2010) interviewed a sample of patients, aged 16 years and older, attending 2 hospitals in Edinburgh for health problems related to alcohol use. Participants were asked to recall their most recent week of drinking (or recent typical week) in terms of volume and

strength of alcohol consumed. Information on brands, purchase price and location of purchase (on or off premises) was also obtained. Interviews from 377 people were analysed (256 men and 121 women, mean age=47 years), about a third of whom were outpatients and two-thirds were inpatients.

For people who made some alcohol purchases on premises (n=96), the mean consumption per week in this setting was 71.3 units (range 2.3–292.3 units), at a mean price of £1.10 per unit (range £0.59–2.37), which accounted for 46.5% of their weekly consumption (range 0.35–100%). For people who made some alcohol purchases as off-premises (n=359), the mean consumption in this setting was 188.7 units (range 4.2–800.2), at a mean price of £0.34 per unit (range £0.09–1.03), which accounted for 92.6% of their weekly consumption (range 5.4–100%).

In open-ended questions, 47.5% of participants mentioned cheapness as a reason for their purchasing habits, which rose to 60.8% of those who spent £0.40 or less per unit. For people purchasing white cider (n=66), the reasons for purchase were: cheap, strong, or cheap and strong. No differences were seen in mean expenditure per unit by socioeconomic status, as measured for postcodes by the Scottish Index of Multiple Deprivation.

Vodka was the most purchased drink (28.6% of total units), which compares with 13.1% of total units purchased by the general population. Super strength beer accounted for 7.8% of participants' total units, but accounts for only 0.006% of units purchased by the general population. Similarly, white cider accounted for 16% of participants' weekly consumption, but only 0.009% of that in the general population.

The authors noted that their sample does not represent all harmful drinking in Scotland, and that use of postcodes may not accurately capture socioeconomic status. Their results suggest that people who drink at the highest risk levels purchase alcohol at very cheap prices and shop around to do so. Therefore, this group is not well represented in population models of price elasticity because they do not have a cheaper option to purchase if prices increase.

Limitations of the evidence base on minimum unit pricing

The evidence base has several general limitations. Modelling did not have individual-level data on alcohol purchasing, and may not accurately predict the behaviour of people in the real world. Survey data are more representative of actual behaviour, but may involve selection bias by excluding those purchasing the most alcohol or people may under-report spending on alcohol. The study by Black et al. (2010) provides some insight into the behaviour of people whose drinking is at the highest risk.

Measures of average price, rather than actual prices paid may not accurately represent the effects of minimum unit pricing. The prices of the cheapest alcohol products would be expected to increase to a greater extent than the average price. No studies assessed how alcohol producers and retailers may respond to mimimum unit pricing, such as maintaining price differences between cheap and premium products, or changes to in-store promotions. Finally, the studies looked at minimum unit pricing separately from taxation, so it is not clear who would benefit from any extra revenue generated: the retailer, the manufacturer, or the public (through increased tax spending).

Conclusions on minimum unit pricing

Generally, the evidence indicates that minimum unit pricing seems to affect the population of drinkers at highest risk across all socioeconomic categories. People with the lowest income do not seem to be particularly disadvantaged by minimum unit pricing because this group drinks less than people with higher income. These findings strengthen the recommendation in NICE PH24 to consider introducing minimum unit pricing and the evidence statements noting that people who drink alcohol at the highest risk levels prefer cheap drinks.

Key references

Black H, Gill J, Chick J (2010) The price of a drink: levels of consumption and price paid per unit of alcohol by Edinburgh's ill drinkers with a comparison to wider alcohol sales in Scotland. Addiction 106: 729–36

Ludbrook A, Petrie D, McKenzie L et al. (2012) Tackling alcohol misuse: purchasing patterns affected by minimum pricing for alcohol. Applied Health Economics and Health Policy 10: 51–3

Meng Y, Brennan A, Holmes J et al. (2013) Modelled income group-specific impacts of alcohol minimum unit pricing in England 2014/15: policy appraisals using new developments to the Sheffield Alcohol Policy Model (v2.5). University of Sheffield

Supporting reference

Holmes J, Meng Y, Brennan A et al. (2014) Effects of minimum unit pricing for alcohol on different income and socioeconomic groups: a modelling study. The Lancet: doi:10.1016/S0140-6736(08)61345-8

Taxation

Tax levels and alcohol consumption

Helakorpi et al (2010) analysed changes in alcohol consumption in Finland after a large reduction in alcohol taxes in 2004, which resulted in average reduction in the prices of spirits by 33%, beer by 13% and wine by 3%. Data from the annual Finnish Health Behaviour and Health Surveys were used, focusing on respondents aged 25–64 years who participated between 1982 and 2008.

Weekly drinking was classified as light or moderate-to-heavy, using a cut-off of 8 or more drinks per week for men and 5 or more drinks per week for women. A drink was estimated to contain 11–13 g of alcohol. Binge drinking was defined as 6 or more drinks consumed in one day. Socioeconomic status was estimated using a relative measure of education, which accounted for differences in education across generations.

Moderate-to-heavy alcohol consumption increased from 1982 to 2008 in men (from 31% to 44%) and women (from 13% to 30%). From 2004, the increase in moderate-to-heavy drinking was significantly higher in people aged 45 or over than in people aged 25–44 years ($p=0.03$ for men and $p=0.001$ for women). Binge drinking increased, but no difference across age groups was seen for men; for women binge drinking increased in all age groups except for those aged 35–44 years ($p=0.012$). Increases in moderate-to-heavy drinking in men after 2004 were significant in the lowest education tertile ($p<0.001$), but not in the 2 more educated groups. Interactions between educational level and drinking in women were less clear and possibly due to random variation. Furthermore, data from Statistics Finland suggest that reductions in alcohol tax in 2004 led to increases in alcohol-related deaths. A drop in alcohol-related deaths seen from 2009 has been attributed to subsequent increases in alcohol tax in January 2008, January 2009, and October 2009 (Karlsson et al. 2010).

Byrnes et al. (2012) used a partial equilibrium model to investigate the effects of 5 different systems of alcohol taxation based in the 2008 Australian market. The model assumed that any change in tax would be fully passed on to consumers. The 'deadweight loss of taxation' was calculated; that is the perceived reduction in consumer welfare from lower consumption and higher prices in excess of the benefits obtained from the additional tax revenue.

Total tax from all alcohol sales in Australia in 2007–08 was AUS$7426 million. Beer accounted for 42% of expenditure on alcohol and 46% of pure alcohol consumed. Ready-mixed drinks were taxed at the same rate as beer. Increasing the tax on ready-mixed drinks to the same rate as spirits would increase tax revenue by AUS$479 million and reduce pure alcohol consumption by 754,000 litres (assuming consumers did not simply swap to a different type of drink). However, the deadweight loss of taxation was AUS$62 million.

A volumetric tax per litre of pure alcohol that was priced to be neutral in terms of deadweight loss of taxation could increase tax revenue by AUS$1153 million, and reduce the total alcohol

consumed by 4.3 million litres. A volumetric tax priced to be tax-revenue neutral could reduce the deadweight loss of taxation by $177 million and reduce alcohol consumption by 468,000 litres. A system with ready-mixed drinks on a high tax rate and beer and wine on a low tax rate could increase tax revenue by AUS$1101 million and reduce alcohol consumption by 2.6 million litres, but increase the deadweight loss of taxation by AUS$113 million.

Fogarty (2012) analysed a volumetric method of alcohol taxation per litre of pure alcohol that was investigated, but not implemented, by the Australian Government. A model to determine the tax rate that would optimise overall community welfare was constructed, and tax for beer, wine, ready-mixed drinks and spirits were analysed separately. The model assumed that tax changes were fully passed on to consumers, both in alcohol costs and received benefits of tax expenditure, and that income compensated and uncompensated demand were about equal.

The model accounted for welfare losses from increasing taxes for people who consume alcohol moderately and have no external costs associated with their alcohol use. People who use alcohol hazardously but know and accept the external costs of their drinking were deemed to have a welfare loss from increased alcohol taxes, but society would gain from the reduction in external costs. People who use alcohol hazardously but do not know about the external costs of their drinking would have welfare gains from tax increases, and society would also gain.

The estimated optimum tax was calculated for each type of beverage. The optimum tax for beer would result in an increase in prices of draught beer by about 6%; packaged beer would see little price change. For wine, the optimum tax would result in a reduction in the overall tax, but effects would differ: the tax on cheaper wines would increase whereas tax on more expensive wine would fall; cask wines would increase in price by about 25%. The optimum tax on ready-mixed drinks would mean a slight increase in tax, which would increase prices by about 5%. Finally, the optimum tax on spirits would result in a reduction in tax and would reduce the price by about 17%. The authors concluded that a uniform volumetric tax would not maximise overall community welfare.

Tax and binge drinking in adults and young people

Xuan et al. (2013) investigated a possible association between binge drinking in adults and in young people, and whether tax policies aimed at adults would affect young people. Data for binge drinking in adults were obtained from the US Behavioral Risk Factor Surveillance System survey from 1999 to 2009. Total taxes on beer by state were used in the modelling because they are highly correlated with tax on wine and spirits, and states were then categorised as low tax or high tax.

Data on alcohol consumption in high-school students (n=518,726) were obtained from the biennial US Youth Risk Behavior Surveys from 1999 to 2009. Data from states with a response rate of 60% or more were cleaned and weighted by the US Centers for Disease Control to be representative of each state's population of young people. Only these weighted data were used, so some states were not included. The authors noted that young people who were not at school on survey days were not included, and that this population may have different drinking habits.

The median prevalence of binge drinking across states in adults was 15.2% (range 6.6–27.0%) and in young people was 26.0% (range 10.9–46.7%). A significant association was seen between state-level binge drinking in adults and in young people (Pearson's r=0.40, p<0.0001). Bivariate analysis showed that an increase in tax of 20 cents was associated with a reduction in adult binge drinking of 8.5 percentage points (p<0.001). The interaction between binge drinking in adults and in young people was not significantly affected by tax level.

