Appraisal for screening for alcohol misuse

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Summary

Alcohol misuse is a significant cause of mortality, morbidity and social issues in the UK. On a population level the majority of alcohol-related harm is not due to drinkers with severe alcohol dependence but attributable to the much larger group of drinkers whose consumption is harmful or hazardous leading to an increased risk of physical, psychological and social harm (Kaner & Dickinson *et al* 2009). The impact of alcohol misuse on health of the individual has been extensively documented (WHO 2007, Office for National Statistics 2011, General Register for Scotland 2010). In England in 2009 there were 6,582 deaths wholly related to alcohol, an increase of 20% from 2001. The majority of deaths (4,145) were caused by alcoholic liver disease (Office for National Statistics, 2011). In Scotland in 2009 it was estimated that there were 1,282 deaths directly attributable to alcohol consumption (General Register for Scotland 2010). The NSC has undertaken this review to establish the NSC's policy in this area in the light of the increasing harms caused by alcohol misuse in the UK and the use of screening tools to identify people who misuse alcohol. This review is solely for the purpose of determining whether a formal NSC population wide screening programme would be appropriate for alcohol misuse.

The UK NSC has not in the past reviewed the evidence for a formal population based screening programme for alcohol misuse. This review therefore addresses the question of whether screening for alcohol misuse meets the UK NSC's criteria for a new formal screening programme. The review does not assess those services which are currently commissioned within the NHS to identify and treat alcohol misuse such as current case finding and advice to those who misuse alcohol (also known as 'Identification and Brief Advice'). Neither does it seek to assess the 'Screening and Intervention Programme for Sensible Drinking' (SIPS) research trials which have been taking place over the last two years and which are due to publish their respective reports shortly.

For this review we have used as a baseline the report by the School of Health and Related Research (ScHaRR), Sheffield University (2010) that informed the NICE guidance. A knowledge update was carried out by Coles (2010) to search for references from the date the ScHARR report was completed to May 2010.

There is significant impetus to commission services in primary care that will identify people who consume too much alcohol and to use brief interventions if clinically appropriate. Current policy directs GPs to offering an alcohol screen to individuals when they first register with a practice. In addition there is the option of

offering a screen to particular high risk groups or people who present with conditions associated with alcohol misuse.

A range of alcohol screening questionnaires have been tested to determine whether they are valid instruments for use with a variety of sub-groups of the population. All the questionnaires are based on self reported behaviour and self reported behaviour change. The Alcohol Use Disorder Identification Test (AUDIT) is the most widely tested screening tool and there is evidence that use of this tool with a cut off point of 8 is effective in identifying Caucasian men who misuse alcohol. However there is no single questionnaire or test which has been validated for all sub-groups of the whole population. Cut off points have yet to be defined for some sub-groups of the population such as young people, women, cultural minorities and those over 65.

A consequence of using self reported behaviour and behaviour change is that there is no independent measure (such as a biomarker) that can provide a single gold standard against which the screening questionnaires can be measured. This is a prerequisite of a formal screening programme set out in the criteria laid down by the National Screening Committee in the UK.

Brief advice or more in depth motivational interviewing are the interventions used following a positive result from an alcohol screening questionnaire. There are a significant number of randomised controlled trials reviewed by ScHaRR (2010) detailing evidence that opportunistic case finding for alcohol misuse and the delivery of simple advice is effective in lowering alcohol use in some sub-groups of the population. The strongest evidence is that for Caucasian men case finding and brief intervention is effective in reducing exposure to alcohol in the short to medium term (ScHaRR 2010).

There is little evidence about how often screening and delivery of brief interventions should be offered to be effective in reducing alcohol consumption in Caucasian men or other sub-groups of the population.

Currently there is limited evidence and no randomised controlled trials that show that the short/medium term reductions in alcohol intake shown in Caucasian men have an impact on morbidity and mortality rates and social harm. A demonstrable reduction in morbidity and or mortality rates as a result of screening is a prerequisite for a formal screening programme.

The current evidence available about screening and brief interventions for alcohol misuse does not meet a number of the NSC criteria for a formal screening

programme. It is not recommended that a formal screening programme for alcohol misuse is implemented. There are significant trials in progress and the results will inform a future NSC policy update.

1. Introduction

Alcohol misuse is a significant cause of mortality, morbidity and social issues in the UK. In England alone there were 6,582 deaths known to be directly attributable to alcohol misuse in 2009 whilst in 2009/10 there were 1,057,000 hospital admissions with alcohol-related conditions (Office for National Statistics, 2011, North West Public Health Observatory, 2010). One quarter of all adults in 2007 were classified as hazardous or risky drinkers (NHS Information Centre 2009). It has been estimated that in 2003 the costs of alcohol-related anti-social behaviour was £7.3b, whilst the loss of productivity in the workplace was £6.4b (Cabinet Office 2004). The estimated cost to the NHS is £2.7b (Department of Health 2008).

On a population level the majority of alcohol-related harm is not due to drinkers with severe alcohol dependence but attributable to the much larger group of drinkers whose consumption is harmful or hazardous leading to an increased risk of physical, psychological and social harm (Kaner & Dickinson *et al* 2009).

There are alcohol misuse strategies in all the UK countries (Department of Health 2007, Department of Health Social Service and Public Safety 2006, Scottish Executive, 2007, Welsh Assembly Government 2008) and at the 63rd World Health Organisation assembly in March 2010 there was endorsement of the global strategy to reduce the harmful use of alcohol (WHO 2010). The latest policy guidance in England was released by the National Institute of Clinical Excellence (NICE 2010a), outlining 11 recommendations aimed at preventing the development of hazardous and harmful drinking, using both whole population approaches as well as individual health based interventions. The NICE guidance reflects the current view that, in order to reduce alcohol misuse, there needs to be a focus on early identification and management of risky drinking behaviour, limiting access to alcohol in the community by pricing, marketing and licensing interventions whilst also improving access to treatment in health care settings (NICE 2010a). This appraisal is concerned with the early identification and management of risky drinking behaviour in individuals and not with reducing access to alcohol to people in the community.

The term 'screening' is used frequently in the literature for the early identification of risky drinking behaviour however in this case it does not refer to a population based screening programme but to the use of a screening tool to assess an individual's use of alcohol.

The NICE (2010a) guidance states:
'For the purposes of this document screening involves identifying people who are not seeking treatment for alcohol problems but in the view of the professional may have an alcohol misuse disorder. Practitioners may use any type of 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'
Page 8 NICE guidance (2010a).

Raffle and Muir Gray (2007) suggest that the term 'screening' can mean a range of activities from a screening test offered to one person to a rigorously quality assured and evidence based screening programme encompassing all necessary steps for achievement of risk reduction. Indeed GPs may screen individuals with a screening tool for conditions such as Alzheimer's disease and depression which aids clinical decision making but neither condition currently meets the National Screening Committee criteria for a formal screening programme (National Screening Committee 2003, http://www.screening.nhs.uk/criteria, www.screening.nhs.uk/policydb.php).

The WHO report by Heather *et al* (2006) reported that the term 'Screening and brief interventions' was used by many countries to describe initiatives to promote the early identification and management of risky drinking behaviour. The objective was to popularise the use in primary care settings of methods to identify targets of intervention as well as the intervention themselves. In some countries the term 'screening' was not appropriate for use as it implies population based screening programmes which were nationally unpopular. These countries have used the term 'early identification and brief interventions' instead (Heather *et al* 2006).

As a consequence of the National Alcohol Harm Reduction Strategy (Cabinet Office 2004, Department of Health 2007) the Department of Health has set up the 'Screening and Intervention Programme for Sensible Drinking' (SIPS www.sips.iop.kcl.ac.uk). This is a 2 year research programme to provide additional evidence, support and improve implementation of alcohol identification and the delivery of brief advice (IBA). It is being conducted through clustered, randomised clinical trials across primary care accident and emergency departments and the criminal justice system including the probation service.

