ALCOHOL AND ALCOHOL-RELATED PROBLEMS IN SCOTLAND: SUMMARY AND 2006 UPDATE OF EVIDENCE

Kerry McKenzie & Sally Haw
NHS Health Scotland
Further enquiries should be addressed to:

Sally Haw  
Principal Public Health Adviser  
NHS Health Scotland  
Rosebery House  
9 Haymarket Terrace  
Edinburgh EH12 5EZ

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Executive Summary

In 2002/03 Health Scotland conducted a literature review to map principal research findings from recent literature reviews against the four action priority areas identified in the Plan for Action on Alcohol Problems. The aims of the 2002/03 review were: to review current Scottish alcohol-related research published since 1996; and to identify gaps in Scottish alcohol research. The work was intended to inform the development of a programme of alcohol-related research in Scotland to support the Scottish Executive’s (SE) Plan for Action on Alcohol Problems.

The purpose of this paper is to summarise and update the 2002/03 review and to inform the development of an alcohol research framework. The research framework is intended to support the development of alcohol policy in Scotland.

Alcohol consumption in Scotland
A considerable amount of data has been collected on alcohol consumption using cross sectional surveys conducted both at a national and local level. However, the quality of the data needs to be improved. There is also a lack of data for particular sub-groups of the population, for example black and minority ethnic (BME) and vulnerable and excluded groups.

The value of data on adult consumption collected at a local level is limited by a lack of standardisation across surveys, response bias and a low and downward trend in response rate. Many surveys of schoolchildren have been conducted but only SALSUS provides continuity of trend data at both national and local levels.

There are few longitudinal data on alcohol consumption. Given the recent increase in drinking in young people lack of longitudinal data for the 16 to 30 year old age group represents the most serious gap.

Patterns of alcohol-related harm
There has been a rapid increase in alcohol-related morbidity and mortality during the 1990s and 2000s. The increase has occurred across all age groups in spite of an apparent stabilisation of reported alcohol consumption in general population surveys. Alcohol-related morbidity and mortality is by far the greatest amongst Scots from the most deprived areas. The very rapid increase in alcohol-related mortality in Scotland, particularly since 1997, cannot be explained by available data on patterns and trends in consumption and gives cause for considerable concern.

There are a variety of data available on alcohol-related social harm but further more detailed studies are also required.
Drinking cultures
A variety of factors have contributed to recent changes in drinking culture, including the diversification of the alcohol product base and aggressive advertising and marketing of alcohol products. In 2005 and 2006 a number of important studies were commissioned to fill previously identified research gaps. These included a detailed study of different drinking cultures in Scotland and three studies that will examine the impact of alcohol marketing on youth drinking, alcohol-related public disorder and street drinking respectively. In addition to this work, there is a need to continue to monitor trends in attitudes to alcohol and alcohol consumption and to develop a better understanding of marketing strategies used by alcohol producers.

Prevention and education
A number of familial, social and contextual factors influence the development of drinking patterns during adolescence. Good family relations and a supportive family environment seem to be most strongly linked to lower levels of drinking. Most prevention and education interventions targeted at young people are school-based but at best, they only increase knowledge and have little impact on attitudes or behaviour.

A small number of targeted interventions have demonstrated longer-term impacts on drinking behaviour or show potential to do so. However, further research is required both to develop interventions that are culturally appropriate for the Scotland and to evaluate their effectiveness.

There are a number of measures that are effective in reducing drinking in adults and can be taken up by the drinks trade. These include reducing the cost of soft and low alcohol drinks and stopping drinks promotions. Workplace alcohol policies are also regarded as a potential mechanism for promoting sensible drinking and supporting employees with drink problems. However, little is known about how effectively they are implemented, their impact on drinking behaviour or the effectiveness of support provided for problem drinkers.

Treatment and support services
There has been a considerable amount of research into the effectiveness of treatment intervention for problem drinkers but there are still many research questions that need to be answered. Some trials have been conducted in Scotland but they have tended to be of insufficient power and to have methodological problems that limit the conclusions that can be drawn.