Limitations of the evidence base on taxation

The evidence base has general limitations: modelling studies may not accurately represent real-world effects and survey data has risks of selection bias, difficulty establishing causality and possible under-reporting of alcohol consumption. If price and quantity for alcohol consumption were based on an annual aggregated sales data, the effects on the populations most at risk cannot be ascertained. On-premises and off-premises sales were not always analysed separately.

Conclusions on taxation

Increases in tax on alcohol seem to be associated with reductions in drinking, and reductions in tax seem to be associated with increases in drinking. The level of increased drinking after tax reductions may differ across age groups, gender and socioeconomic status. However, tax levels may not directly affect binge drinking in young people. There is potential for tax models to be tailored so that benefits of increased tax spending offset the disadvantages to consumers of higher alcohol prices. These findings strengthen the recommendation in NICE PH24 to regularly review alcohol duties to make sure that alcohol does not become more affordable over time.

Key references

Byrnes J, Petrie DJ, Doran CM et al. (2012) The efficiency of a volumetric alcohol tax in Australia. Applied Health Economics and health Policy 10: 37–49

Fogarty JJ (2012) Optimal alcohol taxes for Australia. Forum for Health Economics and Policy 15: DOI: 10.1515/1558-9544.1276

Helakorpi S, Mäkelä P, Uutela A (2010) Alcohol consumption before and after a significant reduction of alcohol prices in 2004 in Finland: were the effects different across population subgroups? Alcohol and Alcoholism 45:286–92

Xuan Z, Nelson TF, Heeren T et al. (2013) Tax policy, adult binge drinking, and youth alcohol consumption in the United States. Alcoholism: Clinical and Experimental Research 37: 1713–9 [NIH Public Access author manuscript – full text]

Supporting reference

Karlsson T, Mäkelä P, Österberg E et al. (2010) A new alcohol environment. Trends in alcohol consumption, harms and policy: Finland 1990–2010. Nordic Studies on Alcohol and Drugs 27: 497–513

1.2 Availability

NICE PH24 recommends considering revising legislation on licensing to ensure:

- protection of the public's health is one of its objectives;
- health bodies are responsible authorities
- licensing departments can take into account the links between the availability of alcohol and alcohol-related harm when considering a licence application (that is, they can take into account the number of alcohol outlets in a given area and times when it is on sale and the potential links to local crime and disorder and alcohol-related illnesses and deaths).

See NICE PH24 for the full recommendation on availability.

Responsible authorities have to be notified of all licence variations and new applications and can make representations regarding them. The Licensing Act 2003 lists responsible authorities. They include the police, environmental health and child protection services, fire and rescue and trading standards.

Alcohol outlet density

Livingston (2011a) looked at the relationship between alcohol availability in Australia over time and its association with domestic violence. Data for 186 postcodes in the greater

Melbourne area that did not have boundary changes during the period investigated (1996–2005) were included. Data on active liquor licences on 30 June each year were obtained from the Licensing Branch of the Victorian Department of Consumer Affairs. The study looked at general licences (on-premises and off-premises in pubs and hotels), on-premises licences and packaged licences (off-premises only), and excluded club licences, wholesalers and wineries.

Domestic violence data were obtained from the Victorian Police Department. These data were counts of 'family incidents' in which police deem an offence has taken place, so did not include all calls to police, but did include offences that did not lead to an arrest. Regression analysis used the annual rate of police-recorded domestic violence incidents as the dependent variable. Independent variables were alcohol outlet density, postcode, and the Socio-Economic Index for Area score of relative disadvantage.

The overall mean domestic violence rate was 4.76 per 1000 residents. An increase of 1 additional licensed outlet was associated with an increase of 0.08 domestic violence incidents per 1000 population ($p<0.01$). When multivariate modelling accounted for type of licence, only packaged outlets licences were significantly associated with increased domestic violence (an additional 0.66 incidents per 1000 population, $p=0.02$). High levels of socioeconomic disadvantage were associated with increased domestic violence.

The authors noted that reported incidents of domestic violence might underestimate actual levels of violence because of under-reporting. Additionally, the study relied on the assumption that an increasing number of alcohol outlets was associated with increased consumption of alcohol.

Livingston M (2011b) also investigated the association between density of off-premises and on-premises alcohol outlets and the incidence of violence and chronic alcohol-related disease in Australia. The study used data for 186 postcodes in the greater Melbourne area that had no boundary changes for the period assessed (1994–2007). Liquor licensing data (general, packaged and on-premises) were obtained from the Victorian Department of Justice.

The Victorian Admitted Episodes Dataset provided information on admissions to hospital, and the primary diagnoses were used to categorise admissions as assault or alcohol-related chronic disease. Socioeconomic data were derived from the Australian Bureau of Statistics, and based on census data. Fixed-effects models used rates of admission to hospital for either assault or chronic disease attributed to alcohol as the dependent variables. Independent variables were population size, number of licenced outlets, and socioeconomic status.

All types of license were significantly associated with admissions to hospitals because of assault. The largest effect size was for packaged licences (0.538), with smaller effect sizes for general (0.129) and on-premises (0.062) licences (all $p<0.001$). For admissions to hospital for alcohol-related chronic diseases, packaged licences again had the largest effect size (1.175) then general (0.124) and on-premises (0.081) licences (all $p<0.001$).

In multivariate analyses, effect sizes were smaller, and not all licence types were significantly associated with admissions to hospital. For assaults, general licenses had an effect size of 0.115 ($p<0.001$) and packaged licences had an effect size of 0.213 ($p<0.001$). For chronic alcohol-related diseases, packaged licences had an effect size of 0.874 ($p<0.001$).

The authors noted that this study addressed only the most severe cases of violence or alcohol-related diseases that were admitted to hospital. It did not measure cases treated in the emergency department or for which no treatment was sought. For chronic disease, the authors suggested that a lag between increases in availability of alcohol and the development of chronic diseases could lead to underestimating of the effects of alcohol availability, which were measured only in 1 year periods. Additionally, the data categories used in the analysis were broad, which the authors recognised as the major limitation of their study.

The studies by **Stockwell et al. (2013)** and **Zhao et al. (2013)**, detailed in 'Studies of minimum pricing in Canada' above, also assessed the effects of alcohol outlet density on hospital admissions and deaths.

In Stockwell et al. (2013), a 10% increase in the density of private liquor stores was associated with small significant increases in alcohol-related hospital admissions: acute=1.00% ($p<0.001$), chronic=1.61% ($p<0.001$), 100% alcohol-attributable=1.43% ($p<0.05$), total=1.26% ($p<0.001$). However, no significant associations were seen for bars, restaurants, or government stores.

In Zhao et al. (2013), only private liquor stores were significantly associated with mortality. A 10% increase in private liquor stores was associated with a 2.5% increase in acute alcohol deaths, a 2.4% increase in chronic deaths, and a 2.0% increase in total deaths attributable to alcohol (all $p<0.05$). Wholly alcohol-attributable deaths were not significantly associated with density of private liquor stores.

Privatising alcohol sales

Hahn et al. (2012) conducted a systematic review to assess the effects of privatising retail of alcohol on consumption and harms. The review included 17 studies of 12 privatisation events from 1950 to 1994, in high-income countries. The type of privatisation varied across the countries in which the studies were conducted. Privatisation of wine and spirits occurred in several US states that already had privatised beer sales; in Canada beer, wine and spirits were privatised; and in Finland only beer was privatised. The review also identified 1 study of government re-monopolisation in Sweden of medium-strength beer (2.26–3.50% alcohol) in 1977.

Overall, a 44% (interquartile range 4.5–122.5%) increase in consumption was seen after privatisation. In the one re-monopolisation in Sweden, significant reductions in treatment for alcoholism, alcohol intoxication, and alcohol psychosis were seen across all age groups ($p<0.05$). However, all privatisation and re-monopolisation events occurred many years ago, so the results might not be representative of present day.

Changes in licensing hours

Hahn et al. (2010) conducted a systematic review of studies assessing the effects of increases to the regulated hours of on-premises and off-premises sale of alcohol. Licensing increases were categorised as either up to 2 hours or more than 2 hours. The review reported increases in licensed hours per jurisdiction as individual events, irrespective of how many studies reported on that licensing change. Effect sizes were calculated as the relative percentage change in the intervention population compared with the control population.

Ten studies of 6 increases in on-premises licensing times of more than 2 hours were included: 4 events were in Australia from 1966 to 2000, 1 was in Iceland in 2005, and 1 was in the UK in 2005. Three of the four increases in licensing hours in Australia were associated with increases in motor vehicle crash injuries. The increase in licensing hours in Iceland was associated with increases in emergency department admissions, injuries, and suspected driving while intoxicated. Two studies of the increase in licensing hours in the UK found a relative decrease in violent criminal offenses and alcohol-related maxillofacial trauma, and the third study found an increase in alcohol-related assault and injury.

Six studies of five increases in on-premises licensing hours of less than 2 hours were included: 2 in the UK (1976 and 1988), 2 in Australia (in 1979 and 1993), and 1 in Canada in 1996. Overall, evidence of harms from increased licensing hours by less than 2 hours were small, inconsistent and not significant. No studies assessing the effect of changes in off-premises licensing were identified.

The authors noted that most studies did not measure direct effects on alcohol consumption or harms from alcohol use, but relied on proxy measures such as crime. Almost all studies used population-based data from public health surveillance systems that did not have information on alcohol control policies. Furthermore these data cannot provide information on whether premises actually increased their hours of business after changes in licensing hours.