Ahead of the results from the trials, Primary Care Trusts have been tasked with commissioning services to tackle alcohol-related harm including using a screening tool for all new registrants to GP practices over the age of 16 with the option of

targeting other at risk groups (Department of Health 2009). These services come under Direct Enhanced Services (DES) commissioned through the Primary Care Contract (NHS Employers 2008, Department of Health 2009). Extending coverage to other high risk groups can be set up under an optional Local Enhanced Service (LES) agreement. The latest NICE guidance (NICE 2010a) recommends that NHS professionals should routinely carry out alcohol screening as an integral part of practice and where this is not feasible they should focus on those at increased risk of harm from alcohol or those with alcohol related conditions.

Brief interventions are the first line in the management of those who are identified as drinking to excess with a further three tiers of increasingly complex treatment options depending on an individual's use and dependency on alcohol (National Treatment Agency for Substance Misuse 2006).

With the increased momentum in the UK towards tackling alcohol misuse and the use of screening tools to identify people who are risky drinkers, it was considered timely to clarify the NSC policy in this area.

The UK NSC has not in the past reviewed the evidence for a formal population based screening programme for alcohol misuse. This review therefore addresses the question of whether screening for alcohol misuse meets the UK NSC's criteria for a new formal screening programme. The review does not assess current services commissioned in the NHS to identify patients who misuse alcohol and acknowledges that the best evidence available so far is being used as the basis of guidance to commissioners. This review also does not consider the SIPS research trials which have been taking place over the last two years, as the reports of these trials have not been published yet.

Review process

There are a number of comprehensive reviews of the evidence for screening and treatment for alcohol misuse. For this review we have used as a baseline the report by the School of Health and Related Research, Sheffield University (2010) that informed the NICE guidance. A knowledge update was carried out by Coles (2010) to search for references from the date the ScHARR report was completed to May 2010. A previous knowledge update focussing on management of harmful alcohol consumption in primary care by Pearce-Smith (2007) is available online at: http://www.library.nhs.uk/screening/ViewResource.aspx?resID=239462.
The most current knowledge update search strategy by Coles (2010) is outlined in Appendix 1.

2. The condition should be an important health problem

Alcohol harm manifests itself in a wide variety of different ways. A report by the Cabinet Office Strategy Unit (2004) divided the harm into four broad categories.

- Harm to the health of the individual.
- Crime, anti-social behaviour, domestic violence, drink-driving and its impact on victims.
- Loss of productivity.
- Social harms, including problems within families.

However, alcohol misuse does not automatically lead to harm and the Cabinet Office (2004) state that it is likely that many of those who exceed the levels of alcohol consumption recommended will not suffer harmful effects.

Measuring different levels of alcohol misuse in the population is dependent on individuals accurately self reporting consumption. The source of figures below for lower risk, increasing risk and higher risk drinking is the Office for National Statistics General Lifestyle survey (2009) which is based on self reported consumption.

Lower Risk Drinking: This group of people drink alcohol in line with the Government's recommended lower risk limits and equates to 26.3m people (ONS 2009).

Increasing Risk Drinking: This group is the largest group of people misusing alcohol and is made up of an estimated 7.0m individuals who regularly drink over the recommended limits for lower risk drinking but are not regularly drinking at the higher risk levels (ONS 2009). These drinkers might not currently be experiencing harm from their drinking but are at increasing risk of physical and mental ill-health and of being a victim of crime, contracting a sexually transmitted disease and, for women, being more likely to have an unplanned pregnancy. There are also risks to others such as aggression towards family members, general disorder, accidents and assaults. Increasing risk drinking refers to people consuming between 22-50 units of alcohol per week for men and 15-35 units per week for women (NICE 2010a).

Higher Risk Drinking: This group regularly drink well over the recommended limits and equate to around 2.2 million people (ONS 2009). Higher risk drinkers are those men who regularly drink more than 50 units a week or regularly drink more

than 8 units a day and those women who regularly drink more than 35 units a week or regularly drink more than 6 units a day. This behaviour puts individuals at much greater risk of a wide range of alcohol-related health harms and the consequent costs.

Increasing and higher risk drinkers account for most of the costs (estimated £2.2bn) caused by alcohol-related harm to the health economy (Department of Health 2008).

Dependent Drinking: This group is relatively small at around 3.8% (1.6million) of the population who are 16 and over (Adult Psychiatric Morbidity Survey 2007). Dependent drinking is identified in some increasing risk drinkers but is more prevalent in higher risk drinkers. Rather than being defined by intake, dependence is typified by an increased drive to use alcohol and difficulty controlling its use, despite negative consequences. Individuals who are dependent on alcohol, will give a higher priority to drinking than to other activities and obligations. They will experience increased alcohol tolerance, and a physical withdrawal reaction when alcohol use is discontinued (NICE 2010a).

Binge Drinking: Spanning the lower, increasing and higher risk drinking groups binge drinkers are a group of people who have episodes of drinking during which they drink to intoxication or to get drunk. This is commonly defined for epidemiological purposes as women drinking more than 6 units in any one day or men drinking more than 8 units in any one day. People who become drunk are more likely to be involved in an accident or assault, be charged with a criminal offence, contract a sexually transmitted disease and for women, more likely to have an unplanned pregnancy (Department of Health 2008).

The overall cost of alcohol harm to the NHS is estimated at £2.7 billion per annum at 2006/7 prices in England (Department of Health 2008). In Scotland the estimate is £2.25 billion per annum for 2006/7 (Scottish Government 2008).

Research literature typically uses the WHO definitions of alcohol misuse rather than those outlined by Department of Health above. The WHO definitions are based on the consequences of alcohol misuse not intake.

The following definitions of alcohol misuse by WHO were accessed via http://www.who.int/substance_abuse/terminology/who_lexicon/en/print.html.

Hazardous use: A pattern of substance use that increases the risk of harmful consequences for the user. Hazardous use refers to patterns of use that are of

public health significance despite the absence of any current disorder in the individual user. The term is used currently by WHO but is not a diagnostic term in ICD-I0.

Harmful use: A pattern of psychoactive substance use that is causing damage to health. The damage may be physical or mental. Harmful use commonly, but not invariably, leads to adverse social consequences. The term was introduced in ICD-I0 and replaced "non-dependent use" as a diagnostic term.

Alcohol misuse and crime

Alcohol misuse is linked to anti-social behaviour, public disorder and violence, including domestic violence (Strategy Unit, Interim Analytical Report 2003). There are some offences which are specific to alcohol such as being drunk and disorderly, drunk and incapable, and driving whilst under the influence of alcohol. Many more offences are partly attributable to alcohol misuse because of the effect it has on behaviour. Alcohol impairs cognitive skills which may result in misreading social cues, making bad judgments about risk and responding aggressively to perceived provocation. The Strategy Unit Interim Analytical Report (2003) showed that annually there were an estimated 1.2 million incidents of alcohol-related violence, 80,000 arrests for drunk and disorderly behaviour, 360,000 cases of alcohol-related domestic violence, 19,000 sexual assaults related to alcohol and 85,000 cases of drink driving. This has been put at a cost of up to £7.3bn per annum. The Department for Transport (2010) reported that an estimated 11,990 (5%) of all road casualties occurred when the driver was over the legal alcohol limit. Of all road fatalities 380 (17%) were due to drink driving accidents. Over the last 30 years there has been a year on year decrease in the number of all types of casualties involved in drink driving accidents (Department of Transport 2010).