Further research is needed to determine the feasibility of delivering screening and brief interventions in different settings and with different populations. Further research is also required, to determine how to extend the impact of brief interventions; to determine the effectiveness non-directive client-centred counselling traditionally used in the UK; and to determine how to maximise the benefits of drug therapies Acamprosate and Naltrexone. This research might be taken forward at either a Scottish or UK level.
Protection and controls
There is now considerable evidence that a range of fiscal, legislative and other measures are among the most effective in reducing alcohol consumption and alcohol-related crime, violence and disorder. However, the strength of evidence of effectiveness of these interventions is not reflected in measures implemented at either a Scottish or UK level.

Developing a research programme
A considerable amount of alcohol research has been conducted in Scotland but studies have often been small in scale. Where trials have been conducted they have often suffered from methodological problems or have lacked power to detect differences between intervention and control groups.

A research programme should focus research resources on:

- Developing capacity for secondary analysis of existing datasets in order to better understanding of trends in alcohol consumption and related harms in Scotland including international comparisons
- A small number of well-designed studies that are of sufficient size to generate findings that are of value and that inform policy development.
- Natural and planned experiments of population-level interventions, such as changes in licensing laws, pricing policies.
- Developing a research network of alcohol problem services to host trials of new interventions

The research programme should also be coordinated with work that is being funded by UK research councils and agencies elsewhere in the UK and Europe. A UK-wide database of current research would help facilitate coordination. Funding should also be linked to the effective dissemination of research findings.
1. Introduction

1.1 Background

In 2002/03 Health Scotland prepared a literature review of alcohol and alcohol-related problems\(^1\). It was commissioned to inform the development of a programme of alcohol-related research in Scotland to support the Scottish Executive’s (SE) *Plan for Action on Alcohol Problems*\(^2\).

The aims of the original review were to:

- Map principal research findings from recent literature reviews against the four action priority areas identified in the *Plan for Action on Alcohol Problems*
- Review Scottish alcohol-related research published since 1996
- Identify gaps in Scottish alcohol research.

Six reviews\(^3,4,5,6,7,8\) of alcohol-related research were identified as directly relevant to the review. The principal findings from each of the reviews were summarised and then mapped against the four action priority areas.

A search of Scottish alcohol-related literature was then conducted using a search strategy devised by the authors. The main search was supplemented by articles, reviews, publications and unpublished reports identified by the authors, Information Statistics Division (ISD) of the CSA, Alcohol Development Officers and via Alcohol Action Team network. The main findings from the literature reviews and primary research were then summarised and organised around the four priority action areas.

1.2 Alcohol and alcohol-related problems in Scotland: summary and update of evidence

The purpose of this review is to summarise and update the 2002/03 review and identify any new findings in the literature. The methods adopted were similar to those used in the original review.

Four of the six primary reviews of alcohol-related research included in the original review had been updated and these were:


A search of Scottish alcohol-related literature was conducted using the same search strategy devised by the authors on the following databases: Medline, Embase, CINAHL and PsychINFO. Articles were restricted to English language, articles published between 2003 and 2006, and articles published by a Scottish organisation or with Scotland mentioned in the title or abstract. The search strategies are given in Appendix 1.

An initial scoping exercise of current and recent evidence was carried out by the Analytical Services Division of the Scottish Executive Health Department (SEHD). The literature identified included reports produced and/or commissioned by ISD and the SE.

The main findings from each of the reviews, primary research and reports identified in the literature search and scoping exercise were summarised and then mapped against the four priority action areas.

1.3 Structure of the report

The report follows broadly the same structure as the original review. Chapter 2 and 3 summarise evidence on the pattern of alcohol consumption and alcohol-related harm. Chapters 4 to 6 summarises research relevant to the four priority action areas in the *Plan for Action on Alcohol Problems*: changing cultures; prevention and education; treatment and support services and protection and controls. Chapter 8 of the report provides conclusions.

References


2. Alcohol consumption in Scotland

2.1 Surveys of alcohol consumption

Information about alcohol consumption in Scotland is available from a large number of different surveys. However, there are many problems associated with the accurate measurement of alcohol consumption. In addition to errors in reporting and recall, surveys tend not to use the most accurate methods of measuring alcohol consumption.