Conclusions on availability

Overall, the evidence suggests that a higher density of off-premises alcohol outlets may be associated with increases in mortality, rates of admission to hospital because of assault or alcohol-related disease, and domestic violence. Higher density of other types of licensed premises may also be associated with increases in admission to hospital because of assault or alcohol-related disease. These findings strengthen the recommendations in NICE PH24.

Key references

Hahn RA, Kuzara JL, Elder R et al. (2010) Effectiveness of policies restricting hours of alcohol sales in preventing excessive alcohol consumption and related harms. American Journal of Preventive Medicine 39: 590–604

Hahn RA, Middleton JC, Elder R et al. (2012) Effects of alcohol retail privatization on excessive alcohol consumption and related harms. A community guide systematic review. American Journal of Preventive Medicine 42: 418–27

Livingston M (2011a) A longitudinal analysis of alcohol outlet density and domestic violence. Addiction 106: 919–25

Livingston M (2011b) Alcohol outlet density and harm: comparing the impacts on violence and chronic harms. Drug and Alcohol Review 30: 515–23

1.3 Marketing

NICE PH24 recommends ensuring children and young people's exposure to alcohol advertising is as low as possible by considering a review of the current advertising codes. This review would ensure:

- the limits set by the Advertising Standards Authority (ASA) for the proportion of the audience under age 18 are appropriate
- where alcohol advertising is permitted there is adequate protection for children and young people
- all alcohol marketing, particularly when it involves new media (for example, web-based channels and mobile phones) and product placement, is covered by a stringent regulatory system, which includes ongoing monitoring of practice.

See NICE PH24 for the full recommendation on marketing.

Gordon et al. (2011) conducted a cross-sectional study of 920 young people aged 12–14 years (the second year of secondary school) in Scotland. A pack containing information along with parent and respondent consent forms was sent to all eligible young people in 3 local authority areas in the West of Scotland. A gift token was provided to participants as an incentive. A face-to-face interview was conducted along with a self-reported questionnaire.

The study reported sociodemographic characteristics as ‘working class’ or ‘middle class’ based on the occupation of the parents (rather than by reference to the Scottish Index of Multiple Deprivation, which other studies have used). On this basis, demographics of the sample seemed to be evenly distributed.

Participants who had tried a whole alcoholic drink, not just a sip, were classified as drinkers. Alcohol marketing awareness was assessed over 15 types of marketing. Involvement in alcohol marketing was evaluated on whether respondents had ever received promotions, competitions, free samples of alcohol products, or received or owned items with alcohol

brands or logos. Additionally, observing or downloading alcohol-branded content from the internet was classed as involvement in alcohol marketing.

Of the 318 young people who reported having an alcoholic drink, the mean age of first drink was 11.1 years (standard deviation [SD] 1.7 years), and they drank a mean of 4.6 units (SD 5.3) on the last occasion they drank. Overall, 77% of young people were aware of drinks advertising on television and at the cinema, 66% were aware of sports clothing with alcohol branding, 61% were aware of sports sponsorship by drinks companies, and 60% were aware of drinks price promotions.

Generally, young people who had consumed alcohol were more aware of alcohol marketing than those who did not drink, many of these differences were significant. The largest difference was in awareness of alcohol marketing on social networking sites – although overall only 12% of participants were aware, this figure was 22% for those who drank compared with 7% of those who did not drink ($p<0.001$).

For participation in interactive forms of marketing for alcoholic products, 40% of all respondents had not participated in any type of alcohol marketing. Of this proportion, significantly more young people who had never drank had not participated (44%) than those who did drink alcohol (31%, $p<0.001$). For every individual type of marketing, the proportion of young people who participated was significantly higher among those who drank than among those who had never drank. The highest participation in alcohol marketing was owning branded clothing (45% overall; 51% of drinkers versus 43% of non-drinkers, $p\sim<0.05$).

The authors noted that their study could not determine causality or measure the effect on marketing on drinking behaviour over time, and that their results might not be generalisable outside the small geographical population sampled.

As part of the Alcohol Public Health Research Alliance (AMPHORA), funded by the European commission, a cross-sectional study on exposure to alcohol marketing in young people was conducted and reported by **de Bruijn (2013)** and **de Bruijn et al. (2012)**.

The study was conducted in Germany, Italy, the Netherlands and Poland via anonymous questionnaires. Active consent was given by all participants and by parents in Germany; in other countries passive parental consent was used. Exposure to online and television advertising for alcohol was measured, and participants were asked whether they owned any alcohol branded items. Drinking behaviour was assessed by asking how many alcoholic drinks had been consumed in the past 30 days. A shortened version of the alcohol expectancy questionnaire-adolescent version (AEQ-A) was used to measure the likelihood of starting to use alcohol.

In de Bruijn (2013), data captured at baseline were analysed. Overall, 74% of participants did binge drink in the 30 days before the survey, ranging from 65% in Italy to 82% in both the Netherlands and Poland. Exposure to alcohol marketing online, on television, or owning branded items were associated with being a recent binge drinker. A dose–response relationship between online alcohol marketing exposure and probability of binge drinking ($p<0.01$) was seen in all countries.

In de Bruijn et al. (2012), regression analysis of data from 6651 participants (mean age 14 years) was performed to investigate the effect of exposure to online marketing, drinking behaviour and alcohol expectancy. This analysis included people who had participated both at baseline (November 2010 to February 2011) and in a follow-up questionnaire (March to April 2012).

Young people who used alcohol at baseline expected alcohol to be associated with positive experiences, feeling active (for example, lively or cheerful), and feeling relaxed. Young people who did not drink at baseline expected alcohol to be associated with negative experiences.

Online alcohol marketing was associated with all expectations of alcohol (negative, positive, active and sedation (all <0.001). People who used alcohol at baseline were more likely to use alcohol at follow-up (p<0.001). Exposure to online marketing at baseline was associated with alcohol use at follow-up, and this effect was most pronounced in those who did not drink at baseline.

In another regression analysis (n=6652) the effect of sport sponsorship was assessed. Exposure to alcohol sport sponsorship was measured by asking about watching football championships specific to each country. For example, if a participant watched the Champions League (sponsored by Heineken) they were classified as being exposed to sport sponsoring by alcohol brands. Exposure to alcohol-branded football championships was associated with positive alcohol expectancies (p<0.001), active expectancies (p<0.05), and sedation expectancies (p<0.001), but not with negative expectancies.

The authors noted that their study was limited by the use of self-report, and that drinkers may be more familiar with products and notice the adverts more than those who do not drink.

Winpenny et al. (2012) reported on an assessment of young people's exposure to alcohol marketing in television and online media in work commissioned by the European Commission Directorate-General. Young people's exposure to alcohol marketing in television was measured with commercially available data on television viewership and on alcohol marketing in the UK, the Netherlands, and Germany. Regression analysis was used to compare the exposure to alcohol advertising in young people compared with adults.

Young people in the UK and the Netherlands were more likely than older adults to be exposed to alcohol advertising on television. The incidence rate ratios in the UK were 1.11 (95% CI 1.06 to 1.18) for 10–15 year-olds, and 1.02 (95% CI 1.01 to 1.03) for 16–24 year-olds, compared with people aged 25 years and older. In Germany, adults were more likely to be exposed to advertising than children.

In assessing advert content against national statutory or voluntary codes, only a few instances of possible violations were identified, but the extent to which regulations applied was not clear because the details of regulations were poorly specified. The authors noted that the findings from Germany suggest that exposure of young people to high amounts of alcohol advertising is not inevitable and understanding of the factors leading to this finding is needed to inform policymakers. They additionally suggested that information from a larger number of countries would be helpful.

Conclusions on marketing

Overall, the evidence suggests that young people in the UK may have high levels of exposure to alcohol advertising on television and online media, and may own a substantial amount of alcohol-branded items. Young people who drink or binge drink may have higher exposure to alcohol advertising than those who do not drink or binge drink. These findings strengthen the recommendations in NICE PH24.

Key references

de Bruijn A, Tanghe J, Beccaria F et al. (2012) Report on the impact of European alcohol marketing exposure on youth alcohol expectancies and youth drinking. Alcohol Public Health Research Alliance

de Bruijn A (2013) Exposure to online alcohol marketing and adolescents' binge drinking: a cross-sectional study in four European countries. In: Anderson P, Braddick F, Reynolds J et al., editors. Alcohol Policy in Europe: Evidence from AMPHORA. 2nd edition. The AMPHORA project.

Gordon R, Harris F, Mackintosh AM et al. (2011) Assessing the cumulative impact of alcohol marketing on young people's drinking: cross-sectional data findings. Addiction Research and Theory 19: 66–75.

Winpenny E, Patil S, Elliott M et al. (2012) Assessment of young people's exposure to alcohol marketing in audiovisual and online media. RAND Europe.

Practice

1.4 Licensing

NICE PH24 recommends that alcohol licence-holders and designated supervisors of licensed premises (such as local authorities, trading standards officers, the police, magistrates, and revenue and customs) should work in partnership with the appropriate authorities to identify and take action against premises that regularly sell alcohol to people who are under-age, intoxicated or making illegal purchases for others.

See NICE PH24 for the full recommendation on licensing.

Hughes et al. (2011) conducted a systematic review of studies looking at environmental influences on alcohol use and related harm in pubs, bars and nightclubs. A total of 53 articles were eligible for inclusion, covering 34 studies in 9 countries (the USA, Australia, Canada and several European countries). Observational techniques were used in 22 studies, sometimes in combination with other research methods such as qualitative interviews, survey data, or secondary data analysis. Most studies were naturalistic, but some used experimental designs, for example to assess the effects of music volume. The environmental factors associated with changes in drinking behaviour were categorised as physical, social, or staffing factors.