Alcohol misuse, social harm and loss of productivity

There are a number of social harms that are linked to alcohol misuse including work place productivity, poor parenting, relationship breakdown, domestic violence and unsafe or regretted sex, truancy, anti-social behaviour, homelessness and street drinking (Strategy Unit, Interim Analytical Report 2003). Alcohol-related sickness absence from work was estimated between 11-17m days in 2001 costing between £1.2bn and £1.8bn to the economy. It is difficult to quantify the impact of alcohol on family and personal relationships but it is estimated that between 780,000 and 1.3m children are affected by parental alcohol problems in the UK. Difficulties in putting a value on suffering and defining the role of alcohol compared to other factors in complex problems means there is little reliable data on the cost of alcohol misuse and social harm.

3. The epidemiology and natural history of the condition, including development from latent to declared disease, should be adequately understood and there should be a detectable risk factor, disease marker, latent period or early symptomatic stage

Typically, excessive drinking is not considered to be a condition in itself unless it develops into alcohol dependence. Prior to this stage misuse of alcohol is a risk factor for a variety of disease conditions and alcohol-related criminal and social harm.

The impact of alcohol misuse on health of the individual has been extensively documented (WHO 2007, ONS 2009, General Register Office for Scotland 2009). In England in 2009 there were 6582 deaths wholly related to alcohol, an increase of 20% from 2001. The majority of deaths (4154) were caused by alcoholic liver disease (ONS 2009). In Scotland in 2009 it was estimated that there were 1282 deaths directly attributable to alcohol consumption, equating to around 2% of all deaths (Information Services Division Scotland, 2009).

In 2008/9 there were 1,057,000 hospital admissions linked to alcohol related diseases or injury, a 64% increase on the 2004 levels (NWPH 2010).

The North West Public Health Observatory (Jones *et al* 2008) have analysed data from 2005 to determine the total number of deaths wholly or partially due to alcohol consumption (Table 1). There are 12 ICD-10 diagnostic groups listing diseases wholly attributable to alcohol consumption (eg: alcoholic liver disease, alcohol brain disease) and a number of conditions partially attributable to alcohol consumption such as cardiovascular disease, diseases of the nervous and digestive systems and some cancers. Overall Jones *et al* (2008) calculated that the total number of deaths attributed to alcohol in 2005 was 14,982. There are alleged protective effects of drinking alcohol within recommended limits and Jones *et al* (2008) estimated a figure of 3,813 prevented deaths per year for those under 75. The protective effect may also reduce hospital admissions by 34,528.
There is still debate about whether this protective effect is real or whether the inclusion of people who abstain (associated with age and illness) leads to an overestimate of the cardio-protective effect (Fillmore *et al* 2006).

Gender, age and alcohol misuse

In 2007 in England, of people aged 16–74, 27% of men and 14% of women were estimated to drink hazardous levels of alcohol with a further 6% of men and 2% of women drinking at harmful levels. There were 9.3% of men dependent on alcohol in 2007 compared to 11.5% in 2000, whereas 3.6% of women were dependent in 2007 compared to 2.8% in 2000. Only very small proportions (0.1%) of all men were severely dependent on alcohol with the remainder being mostly mildly dependent. Virtually all women were only mildly dependent on alcohol (NHS Information Centre 2009).

Jones *et al* (2008) reported the total proportion of alcohol attributable deaths in England in 2005 as 4.4% of all male deaths and 2% of all female deaths.

Table 1: Number and % of all deaths by gender in each age group attributable to alcohol consumption in 2005.

Age	Males	Males	Females	Females	Total	Total
	N	%	N	%	N	%
16–24	438	26.6%	107	14.7%	546	22.9%
25–34	607	22.5%	200	15.0%	808	20.0%
35–44	1241	21.6%	514	14.7%	1756	19%
45–54	1972	17.4%	896	11.7%	2869	15.1%
55–64	2254	8.9%	947	5.7%	3202	7.6%
65–74	1727	3.6%	719	2.1%	2446	3.0%
75+	1790	1.4%	1566	0.8%	3357	1.1%
All ages	10031	4.4%	4951	2.0%	14982	3.1%

Source: Jones *et al* (2008)

Table 1 shows that although the oldest age group (75+) had the highest number of alcohol-related deaths (3,357), the youngest age group (16–24 yr olds) had the highest proportion of deaths from alcohol (22.9%). The Interim Analytical Report (2003) noted that those who die from alcohol misuse are dying younger than in previous years. There was a shift especially noticeable for men of the highest death rates peaking at around age 70 in 1991–93 to a peak at around age 55–60 by 2000. Erskine *et al* (2010) found that alcohol-related mortality rates were highest between the age of 45–64 – an age group that contained a quarter of all deaths in England and Wales but accounted for half of all alcohol-related deaths. The ONS (2009) data shows that the proportion of alcohol related deaths accounted for by 35–54 year olds increased from 37% in 1991to 43% in 2009 among men and from 30% in 1991 to 39% in 2009 among women.

Table 2 shows the alcohol consumption by age and gender sourced from the NHS Information Centre 2009). The percentage of people drinking at different levels across the age ranges is remarkably similar until age 65+ when a higher proportion of people are drinking at a lower level. Drinking at different ages is characterized in different ways with different impacts on health and society. The 18-24 year olds are most often associated with binge drinking which can result in very visible social harms; for example 63% of young adult binge drinkers (18-24) admitted to criminal and or disorderly behaviour during or after drinking compared to 34% of regular drinkers of the same age (Home Office 2005).

Table 2: Alcohol consumption per week by age and gender - % of people sampled

Consumption per week	16-24	25-44	45-64	65+	All ages
Men					
Non-drinker	16	9	11	15	11
Under 1 unit	6	6	7	11	8
1-10 units	33	36	29	33	33
11-21 units	19	22	21	18	20
22-35 units	11	14	15	12	13
36-50 units	8	7	8	5	7
51 units and over	7	6	9	5	7
Women					
Non-drinker	18	16	16	27	19
Under 1 unit	8	12	14	23	14
1-7 units	36	34	34	29	33
8-14 units	13	17	15	11	14
15-25 units	11	12	10	6	10
26-35 units	5	5	6	3	5
36 units and over	8	5	5	2	5

Source: NHS Information Centre 2009

Deprivation and alcohol misuse

Erskine *et al* (2010) carried out an ecological study design using the Office for National Statistics agreed definition devised for tracking national trends in alcohol-related deaths and small area level data using the Carstairs index of socioeconomic deprivation. There was a clear increase in alcohol-related mortality with increasing socioeconomic deprivation. They reported that the strength of the association varied with age. The greatest inequalities were seen amongst people aged 25-44 with mortality rates in the most deprived quintile over four times the rates in the least deprived quintile. The NHS Information Centre (2010) reported that the annual General Household Survey has consistently found no excess alcohol

consumption in more socioeconomically deprived groups indicating that factors other than consumption may have an impact on alcohol related deaths.

Ethnicity and alcohol misuse

Levels of alcohol consumption vary with ethnicity. Irish people were more likely than those in the general population to drink more than the recommended daily level on the heaviest drinking day of a typical week (NHS Information Centre 2006). In the general population this figure is 45% of men and 30% of women whereas within the Irish population this is 56% and 36% respectively. All other ethnic minority groups were less likely to misuse alcohol than the general population although with the acculturation of second and third generations this pattern is likely to change.

Bhala *et al* (2009) analysed alcohol-related mortality by country of birth and reported that mortality rates were particularly high for people born in Ireland and Scotland and men born in India. Low alcohol-related mortality was found in women and men born in Bangladesh, Middle East, West Africa, Pakistan, China, Hong Kong and the West Indies.