Loud music was associated with risky drinking, increased drinking speed and increased intoxication over several countries. The main consequence of drinking across all environmental factors was increased aggression, violence or assault across several countries. Physical factors associated with violence in several countries were poor ventilation, poor cleanliness, crowded premises and loud music. Social factors associated with violence in several countries were cheap drinks, games (such as pool or billiards), dancing, a permissive environment (for example, rowdiness, swearing, sexual contact or underage drinking) and illegal activity. Staffing factors associated with increased violence were poor staff control and ineffective security staff. Several studies also found that the presence of security staff could lead to increased aggression.

Results were reported without statistical data such as measures of effect sizes, p values or indicators of the size of the data pool. For example 15 studies were from Australia, and only 1 study was from Spain, but all the data were simplified to either an increase or decrease in alcohol-related problems for each environmental factor. Additionally, no sample sizes, effect sizes, statistical significance data, or details of methodological robustness of the studies were reported. The authors noted that the results of this review highlighted the complexities in studying drinking environments and their effects on alcohol-related harm, and that the results would inform their planning of a robust European study into this topic.

Conclusions on licensing

This review suggests that environmental factors of licensed premises, such as loud music, may be associated with increases in risky drinking, intoxication, and violence. These factors may be useful to consider when reviewing license applications; however, the limitations of the evidence mean that impact on NICE PH24 is unlikely.

Key reference

Hughes K, Quigg Z, Eckley L et al. (2011) Environmental factors in drinking venues and alcohol-related harm: the evidence base for European intervention. Addiction 106: 37–46

1.5 Resources for screening and brief interventions

NICE PH24 recommends that managers of NHS-commissioned services must ensure staff are trained to provide alcohol screening and structured brief advice. If there is local demand, staff should also be trained to deliver extended brief interventions.

See NICE PH24 for the full recommendation on resources for screening and brief interventions.

Health professionals' attitudes

van Boekel et al. (2013) did a systematic review of quantitative and qualitative studies assessing health professionals' attitudes towards patients with substance misuse disorders. Of 28 included studies, 6 included general practitioners or nurses working in general practice; however, attitudes towards people with alcohol problems were not reported separately from drug or other substance misuse.

Generally, health professionals had negative attitudes towards patients with substance misuse disorders. A few studies reported that beliefs that people had control over their substance use contributed to negative attitudes. Education and training had a positive impact on health professionals' attitudes but most health professionals did not feel they have the specific knowledge or skills in caring for this population. Few studies reported on whether negative attitudes had an effect on the care patients received; no effect sizes were reported, and outcomes assessed were inconsistent.

Conclusions on health professionals' attitudes

This evidence suggests that healthcare professionals seem to have a generally negative attitude towards people with alcohol-use disorders but this perception may be improved with education and training, which is consistent with the recommendation in NICE PH24 to provide training on screening and brief interventions.

Key reference

van Boekel LC, Brouwers EPM, van Weeghel J et al. (2013) Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: systematic review. Drug and Alcohol Dependence 131: 23–35

1.6 Supporting children and young people aged 10 to 15 years

No new key evidence for this section was selected for inclusion in this Evidence Update.

1.7 Screening young people aged 16 and 17 years

No new key evidence for this section was selected for inclusion in this Evidence Update.

1.8 Extended brief interventions with young people aged 16 and 17 years

NICE PH24 recommends that for people aged 16 and 17 who are identified by screening as drinking hazardously or harmfully, appropriately trained staff should offer the young person an extended brief intervention. Additionally, professionals should provide information on local specialist addiction services to those who do not respond well to discussion but who want further help, and should refer them to these services if this is what they want. Referral must be made to services that deal with young people.

See NICE PH24 for the full recommendation on extended brief intervention with young people aged 16 and 17 years.

When making these recommendations, the Programme Development Group noted that evidence for brief interventions for young people under the age of 16 years was limited. However, evidence from educational settings (mainly colleges and universities) was broadly positive. Generally the interventions were motivational interviews with young people aged 16 years and older. As a result, extended brief interventions were recommended for young people aged 16 and 17 years, although it was not clear whether this type of brief intervention could be adapted for younger adolescents.

Bernstein et al. (2010) conducted a randomised controlled trial to assess the effectiveness of a brief motivational intervention in young people aged 14–21 years (n=853) presenting to the paediatric emergency department who screened positive for high-risk or dependent drinking.

Participants were eligible if they reported binge drinking (5 or more drinks in 2 hours for males and 4 or more drinks in 2 hours for females), high-risk behaviours associated with drinking alcohol (unplanned or unprotected sex, driving or travelling in a car with a drunk driver, injury, fighting, car crash or arrest), or an Alcohol Use Disorder Identification Test (AUDIT) score of 4 or more for those aged 14–17 years or 8 or more for those aged 18–21 years. Exclusion criteria were: interview in privacy from family members was not possible; the young person was moving away within 3 months or otherwise unable to give contact information to allow follow-up; if they were presenting for a rape examination or evaluation for suicide precautions; if they were in a residential substance misuse treatment facility, in police custody, or otherwise living in an institution; or if parents did not give consent for participants aged under 18 years.

Participants were first randomised to one of two assessment groups, either minimal assessment (n=286) or full assessment. After full assessment, participants were further randomised to the intervention group (n=283) or the assessed control group (n=284). Participants were instructed not to discuss their enrolment or status with the research assistants who conducted follow-up.

The minimal assessment group received only written information on alcohol risks, community resources and adolescent treatment facilities, and an appointment was made for follow-up at 1 year. Participants in the assessed control group received written information, standard assessments, and follow-up appointments at 3 months and 1 year. The intervention group received standard assessments plus a 20–30 minute structured conversation with a peer educator and a telephone call from the same peer 1 week later. In this conversation the peer educator asked whether the participant had attempted to complete any referrals made during the structured conversation (to youth-oriented services or to treatment) and whether they had encountered any barriers to completing referrals. The peer educator additionally reinforced positive attempts to change and made further referrals if requested.

Follow-up in both the intervention group and assessed control group was 73% at 1 year. Overall, compared with the assessed control group, people in the intervention group had no significant difference in trying to cut back on drinking (73.3% versus 64.9% respectively, p=0.065); however, a significant difference was seen in trying to quit drinking (40.5% versus 27.8% respectively, p=0.007) and in trying to be careful when drinking (80.5% versus 71.3%, p=0.03). When the results were stratified by age, none of the outcomes were significantly different between intervention and control groups for those aged 14–17 years (n=57). For those aged 18–21 years (n=359), all outcomes were significantly different: tried to cut back on drinking (73.9% versus 63.0%, p=0.028); tried to quit drinking (41.5% versus 26.9%, p=0.004); tried to be careful when drinking (81.7% versus 69.2%).

The authors noted that their follow-up rates were not ideal, and that the small sample size of participants aged 14–17 years may have led to a false negative result (type II error) in that subgroup. Additionally, the study was conducted only in daytime, but more alcohol-related admissions may occur at night-time.

Tripodi et al. (2010) did a systematic review to assess the effects of treatments to reduce alcohol use in young people, and to compare individual treatments with family-based approaches. The review included 16 studies: about two-thirds of studies were of individual treatments and the remaining third assessed family interventions. All studies included young people aged under 19 years. The review included studies that used a control or active comparator and drug treatments had to be part of an integrated approach with at least one psychosocial intervention.

All tested interventions reduced alcohol use (overall Hedges g=−0.62, 95% CI −0.83 to −0.40); however, the effects were not always significant. The intervention with the largest effect size was cognitive behavioural therapy integrated with 12 steps (−1.91 (95% CI −2.37 to −1.61). Additionally, brief motivational interviewing, active aftercare, multidimensional family therapy and brief intervention with adolescent and parent all had effects sizes larger than −0.80. Most studies had follow-up of less than a year. Individual interventions seemed to have a larger effect (Hedges g=−0.75, 95% CI −1.10 to −0.40) than family-based interventions (Hedges g=−0.46, 95% CI −0.66 to −0.26).

The authors noted that inclusion criteria were restrictive to attempt to reduce heterogeneity between studies; and that studies had differences in outcomes studied, length of follow-up, and types of control group.

Newton et al. (2013) did a systematic review of randomised controlled trials assessing brief interventions delivered to young people in the emergency department for reducing harmful and hazardous use of alcohol and other drugs. Studies published from 1985 were included if they had a population aged up to 21 years and reported a main treatment outcome related to harmful and hazardous use such as frequency of use, injuries, or high-risk behaviour.

The 9 identified studies used brief interventions for young people who either tested positive for alcohol consumption, or had a recent history of alcohol or other drug use. Most studies used motivational interviewing techniques, and control groups included giving information or standard care, which was frequently not described, and 1 trial compared brief intervention with family-based follow up with brief intervention alone.

The authors noted that the evidence was inconsistent and limited by variation in outcomes reporting and study quality. Some studies that were assessed as lower quality showed beneficial effects of brief intervention on high-risk behaviours, but high quality studies are needed to confirm these results. Additionally, the authors could not determine whether benefits of brief interventions were clinically significant.

Conclusions on extended brief interventions

The evidence from these studies suggests that extended brief interventions may be effective in reducing drinking and harm from drinking in young people aged under 21 years. However, evidence of effectiveness in young people younger than 17 years remains limited. These conclusions are consistent with the recommendations and considerations in NICE PH24.

Key references

Bernstein J, Heeren T, Edward E et al. (2010) A brief motivational interview in a pediatric emergency department, plus 10-day telephone follow-up, increases attempts to quit drinking among youth and young adults who screen positive for problematic drinking. Academic Emergency Medicine 17: 890–902 [NIH Public Access author manuscript – full text]

Newton AS, Dong K, Mabood N et al. (2013) Brief emergency department interventions for youth who use alcohol and other drugs. A systematic review. Pediatric Emergency Care 29: 673–84

Tripodi SJ, Bender K, Litschge C et al. (2010) Interventions for reducing adolescent alcohol abuse: a meta-analytic review. Archives of Pediatric and Adolescent Medicine 164: 85–91

1.9 Screening adults

NICE PH24 recommends that NHS professionals should routinely carry out alcohol screening as an integral part of practice. For instance, discussions should take place during new patient registrations, when screening for other conditions and when managing chronic disease or carrying out a medicine review. These discussions should also take place when promoting sexual health, when seeing someone for an antenatal appointment and when treating minor injuries. Where screening everyone is not feasible or practicable, NHS professionals should focus on groups that may be at an increased risk of harm from alcohol and those with an alcohol-related condition. Non-NHS professionals should focus on groups that may be at an increased risk of harm from alcohol and people who have alcohol-related problems. See NICE PH24 for details of groups at increased risk.

See NICE PH24 for the full recommendation on screening adults.

Effects of screening on behaviour

McCambridge and Kypri (2011) did a systematic review and meta-analysis of 8 randomised trials (n=2340) of brief interventions to evaluate the effects of asking questions about drinking behaviour. Assessments with the aim of changing behaviour were excluded. Trials looked at comparisons of short assessments versus longer ones, assessment versus minimal screening, or brief assessment versus no assessment.

Answering questions on drinking did not significantly reduce total weekly drinking, (−13.71 g ethanol, 95% CI 0.17 to −27.60 g, p=0.582; 8 studies), daily drinking (−0.25 g ethanol, 95% CI 3.36 to −3.86 g, p=0.57; 6 studies), or AUDIT scores (−1.01, 95%. CI 0.12 to 1.91, p=0.09; 4 studies). The authors did not assess the methodological quality of included studies; however, they did note that all outcome data were self-reported.

Conclusions on effects of screening on behaviour

This evidence suggests that simply asking questions about drinking does not seem to affect drinking behaviour, therefore this evidence is unlikely to impact on NICE PH24.

Key reference

McCambridge J, Kypri K (2011) Can simply answering research questions change behaviour? Systematic review and meta analyses of brief alcohol intervention trials. PLoS ONE 6: e23748

Universal versus consultation-based targeted screening

Reinholdz et al. (2013) conducted a cluster randomised trial (n=3609) in 16 primary healthcare practices in Sweden comparing universal screening with consultation-based early identification in the detection of risky drinking (a form of targeted screening). Universal screening involved all patients and consultation-based identification relied on healthcare practitioners asking patients about alcohol use when it felt appropriate. Practices were randomised to one of 4 groups: universal screening with a coach, universal screening without a coach, consultation-based identification with a coach, and consultation-based identification without a coach. In this analysis both universal screening groups were considered together (9 practices) as were the 2 consultation-based identification groups (7 practices). Practices had freedom to choose which members of staff would identify at-risk drinkers (nurses, general practitioners or other medical staff).

Patients aged 18–75 years were asked to participate by reception staff (when workload allowed), and were given a questionnaire. Some people refused to participate and others did not complete or return the questionnaire. Baseline information on age, gender and whether the issue of alcohol was raised was collected over a 2-day period. Staff then received a training session of up to 3 hours covering ways of giving brief interventions. The universal screening groups were additionally trained on interpreting the AUDIT-C and the consultation-

based screening groups were additionally trained on the symptoms or conditions associated with alcohol-use disorders.

Two intervention periods of 4 weeks with a 6-month interval then followed, in which patients provided the same data as at baseline plus the 3-item AUDIT-C and a quality of life measure. Staff were expected to continue with the intervention in the 6-month interval, but rates of screening and intervention activities were not measured. A booster training session was given to staff before the second intervention phase.

In the original intended analysis of results, no significant differences were seen between the 2 intervention periods, so these results were merged and analysed together. More women participated (61%) than men (39%); however, more men than women had the issue of alcohol raised in both the universal screening (57.3% of men versus 50.4% of women) and consultation-based interventions (33.4% of men versus 24.0% of women). AUDIT-C scores were higher in men (3.13, 95% CI 3.11 to 3.26) than in women (2.39, 95% CI 2.31 to 2.48, $p<0.001$).

In the consultation-based screening group, 29.7% of people whose AUDIT-C scores indicated risky drinking, and 30.1% of those whose AUDIT-C scores indicated no risky drinking were asked about alcohol ($p=0.913$). Similarly, in the universal screening group, 62.5% of people whose AUDIT-C scores indicated risky drinking and 64.2% of those whose AUDIT-C scores indicated no risky drinking were asked about alcohol ($p<0.619$). Risky drinkers in the consultation-based intervention had significantly higher AUDIT-C scores (5.58, 95% CI 5.44 to 5.73) than those in the universal screening group (5.32, 95% CI 5.16 to 5.47, $p=0.013$).

The authors noted that even when people had completed AUDIT-C before seeing their healthcare professional, some people still were not asked about alcohol use. Additionally, participating practices were paid for their involvement, which may have affected the effort they made with the intervention.

A further study suggests that asking about alcohol use may be becoming standard practice when registering with general practice in the UK. Khadjesari et al. (2013) did a cross-sectional analysis of data from The Health Improvement Network (THIN), of people who registered with a UK general practice in 2007–09. About 6% of the UK population are included in the THIN database. Of 382,609 people registering with a new general practice who remained registered for at least a year, 292,376 (76%) had alcohol consumption recorded in units per week.

Of 25,975 people who had screening with a validated tool, most (16,004) completed AUDIT or AUDIT-C, 9419 completed the Fast Alcohol Screening Test (FAST), and the remainder completed other tests. Recording of alcohol consumption was higher in more deprived areas. Increasing-risk drinking was detected in 8% of men and 5% of women who had screening, and higher-risk drinking
was detected in 2% of men and 1% of women.

Conclusions on universal versus consultation-based targeted screening

This evidence suggests that universal alcohol screening may result in more people being asked about alcohol use than consultation-based targeted screening, but neither screening system seems to effectively target questions about alcohol to people with risky alcohol-use. However, universal screening may detect risky drinking at an earlier stage than consultation-based screening. This conclusion lends some support to targeting screening to at-risk groups if universal screening is not possible, as recommended in NICE PH24.

Key reference

Reinholdz H, Fornazar R, Bendtsen P et al. (2013) Comparison of systemic versus targeted screening for detection of risky drinking in primary care. Alcohol and Alcoholism 48: 172–9

Supporting reference

Khadjesari Z, Marston L, Petersen I et al. (2013) Alcohol consumption screening of newly-registered patients in primary care. British Journal of General Practice 63: 706–20

1.10 Brief advice for adults

NICE PH24 recommends offering a session of structured brief advice on alcohol. If this cannot be offered immediately, offer an appointment as soon as possible thereafter. A recognised, evidence-based resource that is based on FRAMES principles (feedback, responsibility, advice, menu, empathy, self-efficacy) should be used. It should take 5–15 minutes and should:

- cover the potential harm caused by their level of drinking and reasons for changing the behaviour, including the health and wellbeing benefits
- cover the barriers to change
- outline practical strategies to help reduce alcohol consumption (to address the 'menu' component of FRAMES)
- lead to a set of goals.

Where there is an ongoing relationship with the patient or client, routinely monitor their progress in reducing their alcohol consumption to a low-risk level. Where required, offer an additional session of structured brief advice or, if there has been no response, offer an extended brief intervention.

Brief interventions in people admitted to hospital

McQueen et al. (2011) did a Cochrane review of brief interventions to reduce alcohol-use disorders in people aged 16 years and over who were admitted to hospital for reasons other than alcohol treatment. Prospective controlled studies were included; controls could be assessment only (screening) or treatment as usual including provision of information leaflets. Included studies identified people drinking more than the recommended safe weekly or daily amounts of alcohol for the country in which the study was conducted. Brief interventions could have up to 3 sessions between a patient and healthcare professional. The primary outcome was alcohol consumption measured by self-report or laboratory markers.

The 14 identified studies were conducted in a range of settings: general medical wards, orthopaedic and trauma centres and surgical units. Screening used established tools in 7 studies, 4 used self-reported alcohol consumption, 1 used a retrospective drinking diary, and 1 used blood alcohol of 10 mg/100 ml after a motor vehicle crash. Control groups received usual care apart from 1 study that gave usual care plus screening and feedback.

Brief interventions encompassed self-efficacy enhancement, skills-based counselling, brief motivational counselling, brief advice, educational leaflets, telephone calls, and feedback letters, and were delivered by a range of health and social care professionals. Most identified studies evaluated a single session (10 studies) of brief intervention, 3 studies assessed 2 sessions and 1 study assessed 3 sessions.

In 8 studies (n=2196), brief intervention significantly reduced alcohol consumption in grams of ethanol per week compared with control at 6 months (mean difference=−69.43 g, 95% CI −128.14 to −10.72 g, p=0.02) and at 9 months (mean difference=−182.88 g, 95% CI −360.00 to −5.76 g, p=0.043), but not at 12 months. The studies reporting outcomes at 6 months had significant heterogeneity, so a sensitivity analysis was done, excluding 1 non-blinded study that included additional follow-up care. After sensitivity analysis, the result at 6 months was not significant. In 3 studies (n=1318) in which mean alcohol consumption per week was measured by change in score from baseline, no significant differences were recorded compared with control.

The authors noted that the baseline consumption levels necessary for participants to be eligible for inclusion in studies were not consistent across the identified studies. Some studies included dependent drinkers, but others excluded this population because people with dependence may not respond as well to brief interventions as lower-risk drinkers. The authors concluded that brief interventions for alcohol users in general hospitals need further investigation.

In a further systematic review, **Mdege et al. (2013)** looked at any alcohol intervention offered to people admitted to hospital for reasons other than alcohol use. The 22 included studies were discussed in a narrative style; the authors stated that pooling or meta-analysis of results was not possible. No clear evidence of effect was seen for most interventions including single-session brief interventions and outcomes such as alcohol consumption, alcohol questionnaire scores, wellbeing and quality of life, healthcare service use and mortality.

Brief interventions with more than one session seemed to reduce alcohol consumption compared with control. However, no clear benefit of intervention was seen for people with alcohol dependence, or for any other outcome.