4. All the cost-effective primary prevention interventions should have been implemented as far as practicable

In addressing alcohol misuse the prevention strategies to deter risky and harmful drinking are being implemented on a population wide basis. In England NICE Guidance (2010a) has recommended changes to the pricing structure, licensing of premises and marketing of alcohol to reduce availability. In Scotland the alcohol action plan (Scottish Executive 2007) also promotes CAFEs (Community Alcohol Free Environments) for young people in addition to other initiatives including a push for increased public awareness of the risks of heavy drinking. Similar educational awareness raising approaches are outlined in the Northern Ireland and Welsh alcohol prevention strategies (Department of Health Social Services and Public Safety 2006, Welsh Assembly Government 2008).

In 2009 the Department of Health published guidance for Primary Care Trusts in England about how to commission services to tackle alcohol misuse. Two thirds of PCTs had prioritized a reduction in alcohol-related harm and were asked to use a screening tool on all new registrants to their GP practices. In addition they were asked to consider targeting the use of the screening tool with other high risk

groups such as all men aged 35–54. The guidance also covers commissioning of treatment services for the full range of people with alcohol misuse problems – from those with mild misuse to those who are heavily dependent drinkers. Other recommendations included linking a specialist alcohol nurse to every accident and emergency unit who could carry out brief advice, and commissioning social marketing activity locally.

The commissioning of primary prevention interventions to tackle alcohol misuse is variable depending on the how individual PCTs prioritize the issue in their local area.

5. If the carriers of a mutation are identified as a result of screening the natural history of people with this status should be understood, including the psychological implications

This is not applicable for alcohol misuse.

6. There should be a simple, safe, precise and validated screening test

The screening test aims to identify people at an earlier stage in the natural history of a disease than if they presented with symptoms (Raffle and Muir Gray 2007). Typically a screening test measures a factor which if present, will, with a high probability, lead to the development of a specific condition. Tests for alcohol misuse however aim to determine a level of risky drinking which may or may not lead to one or more of a range of different conditions or contribute to anti-social behaviour.

Laboratory markers

For very heavy drinkers who are likely to have alcohol dependence some blood tests may be useful. Plasma levels of enzymes such as gamma-glutamyl transpeptidase (GGT), aminotransferase (AST), alanine aminotransferase (ALT), ratio and mean corpuscular volume (MCV) of erythrocytes are commonly used markers for heavy drinking (Coulton *et al* 2006). Liangpunsakul *et al* (2010) evaluated the presence of these markers against self reported alcohol intake and concluded that although useful for heavy drinking they could not detect differences between those people

who drank between 0 and 2 drinks per day and so would be unlikely to detect those who had hazardous or harmful drinking behaviour.

Hermansson *et al* (2000) recruited 570 people when they attended a routine workplace health examination and tested them for carbohydrate-deficient transferring (CDT), GGT and asked them to complete an AUDIT screening questionnaire. 18.4% were screen positive for AUDIT, CDT or both. If AUDIT had been the only tool used 11% would have screened positive. Neumann *et al* (2009) tested blood for a range of biomarkers (CDT, MCV, GGT) taken from patients in an emergency department setting. An alcohol screening questionnaire (AUDIT) and ICD 10 or WHO criteria for harmful alcohol intake were used as a reference standard. The alcohol questionnaire performed better as a screening tool than the biomarkers. Use of three biomarkers resulted in a sensitivity of 55.5% in males and 25.6% in females with a specificity of 78% in males and 85.6% in females.

University of Sheffield (2010) reviewed the evidence of the effectiveness of the use of biomarkers to distinguish between hazardous, harmful and dependent alcohol misuse and concluded that the commonly used laboratory tests had relatively poor screening properties and were of limited value.

Screening questionnaires

The focus for identifying alcohol misuse has been the use of alcohol screening questionnaires, of which a number have been developed. The sensitivity and specificity of the tests are two of the measures used to assess how accurate the test is in predicting the presence or absence of the disease when compared to the best test possible to diagnose a disease (gold standard). The gold standard may not be an absolute measure but will be the most accurate diagnostic tool available.

For harmful, hazardous and dependent alcohol misuse no one gold standard has been used when developing questionnaires for alcohol screening. A range of reference standards have been used in different studies and reported in a range of systematic reviews. These include careful questioning about alcohol consumption or use of the Timeline Follow Back procedure (Aalto *et al* 2006). For dependent drinking reference standards, criteria in DSM (III-R) (Aertgeerts *et al* 2001), DSM(IV) (Coulton *et al* 2006), ICD 10 (Bradley *et al* 1998), and the Composite International Diagnostic Interview (Aertgeerts *et al* 2001) for alcohol dependency have been used.

The Alcohol Smoking and Substance Involvement Screening Test (ASSIST) was developed by the World Health Organisation and evaluated in a wide ranging

international study by the WHO Working Group (2002). Information from the study was used to shorten and modify the questionnaire and the following criteria applied: simplicity, applicability, coverage of key elements, appropriateness for use with a range of people and problems and compatibility with empirical data. In comparison with DSM (IV) (as a reference standard) ASSIST had a sensitivity of 83% and specificity of 79% for hazardous and harmful alcohol misuse (cut off point 5.5) and 67% sensitivity and 60% specificity for harmful use and alcohol dependence (cut off point 10.5).

The Alcohol Use Disorders Identification Test (AUDIT) was developed from a six country WHO collaborative project as a screening instrument for measuring primarily hazardous and harmful alcohol consumption. For use in primary health care settings it comprises a 10 question screening tool covering drinking frequency, intensity, possible alcohol-related problems and signs of dependency (Babor *et al* 2001). The 10 questions were selected from a 150 item assessment schedule which was administered to 1,888 people attending primary healthcare facilities. Of those identified as having hazardous or harmful alcohol use 92% had an AUDIT score of 8 or more and 94% of those with non-hazardous consumption had a score of less than 8 (Saunders *et al* 1993).

Berner *et al* (2007) published a systematic review of the performance of AUDIT in the detection of 'at risk' drinking across a range of settings. Quantity/frequency of alcohol consumption and/or heavy episodic drinking were used as the reference standard. Using a cut-off of <8 the sensitivity ranged from 31% to 89% and specificity from 83% to 96% across 8 primary care based studies.

Reinert and Allen (2007) reviewed the literature about AUDIT and concluded that research consistently confirms the validity of the English version with sensitivities and specificities comparable to and generally exceeding those of other alcohol screening methods.

A general hospital inpatient study reported a sensitivity of 93% and specificity of 94% (Mackenzie *et al* 1996) whilst an emergency department study gave a sensitivity of 75% and specificity of 84% for men and 56% and 96% for women (Neumann *et al* 2009).

A number of shorter versions of AUDIT and other tests have been developed with variable effectiveness for adults in primary care and other settings such as colleges, hospital wards and accident and emergency departments (University of Sheffield 2010). There is a large body of evidence concerned with how the different alcohol screening tools perform with different sub-groups of the population within

different settings which is detailed in the ScHARR report by University of Sheffield (2010). NICE (2010a) recommends that in most cases AUDIT should be used unless there is limited time, when an abbreviated version should be used which is appropriate for the setting.

Testing sub-groups of the population

The systematic review by University of Sheffield (2010) concluded that AUDIT was effective in primary care to identify men with hazardous and harmful alcohol consumption. The report stated that the cut off level for women should be lower than that for men but what this cut off should be was not specified. University of Sheffield (2010) described the evidence that showed that three screening questionnaires, TWEAK, T-ACE and AUDIT were able to satisfactorily identify alcohol misuse during pregnancy.

AUDIT and the shorter version AUDIT-C was found to have limited performance in older people (Berks & McCormick 2008, Berner *et al* 2007, Reinert & Allen 2007) but was considered effective in detecting hazardous drinking in young people in colleges (Berner *et al* 2007, Reinert & Allen 2007). Some studies using AUDIT have shown that it can be effective in detecting alcohol problems in those who are severely mentally ill (Reinert & Allen 2007).