Conclusions on brief interventions in people admitted to hospital

These studies suggest that brief interventions in people admitted to hospital for reasons other than alcohol use may be effective in reducing alcohol consumption, particularly those interventions that involve multiple sessions. This evidence is generally consistent with NICE PH24.

Key references

McQueen J, Howe TE, Allan L et al. (2011) Brief interventions for heavy alcohol users admitted to general hospital wards. Cochrane Database of Systematic Reviews issue 8: CD005191

Mdege ND, Fayter D, Watson JM et al. (2013) Interventions for reducing alcohol consumption among general hospital inpatient heavy alcohol users: a systematic review. Drug and Alcohol Dependence 131: 1–22

Brief advice in primary care

Kaner et al. (2013) conducted a pragmatic randomised trial of 3 brief interventions in 34 primary care practice clusters in England to reduce harmful and hazardous drinking. Included patients were adults who had a positive result on the FAST alcohol screening test or a modified single alcohol screening questionnaire, were alert and oriented, lived within 20 miles of the practice, and understood English well enough to complete questionnaires. The primary outcome was a negative screening result on AUDIT at 6 months.

People who were seeking help for alcohol-use disorders or were participating in another alcohol research study were excluded. Also excluded were people who were severely injured or unwell, had serious mental health problems or had no fixed abode. Verbal consent was obtained for alcohol screening and written consent was obtained from people entering the study after a positive screening result. All trial participants received feedback on their screening outcome.

Participants were randomised to receive:

- a patient information leaflet on alcohol developed by the Department of Health in England
- the information leaflet plus 5 minutes of structured brief advice (relating the participants' drinking to the rest of the population, explaining the benefits of reducing drinking, and suggesting techniques to reduce their drinking)
- the information leaflet and structured brief advice plus a 20 minute follow-up session of lifestyle counselling that:
  - rated the participant's views on the importance of changing their drinking and confidence about changing their drinking

- established why the ratings were at their current level and how they may be improved,
- worked through a 6-step plan to help reduce drinking.

Training on alcohol and the interventions was delivered to practices, including all participating clinicians, who were mostly GPs or nurses. Only practitioners who reached a required standard were approved to deliver the brief lifestyle advice intervention. Because of slow recruitment, research staff supported screening and brief intervention delivery in 10 practices and recruited 5% of participants.

Practices received cash incentives based on payments for smoking cessation in the Quality and Outcomes Framework, and participants received a voucher after the baseline assessment and at each follow-up interview.

In all, 756 people (mean age=45 years, 62% male) gave consent to participate in the trial. At baseline, 622 (82%) people screened positive for hazardous or harmful drinking. The majority of patients (99% or more) received the booklet and brief advice. However, Only 57% (n=143) of those allocated to brief lifestyle counselling attended the subsequent session. The proportion of participants who screened negative on AUDIT was increased at 6 months compared with baseline in all groups, but the difference between groups was not significant.

The authors noted that ascertaining whether interventions were delivered as intended was difficult, and that the lack of difference may have been due to unsuccessful implementation of the brief interventions. Additionally, because a large proportion of people in the brief lifestyle counselling group did not return for that session, the effectiveness of this level of input may have been reduced. However, this level of dropout would probably be seen in usual practice.

Conclusions on brief advice in primary care

This evidence suggests that brief advice or lifestyle counselling may not reduce drinking more than personalised feedback after screening plus a patient information leaflet; the effect of lifestyle counselling may have been reduced because many patients did not attend a subsequent counselling session. This evidence is not likely to have an impact on NICE PH24.

Key reference

Kaner E, Bland M Cassidy P et al. (2013) Effectiveness of screening and brief alcohol intervention in primary care (SIPS trial): pragmatic cluster randomised controlled trial. BMJ 346: e8501

Cost-effectiveness of screening and brief advice intervention

In an update of the modelling used in the development of NICE PH24, **Purshouse et al. (2012)** modelled the cost-effectiveness of screening and brief intervention to prevent alcohol-use disorders in primary care. The model considered pre-intervention distributions of mean and heavy episodic alcohol consumption, and estimated how these distributions change over time with an intervention. Health-related quality of life gains to drinkers and costs to the healthcare system were analysed over a 30-year period to account for the effects of a 10-year screening programme.

The UK population of people aged 16 years or older was assumed to have opportunistic screening once in 10 years, either at registration with a new general practitioner (base-case scenario), or at a subsequent appointment. All people who screened positive (on AUDIT) were assumed to immediately be offered and accept the brief intervention (of 5 minutes in the base case). The effects of the intervention were a relative reduction in mean consumption, which would rebound to pre-intervention levels over the subsequent 7 years. The base-case scenario assumed that weekly drinking would be reduced by 12.3% and in sensitivity analysis a pessimistic assumption of 5.9% reduction in weekly drinking was used. The cost of the screening and brief intervention was based on a practice nurse doing the screening at registration with a new general practice and on a general practitioner doing the screening during an appointment.

For screening at registration at a general practice, about 2.5 million people would have screening each year, with a steady distribution over time and an annual cost of about £10 million. After 10 years, 33–40% of hazardous and harmful drinkers would have received an intervention. For screening at the next general practice appointment, about 35 million people would be screened in the first year, so most of the cost of the programme (£700 million overall) would accrue in the first few years. After 10 years, 71–89% of hazardous or harmful drinkers would have received an intervention.

The next-registration screening would prevent 4780 cases of illness in the 10th year of the programme. The £95 million cost of implementing next-registration screening over 10 years would be offset by savings of £215 million in alcohol-related costs over 30 years. In reasonably realistic pessimistic analyses, the intervention remained cost saving, but in the most pessimistic analysis, it cost £75,000 per quality-adjusted life year gained.

The authors noted that their model used scenario analyses to explore the uncertainty around how long an intervention would take, how many times an intervention would be repeated and whether the intervention was delivered by a nurse or GP. However, they acknowledged that their deterministic approach did not account for joint uncertainty on model parameters and differences between patients. Additionally, the targeting of screening to specific age groups could not be modelled.

Conclusions on cost-effectiveness of screening and brief advice intervention

This evidence suggests that costs of implementing schemes to increase screening and brief interventions for alcohol-use disorders may be offset by long-term savings. This evidence strengthens the recommendations in NICE PH24.

Key reference

Purshouse RC, Brennan A, Rafia R et al. (2012) Modelling the cost-effectiveness of alcohol screening and brief interventions in primary care in England. Alcohol and Alcoholism 48: 180–8

Screening and brief intervention in sexual health clinics

Lane et al. (2008) reported a study of screening and brief intervention delivered by a nurse in a sexual health clinic in Australia. Effectiveness was measured by participants' recall of the intervention and change in self-reported drinking behaviour or reduction in consumption at 3 months. People aged 16 years and older were asked whether they wished to participate in a survey about alcohol while they waited to see clinic staff.

Participants completed the AUDIT questionnaire in private on a handheld computer. On returning the computer to the nurse, anyone scoring 8 or more, or scoring 3 or 4 on the question about binge drinking, was asked to participate further and whether they would be available for telephone follow-up in 3 months' time. People who provided written consent were then randomly allocated to a 5–10 minute brief intervention or to control.

At the follow-up telephone call, AUDIT (adapted for a 3-month period) was administered, and questions were asked about changes in alcohol consumption or participating in treatment programmes. Participants were additionally asked about whether being asked about alcohol and getting advice from a research nurse had been acceptable. Of 519 people who agreed to initial screening, 511 gave information on gender and age (mean age=34 years, 74% male).

An AUDIT score of 8 or more was seen in 40% of participants: of the 204 people eligible for the randomised part of the study, 184 consented to participate – 97 in the control group and 87 in the intervention group.

Follow-up was completed by 66 people in the intervention group and 67 people in the control group. Overall, 31% of people reduced their drinking to a level at which their drinking was no longer categorised as harmful or hazardous. AUDIT score reduced significantly from baseline in the intervention (−3.3, 95% CI −2.1 to −4.8, p<0.001) and the control (−2.2, 95% CI −1.06

to −3.4, p<0.01) groups, but the difference between groups was not significant. The advice was acceptable to 53 (80%) participants in the intervention group and to 46 (70%) participants in the control group.

Conclusions on screening and brief intervention in sexual health clinics

This evidence suggests that nurse-led brief interventions to reduce alcohol use delivered in a sexual health clinic may be acceptable to patients in this setting but may not be effective in reducing harmful or hazardous drinking. This evidence is unlikely to affect NICE PH24.

Key reference

Lane J, Proude EM, Conigrave KM et al. (2008) Nurse-provided screening and brief intervention for risky alcohol consumption by sexual health clinic patients. Sexually Transmitted Infections 84: 534–7

Brief intervention in emergency departments

Roudsari et al. (2009) conducted a randomised trial assessing a brief intervention to reduce the risk of all injuries, alcohol-related injuries, and serious injuries in adults admitted to an urban emergency department in the USA. The population was stratified by ethnic origin, defined in the study as black, Hispanic, or white. Adults presenting to the emergency department were eligible if they spoke English or Spanish, had an identifiable residence, were not in police custody, were not judged to be actively suicidal or have psychosis, were not presenting because of sexual assault, or could not have a face-to-face interview – including those with a score of less than 14 on the Glasgow Coma Scale.

Most eligible patients (90% of 6380) underwent screening for positive blood-alcohol content, self-reported drinking within 6 hours before injury, positive answers on the CAGE alcoholism questionnaire, or binge drinking. Those screening positive and who provided written informed consent were interviewed by a trained health educator within 24 hours of enrolment (n=1493).

People were randomly assigned to either assessment only or to assessment plus brief intervention, and the health educators were blinded to allocation until after the assessment. Participants were randomised by ethnic origin to ensure equal distribution between intervention and control groups.

The brief intervention was described as a non-confrontational patient-centred conversation about the patient's drinking pattern with the aim of encouraging a reduction in risky drinking. After assessment all patients screening positive were referred to a drug or alcohol counsellor or other appropriate services, which was consistent with standard practice. Participants were followed up at 6 and 12 months, and cash incentives were used at each interview.

Generally, no statistically significant effect was seen for injury outcomes at 6 months or between 6 and 12 months – although black participants receiving the brief intervention had a higher risk of any injury in the second 6-month period (28 injuries) than black participants in the control group (14 injuries, RR=1.92, 95% CI 1.05 to 3.53). However, because the number of injuries was fairly low, this finding may be due to chance, and alcohol-related injuries did not show a corresponding increase.

The authors noted that the extensive assessment received by all participants had similarities to brief motivational intervention, which could have contributed to the lack of significant difference between the intervention and control groups. The same person conducted the assessments and the brief intervention, and the lack of standard protocol for implementing brief interventions in the emergency department may have led to inconsistencies in how the intervention was delivered.

Conclusions on brief intervention in emergency departments

This evidence suggests that brief intervention to reduce alcohol use delivered in the emergency department may not reduce subsequent injuries. This evidence is unlikely to affect recommendations in NICE PH24.

Key reference

Roudsari B, Caetano R, Frankowski R, et al. (2009) Do minority or white patients respond to brief alcohol intervention in trauma centers? A randomized trial. Annals of Emergency Medicine 54: 285–93 [NIH Public Access author manuscript – full text]

1.11 Extended brief interventions for adults

NICE PH24 recommends offering an extended brief intervention to help people address their alcohol use. This could take the form of motivational interviewing or motivational-enhancement therapy. Sessions should last from 20 to 30 minutes. They should aim to help people to reduce the amount they drink to low risk levels, reduce risk-taking behaviour as a result of drinking alcohol or to consider abstinence. Healthcare professionals should follow up and assess people who have received an extended brief intervention. Where necessary, up to 4 additional sessions or referral to a specialist alcohol treatment service should be offered.

See NICE PH24 for the full recommendation on extended brief interventions for adults.

Brief interventions in primary care

Sullivan et al. (2011) did a meta-analysis of 13 studies (n=4140) of brief interventions for reduction of alcohol use delivered in primary care by healthcare staff other than doctors. The primary outcome was difference in mean number of standard drinks consumed per week between treatment and control at 6 months. Any data reporting alcohol consumption in grams was converted to standard drinks (14 g=1 drink).

Studies ranged in duration of the brief intervention: from one 5-minute session to 6 sessions of 90 minutes, and follow-up ranged from 6 weeks to 10 years. Interventions delivered by non-doctors were compared with delivery by doctors in 6 studies, 2 assessed interventions delivered by doctors and also by other staff, and 5 evaluated interventions delivered by only clinicians other than doctors. Control groups received very brief advice delivered either by doctors or by other clinicians. Participants were categorised as having harmful or hazardous alcohol use in 11 studies and as having alcohol misuse or dependence in 2 studies. All studies used self-report of alcohol, which was supplemented with laboratory tests in 7 studies.

Meta-analysis was possible for 7 studies (n=2210), which showed a non-significant reduction of 1.73 standard drinks per week (95% CI −0.03 to 3.50, p=0.054). One study appeared to contribute disproportionate heterogeneity, and exclusion of this study resulted in a slightly smaller effect size, but the reduction in mean number of drinks was now statistically significant (mean difference=1.36, 95% CI 0.30 to 2.43, p=0.012).

The authors concluded that there was evidence that non-physician interventions are as effective as those delivered by doctors. Additionally they noted that the included studies were of fair quality at best, mainly because of issues in blinding and loss to follow-up. Some of the included intensive multicontact interventions may not meet the definition of brief interventions. Finally, heterogeneity between studies may reduce the validity of the findings.

Jonas et al. (2012) undertook a systematic review and meta-analysis to evaluate screening followed by behavioural counselling for alcohol-use disorders in primary care. The review included 23 randomised controlled trials of at least 6 months' duration in adults or young people identified by screening in primary care and reporting behavioural or health outcomes. Primary care doctors delivered the intervention in 14 studies, in some cases with the help of a nurse or health educator. Other trials used nurses, physician's assistants, psychologists or

researchers to deliver the intervention. Most trials assessed brief interventions or brief multicontact interventions, although some trials assessed extended multicontact interventions.

Interventions were heterogeneous and encompassed brief advice, feedback, motivational interviews, self-completed action plans, written health education or self-help information, or problem-solving exercises to complete at home. Most comparator groups received screening or assessment with usual care or were given written health information.

Brief multicontact interventions had the best evidence of effectiveness across outcomes, including:

- change in alcohol consumption at 12 months (mean difference=−4.407 drinks per week, 95% CI −6.084 to −2.730 drinks per week, p<0.001) compared with control
- achieving recommended drinking levels at 12 months (risk difference=0.149, 95% CI 0.109 to 0.188, p<0.001)
- reducing heavy drinking episodes at 12 months interventions (risk difference=0.106, 95% CI 0.056 to 0.157, p<0.001).

Extended multicontact interventions were significantly associated with a reduction in alcohol consumption at 12 months (mean difference=−2.546 drinks per week, 95% CI −4.767 to −0.325 drinks per week, p=0.025), but brief single contact interventions had no significant effect. Brief single contact interventions (risk difference=0.079, 95% CI 0.039 to 0.120, p<0.001) and very brief interventions (risk difference=0.080, 95% CI 0.019 to 0.141, p=0.01) were effective for achieving recommended drinking levels at 12 months. Both brief multicontact and extended multicontact interventions were significantly better than control for reducing heavy drinking episodes at 12 months (risk difference=0.118, 95% CI 0.074 to 0.162), but brief interventions were not. No significant differences in mortality were seen for any type of intervention, and no evidence of direct harms of interventions was noted.

The authors observed that most evidence was from self-reports of alcohol use. Assessments in control groups may have resulted in behaviour changes, which could bias results towards showing no effect of the intervention.

Conclusions on brief interventions in primary care

The results of these studies suggest that brief or extended multicontact interventions delivered in primary care may be effective in reducing alcohol consumption. This evidence is consistent with the recommendation in NICE PH24 to offer up to 5 sessions of brief intervention.

Key references

Jonas DE, Garbutt JC, Amick HR et al. (2012) Behavioral counseling after screening for alcohol misuse in primary care: a systematic review and meta-analysis for the U.S. Preventive Services Task Force. Annals of internal Medicine 157: 645–54

Sullivan LE, Tetrault JM, Braithwaite RS et al. (2011) A meta-analysis of the efficacy of nonphysician brief interventions for unhealthy alcohol use: implications for the patient-centred medical home. The American Journal on Addictions 20: 343–56

1.12 Referral

No new key evidence for this section was selected for inclusion in this Evidence Update.

Areas not currently covered by NICE PH24

Computer-based brief interventions

Khadjesari et al. (2010) conducted a systematic review of randomised controlled trials in adults comparing computer-based behavioural interventions with either minimally active comparator or control with change in alcohol consumption as an outcome. Of the 24 studies identified, most were conducted in the USA (18 studies) and mainly recruited students (18 studies). Minimally active comparator was used in 22 studies, which generally consisted of assessment plus information about alcohol harms or waiting list.

Interventions were available online in 14 studies; 1 sent text messages to hand-held computers, and the remainder were available on a specific computer. In 15 studies personalised feedback on current levels of drinking and comparison with safe drinking levels was given. Interventions were based on principles of motivational interviewing, brief interventions or the social norms approach.

Meta-analysis of computer-based interventions versus minimally active comparator included 16 studies (n=3118). The computer-based intervention was associated with a greater reduction in drinking than minimally active comparator (mean difference=−25.88 g ethanol per week, 95% CI −40.78 to −10.98), which equates to a reduction of 3.24 units of alcohol per week. Heterogeneity between the results of individual studies was substantial.

The authors noted that several studies reported skewed data that was summarised using the mean. Sensitivity analysis of 5 studies that had no skewed data or reported either median or back-transformed data showed no significant difference in alcohol consumed per week between computer-based interventions and minimally active comparator. No significant difference in drinking was seen between computer-based interventions and active comparator (3 studies, n=457).

Only 3 studies had a low risk of bias in allocation concealment, others provided insufficient information to assess the risk of bias. Additionally, the authors noted that current evidence is limited by small sample sizes, short-term follow-up, and the fact that few studies included non-student adults or active comparators.

Conclusions on computer-based brief interventions

This study suggests computer-based interventions may be effective for reducing drinking but that the evidence base seems to be inconsistent in both results and quality of studies. Therefore, no impact on NICE PH24 is expected.

Key reference

Khadjesari Z, Murray E, Hewitt C et al. (2010) Can stand-alone computer-based interventions reduce alcohol consumption? A systematic review. Addiction 106: 267–82

Social norms interventions

NICE PH24 does not include recommendations on social norms interventions.

Moreira et al. (2010) did a Cochrane review of randomised controlled trials that assessed social norms interventions compared with control, alcohol education leaflet, or other non-normative feedback intervention. Social norms interventions aim to show a person how their level of drinking relates to that of their peers, and to address any misperceptions, for example beliefs that peers drink more than they actually do. Interventions were categorised as: mailed feedback, web feedback, individual feedback, group face-to-face feedback and social marketing. A total of 22 studies (n=7275) were identified.

For studies with a follow-up of up to 3 months, web feedback was associated with a significant effect on alcohol-related problems (standardised mean difference [SMD]=−0.31,

95% CI −0.59 to −0.20, p=0.03; 3 studies, n=278) and on binge drinking (SMD=−0.47, 95% CI −0.92 to −0.03, p=0.04; 1 study, n=80). However, mailed feedback, individual face-to-face and group face-to-face interventions did not significantly affect alcohol-related problems or binge drinking. In 14 studies assessing quantity of alcohol consumption (n=1663), no significant effect was seen for any type of intervention.