Research evidence outlined by University of Sheffield (2010) suggests that there are differences in the way that the alcohol screening questionnaires perform in different ethnic groups but it is somewhat inconclusive and specific to ethnic populations in the USA.

7. The distribution of the test values in the target population should be known and a suitable cut-off level defined and agreed.

Cut-off levels for AUDIT have been recommended (Babor 2001). However, there is ongoing research to determine whether these cut-offs hold for all sub-groups of the population. The optimal screening threshold for the detection of harmful alcohol intake is +8 for Caucasian men. Evidence outlined by University of Sheffield (2010) indicated that this should be lower for women and other subgroups. NICE (2010a) does not define the lower cut-off level but recognizes that lower cut-offs

may need to be applied to women, women who are pregnant, those from ethnic minorities, adults over 65, and younger people.

Once a screening questionnaire has been completed the professional calculates the score. At this point NICE (2010a) recommends that a clinical decision needs to be made to determine which cut-off point between low risk and increasing risk scores is appropriate for the person (depending on gender, age, ethnicity and if pregnant). Cut-off points between high risk scores and likely dependency also need to be determined.

A fieldwork report that aimed to elicit views on the likelihood of implementing the NICE recommendations indicated that professionals would expect specific guidance about lower cut-offs for vulnerable groups to be given and reasons why specific groups should have a lower score (NICE 2010b).

8. The test should be acceptable to the population

During the development and evaluation of the ASSIST questionnaire focus groups and debriefing sessions for participants were conducted to look at issues around using the test in primary care (WHO 2002). From the debriefing interviews it was reported that 98% thought the questions were not offensive and participants believed 'most people' would be comfortable answering the questions about tobacco and alcohol. Participants from alcohol and drug treatment facilities had higher honesty ratings than those recruited in primary care ($p<0.05$). Interviewers perceived that participants did not find the questions intrusive and that they completed the questionnaire as truthfully as possible

When implementing a screening and brief intervention trial in a Danish primary care setting Beich *et al* (2007) reported that 10.3% (n=794) of the target population (N=7691) explicitly refused screening and an unknown number were unable to complete the questionnaire. After the first consultation 17.9% (n=79) of the intervention group (n=442) returned for a follow up consultation about drinking as suggested by their GP. Some GPs reported that some patients particularly women reacted very defensively when the brief intervention was attempted.

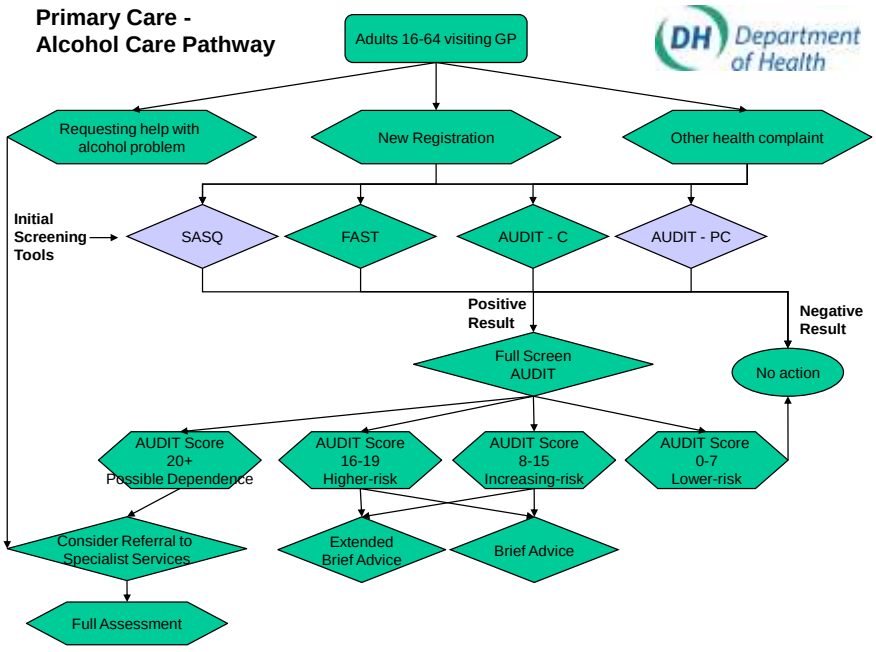
In the US, Miller *et al* (2006) found that of a sample of 159 people (53% black women) 90% were in favour of screening and advice on alcohol use. A screening questionnaire (AUDIT-C) was included in the study and an increased score (≥4) increased the chances that a person would feel embarrassed by questions about alcohol use.

The Fieldwork report that supports the NICE guidance noted that professionals asked about the implementation of the NICE recommendations reported that there may be public resistance to an increased level of scrutiny of the role of alcohol in their lives (NICE 2010b).

9. There should be an agreed policy on the further diagnostic investigation of individuals with a positive test result and on the choices available to those individuals

A pathway has been developed by the Department of Health (Figure 1) for people screened for alcohol misuse as part of the DES commissioned by PCTs through the primary care contract. A short screening test is initially carried out followed by a longer version if the test is positive. If the person has a positive test result at this stage a range of interventions are available based on the level of positive scoring and the clinical judgement of the professional.

Figure 1: Primary care alcohol care pathway.



Source:www.alcoholpolicy.net/2010/09/alcohol-primary-care-service-framework-updated.html

Guidance and recommendations about interventions are outlined by the National Treatment Agency for Substance Misuse (2006) and include brief advice and information, motivational counseling or referral to specialist alcohol treatment services for a full assessment.

10. If the test is for mutations the criteria used to select the subset of mutations to be covered by screening, if all possible mutations are not being tested, should be clearly set out

This criteria does not apply to alcohol misuse

11. There should be an effective treatment or intervention for patients identified through early detection, with evidence of early treatment leading to better outcomes than late treatment

The Models of Care for Alcohol Users (National Treatment Agency for Substance Misuse 2006) outlines 4 tiers of treatment interventions at increasing levels of intensity depending on clinical need.

Tier 1 interventions: alcohol-related information and advice; screening; simple brief interventions; and referral.

Tier 2 interventions: open access, non-care-planned, alcohol-specific interventions.

Tier 3 interventions: community-based, structured, care-planned alcohol treatment.

Tier 4 interventions: alcohol specialist inpatient treatment and residential rehabilitation.

Raistrick *et al* (2006) outline how these tiers form the basis of stepped care whereby alcohol misusers are initially offered the least intrusive and least expensive option that is likely to be effective based on clinical judgement of the severity of the problem. Only if the initial treatment fails would a more intensive option be offered and so on until the person shows improvement.

With early identification of alcohol misuse the majority of people who would score at an increasing or higher risk level of alcohol consumption would be offered Tier 1 services comprising brief interventions. The small proportion of people identified

as dependent with the highest risk scores would be referred to a specialist agency (Figure 1).

Brief Interventions

Brief interventions usually consist of feedback to an individual about their alcohol use with information about what constitutes low risk alcohol consumption, the harms associated with high alcohol consumption and the benefits of reducing intake. They may also include the analysis of potential high risk situations for drinking and coping strategies along with the development of a personal plan to reduce consumption. The form of brief intervention varies but typically they target the sub-group of the population who drink excessively but who do not seek help for alcohol-related problems (Kaner & Dickinson *et al* 2009). Clinicians who are not specialists in brief interventions will require some training in order to deliver them (University of Sheffield 2010).

AERC Alcohol Academy (2010) classified brief interventions into 'simple brief advice' and 'extended brief interventions' or 'brief motivational interviewing'. Simple brief advice entails structured advice lasting 5-10 minutes commonly delivered by non-alcohol specialists (Tier 1 intervention). Extended brief interventions may or may not be delivered in one session and will be longer, 20-30 minutes, requiring the clinician to be trained in motivational interviewing or counselling. Figure 1 – the Department of Health alcohol care pathway – shows that 'extended brief interventions' would be used for people with an AUDIT score of 16-19 with 'simple brief interventions' for people scoring 8-15.

There have been a number of systematic reviews carried out to determine the effectiveness of screening and brief interventions.

Kaner & Dickinson *et al* (2009) reported results of a primary meta-analysis of 22 randomised controlled trials from primary care settings. All but two trials showed a benefit of brief interventions compared to no intervention and the meta-analysis showed that this reduction was an average of 38gm (CI:95% 23g-54g reduction) or 4-5 units per week. The participants of the trials were 70% male and they had a mean reduction of alcohol intake of 57g per week (CI 95% reduction of alcohol intake of between 25-89g per week). When a sub-group analysis was undertaken there was no significant effect of the intervention for women, with a mean reduction of alcohol intake of 10g per week (CI 95% from minus 48 g per week to plus 29g). There were substantial differences in the estimated benefit of brief interventions between studies. At 1 year follow up patients receiving brief intervention had a significant reduction in alcohol consumption compared with

controls. Longer counselling sessions showed little additional effect over brief intervention. Overall where it was reported there was 28% loss to follow up of people in the intervention arm of the trials which was significantly higher than the control groups.

Kaner & Dickinson *et al* (2009) concluded that there needs to be more research to determine the effect of brief intervention in women, younger people and ethnic minority groups.

The University of Sheffield (2010) found considerable heterogeneity between the 27 reviews discussed due to variations in study populations, inclusion criteria and methods of brief intervention. The report concluded that there was some limited evidence that brief interventions may be effective in reducing negative alcohol-related outcomes.

Lundahl *et al* (2010) carried out a meta-analysis of motivational interviewing for a wide range of conditions including alcohol misuse. The overall effect size for this group of 68 alcohol studies was low but significant at $p<.05$ (effect size=0.15[95% CI: 0.09-0.21]). Studies that compared motivational interviewing with the usual treatment involving a specific programme didn't show a significant effect (0.03 [95% CI: 0.08-0.13]) but a significant effect at $p<0.05$ (0.2[95% CI: 0.12-0.27]) was seen when compared with no treatment, written advice or treatment without a specific programme. It is not clear if the alcohol studies included in the meta-analysis involved people seeking treatment or those identified via a screening programme. The effect may be different with only screen detected individuals.

Boland *et al* (2008) reported that evidence is mixed regarding the effect of brief interventions over long follow up periods. Studies vary as to when efficacy of the brief intervention has diminished back to control levels. Kaner & Dickinson *et al* (2009) determined that at 1 year follow up the effect was still significant in many trials and Fleming (2002) demonstrated significant effects lasting for 4 years.

Treatment for alcohol dependency

For those people were there is a high likelihood of alcohol dependency either due to high scoring of the screening questionnaire or clinical judgment against ICD 10 or DSM criteria, referral to a specialist alcohol treatment service is indicated.

Raistrick, Heather and Godfrey (2006) reviewed the effectiveness of treatment for people misusing alcohol, including dependency, and the Department of Health has published guidance about commissioning alcohol treatment options by PCTs

(National Treatment Agency for Substance Misuse 2006). There are a range of interventions that can be used for someone with alcohol dependency following a comprehensive assessment made by specialist alcohol workers.

NICE Guidance: 'Alcohol use-disorders, assessment and management of harmful drinking and alcohol dependence' will be published in 2011.

12. There should be agreed evidence based policies covering which individuals should be offered treatment and the appropriate treatment to be offered

There are three documents either published or planned by NICE which address alcohol-related problems:

> Alcohol-use disorders: preventing the development of hazardous and harmful drinking (NICE 2010a)
>
> Alcohol-use disorders: diagnosis and clinical management of alcohol-related physical complications - (NICE 2010c)
>
> Alcohol use-disorders, assessment and management of harmful drinking and alcohol dependence (publication due February 2011)

Currently PCTs are directed towards 'The Models of Care for Alcohol Users' (National Treatment Agency for Substance Misuse 2006) as models of best practice for providing appropriate treatment services.

In Scotland the Scottish Intercollegiate Guidelines Network have published 'The management of harmful drinking and alcohol dependence in primary care' (SIGN 2003).

13. Clinical management of the condition prior to participation in a screening programme and patient outcomes should be optimised in all health care providers

The clinical management of harmful and hazardous drinking has not yet been optimized in all health care providers although guidance is available about how this should be undertaken.

University of Sheffield (2010) reviewed the barriers to the implementation of screening and brief interventions and concluded that despite a generally positive

attitude towards the intervention it was under-utilized. Training of clinical staff in screening and brief interventions and a non-threatening context in which to approach individuals (such as at registration with a GP practice) enabled professionals to be more comfortable about asking people details of their drinking behaviour.

Data for 2009/10 from the national alcohol treatment monitoring system (National Treatment Agency for Substance Misuse 2011) reported 111,381 people entering treatment, an 11% increase from the previous year. At least 88% of people treated were white and 64% were male. The largest group were self referrals (37%) with 21% referred from GP practices and 10% from the criminal justice system. The median age for both men and women to enter treatment was 41. Of those exiting treatment (63,632) 22% were not dependent any longer, 26% were alcohol free, 7% were referred to other agencies and 41% stopped treatment for a range of reasons (eg: dropped out, moved away).

One third of PCTs have not prioritized alcohol harm reduction and so will not have invested significant resources into these services.

14. There should be evidence from high quality Randomised Controlled Trials that the screening programme is effective in reducing mortality or morbidity

There are no randomized controlled trials that show that a formal screening programme is effective in reducing morbidity and mortality rates associated with alcohol misuse. There is some limited evidence about the impact of screening and brief interventions on rates of morbidity and mortality.

Fleming *et al* (1997) carried out an RCT in 17 primary care practices in Wisconsin and screened 17,695 people for problem drinking using the CAGE questionnaire. 2,925 patients scored a positive result, of those 573 refused to participate further and 164 were not contactable. Following a research lifestyle interview a total of 482 men and 292 women met the inclusion criteria. Those assigned to the control group carried out a further questionnaire and were given written advice, those in the experimental group completed the questionnaire and received two 10-15 minute counselling sessions which included advice and education. At 12 month follow up the participants were interviewed and family members contacted to corroborate their responses. At this stage 10% of the experimental group and 3% of the control group refused to be interviewed or were lost to follow up for other

reasons. Reductions in drinking over time were significant within each group with the experimental group reducing their alcohol use more than the control group. Mean alcohol use (number of drinks) in the previous 7 days dropped from a baseline of 19.1 to 11.5 ($p<.001$) in the experimental group and 18.9 to 15.5 in the control group. There were also significant reductions in the hospitalisation rates between the experimental and control groups ($p<.01$).

Cuijpers *et al* (2004) calculated the relative risk of death in subjects receiving brief intervention vs control in four studies using mortality data that could be verified by a reliable source (eg death certificate). They concluded that a relative risk of mortality in the intervention group compared to the control was RR=0.47 (95%CI 0.35 to 0.89) and the number needed to treat to prevent one death was 282. There were a number limitations to the study; corrections for confounding factors could not be applied, variable follow up periods had to be amalgamated and converted to deaths per life year which ironed out any variability in mortality pattern, and designs of the studies differed considerably especially the content of the brief interventions. The populations of the four studies in the meta-analysis were all different with one targeting elderly people over 65 years old in the US (Fleming *et al* 1999) one targeting adults aged 18-65 in the US (Fleming *et al* 2002), a third study targeting adults aged 18-69 in Australia (Wutze *et al* 2002) and the last study screened men aged 18-65 in four medical wards in the US (Chick *et al* 1985). A number of sensitivity tests were carried out to determine how homogenous the 4 studies were that were included in the meta-analysis and showed that they were comparable. However because of the limitations the authors warned that it would only need one new study with no effect to be found to render the mean RR non-significant and that further long term research would be needed to confirm the research.