For studies with a follow-up of 4–16 months, alcohol-related problems were significantly affected by web feedback (SMD=−0.26, 95% CI −0.45 to −0.07, p=0.009; 3 studies, n=415) and by individual face-to-face interventions (SMD=−0.24, 95% CI −0.42 to −0.07, p=0.005; 5 studies, n=533), but not by mailed feedback. In 9 studies (n=1158), quantity of drinking or binge drinking were not significantly affected by interventions using mailed feedback, web feedback or individual face-to-face feedback.

The authors noted that only a few of the included studies adequately reported methodology such as allocation concealment and handling of missing data, thus they could not rule out the possibility that the effects noted in the review may be exaggerated because of methodological limitations. The authors considered 12 studies that did not do intention-to-treat analysis and had moderate to high levels of attrition to be at high risk of bias.

Conclusions on social norms interventions

The results of this systematic review suggest that social norms interventions may not be effective in reducing quantity of drinking and effects on binge drinking seem to be inconsistent, but interventions involving web-feedback may reduce alcohol-related problems. This evidence is unlikely to impact on NICE PH24.

Key reference

Moreira MT, Smith LA, Foxcroft D (2009) Social norms interventions to reduce alcohol misuse in university or college students. Cochrane Database of Systematic Reviews issue 3: CD006748

2 New evidence uncertainties

No new evidence uncertainties were identified during the Evidence Update process, however current uncertainties for alcohol use disorders can be found in the UK Database of Uncertainties about the Effects of Treatments (DUETs) at and in the NICE research recommendations database.

UK DUETs was established to publish uncertainties about the effects of treatments that cannot currently be answered by referring to reliable up-to-date systematic reviews of existing research evidence.

Appendix A: Methodology

Scope

The scope of this Evidence Update is taken from the scope of the reference guidance:

- Alcohol-use disorders: preventing harmful drinking. NICE public health guidance 24 (2010)

Searches

The literature was searched to identify studies and reviews relevant to the scope. Searches were conducted of the following databases, covering the dates 1 January 2008 (the end of the search period of NICE public health guidance 24) to 9 July 2013:

- ASSIA (Applied Social Science Index and Abstracts)
- CDSR (Cochrane Database of Systematic Reviews)
- CENTRAL (Cochrane Central Register of Controlled Trials)
- DARE (Database of Abstracts of Reviews of Effects)
- EconLit
- HTA (Health Technology Assessment) database
- MEDLINE (Medical Literature Analysis and Retrieval System Online)
- MEDLINE in-process
- NHS EED (NHS Economic Evaluation Database)
- Pubmed
- Social Science Citation Index

The Evidence Update search strategy replicates the strategy used by the original guidance (for key words, index terms and combining concepts) as far as possible. If this is not practical, then the search replicates the basic PICO (population, intervention, comparison, outcome) structure of the original searches. Where necessary, the strategy is adapted to take account of changes in search platforms and updated indexing language.

The strategy was designed using a mixture of terminology taken from original searches, emergent searches, the Knowledge Update 2010 and the systematic review produced by ScHARR for NICE PH24. Terms were also added as a result of scoping searches.

Table 1 provides details of the MEDLINE search strategy used (based on the search strategy for the reference guidance), which was adapted to search the other databases listed above. The search strategy was used in conjunction with validated Scottish Intercollegiate Guidelines Network search filters for RCTs and systematic reviews.

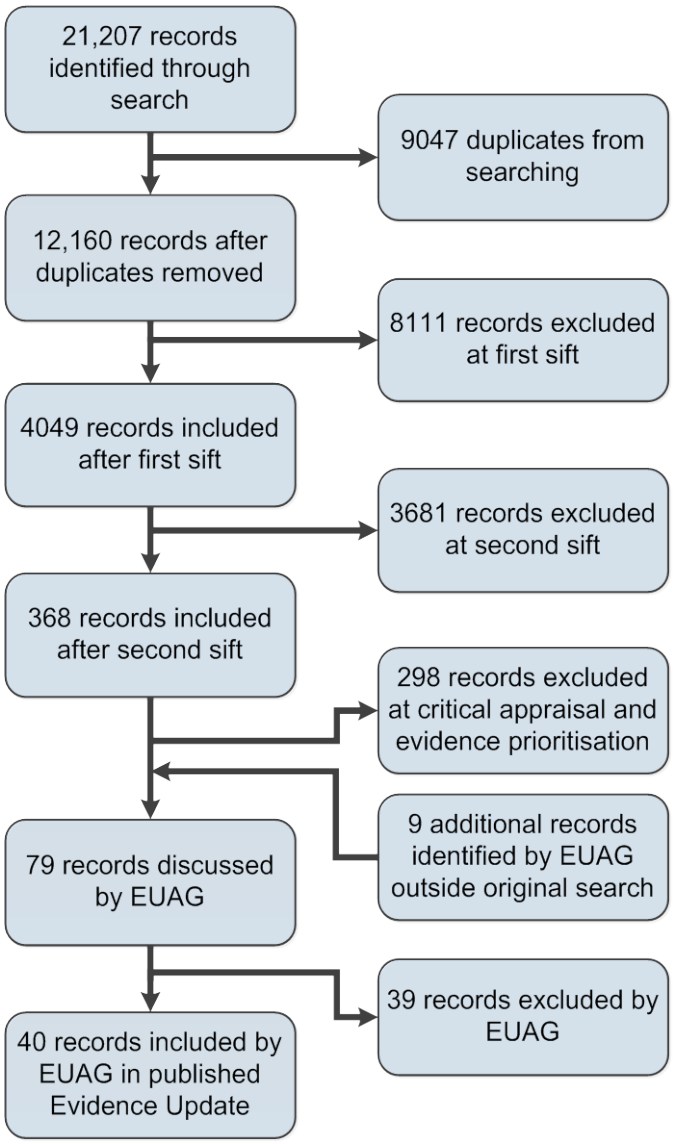
Additionally, 7 studies (de Bruijn et al. 2012, de Bruijn 2013, Byrnes et al. 2013, Byrnes et al. 2013, Meng et al. 2013, Winpenny et al. 2012, and Xuan et al. 2013) were identified outside of the literature search. Figure 1 provides details of the evidence selection process. The list of evidence excluded after review by the Chair of the EUAG, and the full search strategies, are available on request from contactus@evidence.nhs.uk

See the NICE Evidence Services website for more information about how NICE Evidence Updates are developed.

Table 1 MEDLINE search strategy (adapted for individual databases)

1	Alcohol Drinking/pc [Prevention & Control]
2	alcohol drinking/ or binge drinking/
3	Alcoholic Beverages/
4	alcohol*.ti,ab.
5	hazardous drink*.ti,ab.
6	harmful drink*.ti,ab.
7	excessive drink*.ti,ab.
8	alcohol dependen*.ti,ab.
9	problem drink*.ti,ab.
10	Drinking behaviour*.ti,ab.
11	or/1-10
12	Substance Abuse Detection/
13	Questionnaires/
14	screen*.ti,ab.
15	indicator*.ti,ab.
16	sign*.ti,ab.
17	CAGE.ti,ab.
18	AUDIT.ti,ab.
19	AUDIT C.ti,ab.
20	AUDIT PC.ti,ab.
21	FAST.ti,ab.
22	paddington alcohol test.ti,ab.
23	PAT.ti,ab.
24	michigan alcohol screening test.ti,ab.
25	MAST.ti,ab.
26	5 shot.ti,ab.
27	5shot.ti,ab.
28	fiveshot.ti,ab.
29	five shot.ti,ab.
30	Five-shot.ti,ab.
31	SASSI.ti,ab.
32	SASQ.ti,ab.
33	gamma-Glutamyltransferase/
34	Gamma-glutamyl transferase.ti,ab.
35	gamma-glutamyl transpeptidase.ti,ab.
36	GGT.ti,ab.
37	gamma GT.ti,ab.
38	mean corpuscular volume.ti,ab.
39	MCV.ti,ab.
40	biochemical indicator*.ti,ab.
41	biochemical marker*.ti,ab.
42	or/12-41
43	Intervention*.ti,ab.
44	counsel*.ti,ab.
45	brief intervention*.ti,ab.
46	brief advice.ti,ab.
47	or/43-46
48	Alcoholic Beverages/ec [Economics]
49	Alcoholic Beverages/sd [Supply & Distribution]
50	Alcohol Drinking/ec [Economics]
51	campaign*.ti,ab.
52	promot*.ti,ab.
53	Product labelling/
54	Advertising as Topic/
55	Advertising as Topic/lj [Legislation & Jurisprudence]
56	advert*.ti,ab.
57	publici*.ti,ab.
58	market*.ti,ab.
59	pric*.ti,ab.
60	access*.ti,ab.
61	availability.ti,ab.
62	sale*.ti,ab.
63	distribut*.ti,ab.
64	restrict*.ti,ab.
65	outlet*.ti,ab.
66	or/48-65
67	11 and 42
68	11 and 47
69	11 and 66

Figure 1 Flow chart of the evidence selection process



EUAG – Evidence Update Advisory Group

Appendix B: The Evidence Update Advisory Group and Evidence Update project team

Evidence Update Advisory Group

The Evidence Update Advisory Group is a group of topic experts who reviewed the prioritised evidence from the literature search and advised on the development of the Evidence Update.

Professor Eileen Kaner – Chair

Institute Director and Professor of Public Health Research, Newcastle University

Professor Peter Anderson

Professor, Substance Use, Policy and Practice, Institute of Health and Society, Newcastle University

John Dervan

Retired Chief Executive, Alcohol Treatment Agency

Sadly, John died during the development of this Evidence Update. John was a great help to this Evidence Update and will be sadly missed by his family and colleagues alike.

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