In Denmark Beich *et al* (2007) carried out a pragmatic controlled trial to test whether screening and brief interventions as recommended by the WHO (Babor *et al* 2001) were effective in reducing alcohol consumption in people invited via general practice. Out of 426 general practitioners invited to participate 39 agreed to take part in the study. Of the 7,691 people aged between 18-64 eligible for screening 6,897 accepted the test. In all 1,087 (15.8%) screened positive of which 139 had scores which indicated dependency. Brief interventions were carried out at the same appointment when the screening questionnaire was scored. Research follow up was conducted 12-14 months later. The authors found no support that screening and brief intervention would cause self reported weekly consumption to reduce among drinkers identified by the AUDIT questionnaire. In men the mean weekly consumption reduced by 0.6 drinks in the intervention group and rose by 0.8 drinks in the control group ($p=0.31$). In women the intervention group showed

an increase in self reported alcohol consumption (1.7 additional drinks per week) and reduced by 0.1 drink in the control group (p=0.23).

Wurtzke *et al* (2003) found that compared with controls at 9 months people reported significantly lower consumption and less unsafe drinking but at 10 years they failed to find any differences in mortality, median alcohol consumption, and ICD 10 diagnoses of alcohol dependence or harmful alcohol use.

Crawford *et al* (2004) carried out a pragmatic randomised controlled trial in accident and emergency departments. They reported that following opportunistic identification of people misusing alcohol and referral to an alcohol health worker there was a reduction in alcohol consumption at 12 months from 70.8 units per week in controls to 57.2 units. Over a 12 month period there was a reduction in visits to the emergency department of 0.5 visits per person referred. There were no changes in quality of life.

15. Conclusion

There is a vast amount of literature about alcohol misuse, its impact and the interventions that may be appropriate to initiate change in behaviour in the UK. This literature has driven the UK strategy for combating alcohol misuse and the best evidence so far is being used as the basis of guidance to commissioners. There is significant impetus to commission services in primary care that will identify people who consume too much alcohol and to use brief interventions if clinically appropriate. Current Department of Health commissioning guidance (Department of Health 2009) directs GPs to offer an alcohol screen to individuals when they first register with a practice. In addition there is the option of offering a screen to all men aged 35-54. This is based on evidence reported that there is a valid test and intervention which is effective in a reduction in alcohol consumption in this sub-group of the population. NICE guidance (2010a) recommends that NHS professionals should routinely carry out alcohol screening as an integral party of practice and when this isn't feasible to focus on those who are at increased risk of harm from alcohol consumption or those with an alcohol related condition.

The challenge in assessing alcohol misuse as a possible NSC formal screening programme is that research is focused on self reported behaviour and subsequent self reported behaviour change to measure the test and treatment effectiveness. This is similar to smoking cessation initiatives which identify people whose behaviour may have an impact on their long term health with the aim of modifying that behaviour with a range of interventions. As a result of using self reported behaviour and behaviour change there is no independent measure (such as a biomarker) that can provide a single gold standard against which the screening test

can be measured. This is a prerequisite of a formal screening programme and as such screening for alcohol misuse does not meet this NSC criterion.

There is no one valid test that can be used for the whole population and cut-off points have yet to be defined for some sub-groups of the population such as for young people, women, cultural minorities and those over 65. In addition there is limited evidence that brief interventions are effective for these same sub-groups.

There is evidence that under research conditions use of an alcohol screening test and brief intervention can lead to Caucasian men reducing exposure to alcohol in the short to medium term. There is little evidence about how often testing would need to be carried out and whether repeat testing over a period of years would increase the motivation for someone to reduce alcohol intake. There is no clearly identified effective strategy for implementing a formal screening programme for alcohol misuse for any sub-group of the population.

Currently there is limited evidence that the reductions in alcohol intake have an impact on morbidity and mortality rates and social harm. A prerequisite of a formal NSC screening programme is that there is a clear reduction in morbidity and or mortality that can be measured over time by a randomised controlled trial. This evidence is not available for screening for alcohol misuse and therefore it does not meet the NSC criterion.

These are key areas where evidence is lacking for the purposes of a formal NSC population based screening programme. Until more research has been reported a formal NSC screening programme for alcohol use is not recommended. There are significant trials in progress and the results of these will inform a future policy update.

Coulton *et al* (2007) has submitted a Health Technology Assessment trial protocol to carry out a pragmatic randomized controlled trial evaluating the effectiveness and cost effectiveness of opportunistic screening and stepped care interventions for older hazardous alcohol users in primary care. This will be published by the HTA in 2013.

The wide ranging 'Screening and Intervention Programme for Sensible Drinking Programme' (SIPS) will report within the next year on the three cluster randomised controlled trials of alcohol screening and brief intervention in the three settings of primary care (Kaner & Bland *et al* 2009), accident and emergency departments and the criminal justice system. The aim is to assess the most effective screening method, the most effective and cost effective intervention approach, and identify

the barriers to implementation in each setting. The patient outcome measures will be alcohol consumption, alcohol related problems, health related quality of life and health related and wider societal costs.

Results from these research programmes will inform a future NSC policy update on screening. It is important that future research is focused on gathering evidence that the reported reductions in alcohol consumption do translate into reduced rates of morbidity and mortality and social harms. Other areas of research focus should be concerned with effective screening tests and cut off points for sub-groups of the population such as women, young people and cultural minority groups. Similarly, more research into the most effective brief interventions and how these are delivered to sub-groups of the population needs to be undertaken. There also needs to be more evidence to determine which long term screening strategies will be most effective and how they can be implemented on a nationwide scale in real world conditions.

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Appendix

Knowledge update on screening for alcohol problems in adults
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BACKGROUND: The National Institute of Health and Clinical Excellence (NICE) has recently published guidance on *Alcohol-use disorders – preventing the development of hazardous and harmful drinking:* http://guidance.nice.org.uk/PH24 [accessed 12 June 2010]. As part of this process a review – *Screening and Brief Interventions for Prevention and Early Identification of Alcohol Use Disorders in Adults and Young People* – was produced by ScHARR (School of Health and Related Reseaerch) in Sheffield: http://www.nice.org.uk/guidance/index.jsp?action=download&o=45665 [accessed 12 June 2010].

This review was used as the starting point for this knowledge update, and the search strategies used in the ScHARR review were used (and adapted as appropriate) in order to find the evidence published since its publication.

SOURCES SEARCHED: Medline (OvidSP), Embase, PsychINFO, Cinahl, Web of Knowledge and the Cochrane Library.

DATES OF SEARCH: January 2008 – 26 May 2010

SEARCH STRATEGY: details below

All searches carried out on 26 May, limited to 2008-2010
Screening searches

		Medline	Embase	PsycINFO	Cinahl
1	(alcohol$ and screen$3).ti.	117	102	57	75
2	((drink$ and screen$3) not water).ti.	22	18	12	12
3	(CAGE and (alcohol or drink$)).ti.	4	3	5	3
4	((AUDIT or AUDIT C or AUDIT PC) and (alcohol or drink$)).ti.	16	16	13	6
5	(FAST and (alcohol or drink$)).ti.	8	8	2	2
6	(paddington alcohol test or (PAT and (alcohol or drink$))).ti.	1	2	1	0

7	(Michigan alcohol screening test or (MAST and (alcohol or drink$))).ti.	1	1	1	2
8	(5 shot or 5shot or fiveshot or five shot).tw.	1	0	1	1
9	((gamma-glutamyltransferase or GGT or Gamma GT) and alcohol).ti.	9	8	2	3
10	((carbohydrate-deficient transferrin or CDT) and alcohol).ti.	11	9	3	2
11	((mean corpuscular volume or MCV) and alcohol).ti.	2	1	1	1
12	((biochemical indicator$ or biochemical marker$) and alcohol$).ti.	2	2	1	0
13	SASSI.tw.	2	4	8	0
14	SASQ.tw.	4	4	1	0
15	(ASSIST and alcohol$).ti.	4	4	4	7
16	((indicator$ or sign$ or correlate$) and alcohol).ti. [limited to humans]	69	69	65	38
17	((alcohol or (drink$ not water)) and (review$ or systematic or meta or synthesis or analysis)).ti.	357	326	203	107

	Cochrane Library (including CENTRAL, NHS EED, HTA and CRD databases)	
18	(alcohol* and screen*)ti;ab;kw	103

		Web of Knowledge
19	Title=(marker* OR indicator*) AND Title=(alcohol)	65
21	Title=(biochemical indicator* OR biochemical marker*) AND Title=(alcohol)	0
22	Title=(mean corpuscular volume OR MCV) AND Title=(alcohol)	3
23	Title=(carbohydrate-deficient transferrin OR CDT) AND Title=(alcohol)	20
24	Title=(gamma-Glutamyltransferase OR GGT OR Gamma GT) AND Title=(alcohol)	14
25	Title=(drink*) AND Title=(screen*)	41
26	Title=(SASSI) AND Title=(alcohol* OR drink*)	0
27	Title=(SASQ) AND Title=(alcohol* OR drink*)	0
28	Title=(ASSIST) AND Title=(alcohol* OR drink*)	4

29	Title=(5 shot OR 5shot OR fiveshot or five shot) AND Title=(alcohol* OR drink*)	1
30	Title=(Fast alcohol screening test or FAST) AND Title=(alcohol* OR drink*)	28
31	Title=(AUDIT) AND Title=(alcohol* OR drink*)	27
32	Title=(Paddington alcohol test OR PAT) AND Title=(alcohol* OR drink*)	1
33	Title=(CAGE) AND Title=(alcohol* OR drink*)	7
34	Title=(Michigan alcohol screening test or MAST) AND Title=(alcohol* OR drink*)	4
35	Title=(screen*) AND Title=(alcohol)	160
36	Topic=(SASQ)	4
37	Topic=(SASSI) AND Topic=(alcohol)	5

Brief interventions searches

		Medline	Embase	PsycINFO	Cinahl
1	(intervention$ and alcohol$).ti.	183	162	129	113
2	((hazardous drink$3 or harmful drink$3) and intervention$).ti.	9	6	4	1
3	(counsel$4 and alcohol$).ti.	16	17	13	4
4	((excessive drink$3 or alcohol dependen$2) and brief intervention$).ti.	1	2	1	1
5	(systematic review and alcohol$ and intervention$).ti.	8	8	7	5
6	(alcohol$ and brief advice).ti.	2	3	1	1
7	(problem drink$3 and intervention).ti.	4	3	1	3

		Cochrane Library
8	(intervention*):ti,ab,kw and (alcohol* OR drink*):ti,ab,kw	457

		Web of Knowledge
9	Title=(brief) AND Title=(intervention$) AND Title=(drink*)	50
10	Title=(brief) AND Title=(intervention$) AND Title=(alcohol*)	139

Facilitators/barriers searches

		Medline	Embase	PsycINFO	Cinahl

1	((practitioner or professional or doctor) and intervention$ and alcohol$).ti.	0	0	0	0
2	(training and brief and intervention$).ti.	6	5	7	4
3	((patient or client) and alcohol$ and screen$3).ti.	1	1	2	1
4	((patient or client) and (alcohol$ and intervention$)).ti.	5	5	5	3
5	(accept$ and alcohol$).ti.	8	5	8	1
6	(manag$ and drink$3).ti.	14	14	3	5
7	(cop$3 and drink$3).ti.	16	15	17	3
8	(drink$3 behav$ and alcohol$).ti.	32	28	31	24
9	(treat$ and drink$3 behav$).ti.	2	2	1	3
10	((practitioner or professional or doctor) and (patient or client)).mp. and alcohol.ti.	21	37	13	0

		Web of knowledge
11	Topic=(alcohol* OR drink*) AND Topic=(patient) AND Title=(qualitative or interview)	25
12	Title=(intervention*) AND Title=(alcohol*) AND Topic=(patient or client)	53
13	Topic=(practitioner OR professional OR doctor) AND Title=(patient OR client) AND Title=(alcohol)	2

Summary	
Screening searches	2333
Interventions	1364
Facilitators/barriers	428
Total	**4125**

The above search strategies retrieved 4125 references in total. After duplicate references were removed a total of 1757 potentially relevant references were left. The references referred to in the ScHARR report were also removed, leaving 1738 references. The title and abstracts of the remaining citations were scanned for relevance to screening and interventions for alcohol problems in adults, focussing on the following NSC criteria:

- The test

- The treatment (psychosocial interventions and pharmacotherapies)
- The screening programme

Only studies in adults (aged 18 and over) were included. If studies referring to adolescents or youths have been retained, this is because people over the age of 18 have been included as well.

We searched for general population screening but inevitably this led to articles being retrieved on targeted screening and case finding. These were not considered relevant and were not included in the final results.

Articles that looked at macro-level interventions, such as alcohol pricing, advertising or alcohol outlet density etc were also considered out of the scope of this review.
356 references were deemed to be relevant and are classified in to the categories below according to the NSC criteria. There will inevitably be some overlap between categories.

Systematic reviews and meta-analyses	**22**
Screening questionnaires • AUDIT (9) • MAST (1) • CAGE (4) • SASSI (2) • Single screening questionnaire (2) • Miscellaneous questionnaires (12) • Comparisons of questionnaires (12)	**42**
Biomarkers • Carbohydrate-deficient transferring (CDT) (6) • Gamma-glutamyltransferase (GGT) (1) • Miscellaneous (8) • Comparisons between biomarkers (10) • Comparisons of questionnaires with biomarkers (2) • Combination of questionnaires and biomarkers (1) • Costs (1)	**29**
Screening and interventions • Screening and brief interventions in primary care (16) • Screening and brief interventions in A&E (16) • Screening and brief interventions in university/college students (9) • Screening and brief interventions in the workplace (2) • Screening and brief interventions in the pharmacy (1) • Inpatient screening and brief interventions (4) • Community-based screening and interventions (2) • Web-based screening and interventions (1)	**56**

• Screening and brief interventions for alcoholics (1) • Comparison of settings (2) • Costs (2)	
Interventions • Brief interventions (36) • Brief interventions in University/College students (5) • Brief interventions in A&E (5) • Behavioural/motivational/psychosocial interventions (16) • Group interventions (including Alcoholics Anonymous) (6) • Web-based/computer interventions (18) • Lifestyle and exercise (3) • Telephone/postal (3) • Pharmacy-based interventions (1) • Money management (1) • Controlled drinking (2) • Pharmacotherapies (19) • Combined interventions (6) • Predictors of outcomes (1) • Quality of life (1) • Costs (2)	**125**
Facilitators/barriers • Moderators and mediators (7) • Professionals – promts/reminders(5) • Professionals – training (16) • Professionals – attitudes and perceptions (18) • Service users – motivation/readiness to change (10) • Service users – accessibility (7) • Service users – attitudes and perceptions (4) • Service users – family history (2) • Service users – minority ethnic group issues (4) • Service users – adherence (3) • Service users – fear (1) • Service users and professionals (5)	**82**
Total	**356**