There is also evidence to indicate that the heaviest drinkers, who as a group under-report their alcohol consumption, are also under-represented in survey samples while other at-risk groups such as the young homeless are not represented at all. There is considerable scope for improving the quality of alcohol consumption data in Scotland. Nevertheless, these surveys provide the best sources of data we currently have for monitoring trends in alcohol consumption.

For adults, key surveys include:
- Scottish Health Survey (SHS)¹
- General Household Survey (GHS)²
- Health Education Population Survey (HEPS)³
- West of Scotland 20-07 Study ⁴
- European Comparative Alcohol Study (ECAS)⁵
- Omnibus Survey (ONS)⁶

For children and young people, key surveys include:
- Scottish Schools Adolescent Lifestyle & Substance Use Survey (SALSUS)⁷
- Health Behaviour of School-aged Children (HBSC)⁸
- Edinburgh Study of Youth Transitions and Crime⁹
- West of Scotland 11 to 16 Study and 16+ studies¹⁰
- European School Survey Project on Alcohol and Other Drugs (ESPAD)¹¹

A number of NHS Boards have also conducted local health and lifestyle surveys to provide more detailed local data on a range of health behaviours including alcohol consumption. Lack of standardisation across surveys, response bias and declining response rates limit the conclusions that can be drawn from these local surveys¹².

Alcohol Statistics Scotland is an annual digest of information on alcohol in Scotland prepared by Information and Statistics Division (ISD) of NHS National Services Scotland. The 2005 edition¹³ provides data at both a national and an Alcohol Action Team (AAT) area level on the following topics: alcohol market, alcohol consumption, social and health harm. In addition, patterns of alcohol consumption are described for different population groups.
2.2 Alcohol consumption amongst adults

Patterns of alcohol consumption

Data from customs and excise indicate that over the past decade alcohol consumption in the UK has increased by 23% (DoH 2003). In contrast, survey data (self-reported consumption) for Scotland suggest that alcohol consumption has remained relatively stable over this period – although there has been a sharp increase in alcohol consumption in young adults aged 16 to 24 years and a more modest increase in consumption amongst women overall. There are no equivalent custom and excise data for Scotland by itself.

Key findings from the 2003 Scottish Health Survey on patterns of alcohol consumption are as follows:

- On average, men drank 17.2 units of alcohol and women 6.5 units per week.
- 27% of men reported drinking in excess of the recommended limit of 21 units per week. This was less common in men over 65.
- 14% of women reported usual alcohol consumption in excess of the recommended limit of 14 units per week and this decreased with age.
- Weekly levels of consumption were highest among women in managerial and professional households and in the highest income households; consumption decreased along with household income, and was lowest for women in semi-routine and routine occupations. There was no consistent pattern for men in relation to socio-economic classification or household income.
- Older people tended to drink more frequently than younger people or not drink at all.
- 29% of men aged 65-74 and 33% of 75+ years drank on 5 or more days of the week compared to 6% of those aged 16-24.
- Among men who reported drinking alcohol in the past week, two-thirds drank more than the recommended level of 4 units of alcohol and one-third more than 8 units (the level used to define ‘binge’ drinking) on the heaviest drinking day.
- Among women, more than half reported drinking more than the recommended 3 units on their heaviest drinking day in the past week; one-quarter drank more than 6 units (binge drinking). This decreased with age in men and women.
- Reported binge drinking in the past week was more common in men from households with lower income or living in the most deprived areas of Scotland and was lowest for men in managerial and professional occupations.
**Problem drinking**

Key findings from the 2003 SHS, 2004 GHS and 2004 ONS surveys on problem drinking are as follows:

- One in five male drinkers in Scotland had been drunk at least once a week in the previous three months. Over one in ten women drinkers had been drunk at least once a week in the past 3 months.
- 52% of men and 39% of women said they had been drunk at least once in the past three months.
- Being drunk at least once a week in the past three months was strongly related to age as male drinkers aged 16-24 were the most likely to say they had been drunk at least once a week (40%) and 28% of current women drinkers aged 16-24 reported they had been drunk at least once a week.
- 41% of men and 15% of women, aged 16-74, were drinking at levels hazardous to their health (as measured by an AUDIT score of 8 or more).
- Among current drinkers, 13% of men and 5% of women aged 16-74 were identified as possible problem drinkers (as measured by a CAGE score of 2 or more).
- Approximately 1 in 8 men and 1 in 24 women in Scotland had some degree of alcohol dependence.
- There is a gender and age differential in terms of the types of drink consumed on a weekly basis. Women are more likely to drink spirits and wine but more spirits are consumed by 16-24 year olds and more wine is consumed by 45-54 year old women. Younger men are more likely to drink beer but accounts for only one third of the alcohol consumed by the over 75s.

### 2.3 Patterns of alcohol consumption amongst children

The most rapid increase in alcohol consumption over the last decade has occurred in school age children. By the age of 15 years, many school children are drinking in excess of the recommended weekly and daily limits. Key findings from the 2002 and 2004 SALSUS, the 2002 HBSC and the 2005 ESPAD surveys are as follows:

- The majority of 13 and 15 year olds have drunk alcohol.
- Less than a half of 15 year olds and a fifth of 13 year olds reported drinking alcohol in the past week.
- The proportion of 13 year olds reporting drinking alcohol in the past week has doubled since 1990.
- 15 year olds drank on average more alcohol per week than 13 year olds.
- Boys drank more alcohol on average than girls (Fifteen year old boys drank an average of 13 units of alcohol a week, compared to 11 units consumed by 15 year old girls. Thirteen year old boys reported
drinking an average of 10 units per week, compared with 13 year old girls who drank an average of 8 units per week.

- Three out of four (75%) 15 year olds and 54% of 13 year olds who had drunk alcohol reported they had been drunk at least once in their lives. There was no difference between boys and girls.
- Almost one in five (19%) of 15 year olds and 6% of 13 year olds reported having been drunk more than 10 times.
- The majority of children who had ever drunk alcohol reported drinking more than 5 units on a single occasion at least once.
- Among 15 year olds, 1 in 5 boys and 1 in 4 girls reported drinking above adult sensible weekly limits.
- Between 1990 and 2004, weekly drinking increased from 30% to 40% among 15 year old boys and 25% to 46% among 15 year old girls.
- UK has higher rates of regular drinking and drunkenness among 15 year olds than in most European countries.
- Alcopops were popular amongst 13 and 15 year olds but beer, lager or cider accounted for the most units of alcohol consumed by both age groups and both sexes.

2.4 Alcohol consumption in sub-groups of the population

Black and minority ethnic groups

The surveys reported above do not provide data on drinking patterns amongst different ethnic groups in Scotland. However there are a small number of studies that have focused on particular BMEs. Studies have found lower levels of alcohol consumption among the Chinese community, Asian Men in Glasgow, South Asian Women, and Young Asians. The Glasgow study found only 5% of Asian men drank over the weekly recommended limits but amongst this heavier drinking group binge drinking was the norm. A small-scale survey of alcohol consumption amongst Indian, Chinese and Pakistani young people aged 16-25 years in Greater Glasgow found that while consumption was lower than the general population, slightly higher levels of those reporting alcohol consumption were found amongst Pakistanis, Indian and Chinese males in the survey.

Vulnerable and excluded groups

A number of studies have also focused on alcohol consumption in vulnerable and excluded sub-groups of the population and there is clear evidence that the prevalence of heavy drinking and alcohol dependence is particularly high amongst these groups.

A study of people with schizophrenia found higher rates of alcohol problems (16%) compared with the general population, while a study of the homeless in Glasgow found that over half reported hazardous drinking. A recent review of the medical history of nearly 1,000 prisoners received into Barlinnie in January 1998 found that 10% were suffering from alcohol withdrawal.
Data from the Scottish Drug Misuse Database also indicate that in 2003/04, 11% of new clients attending drug treatment services also reported problematic use of alcohol representing a 3% increase on 2001/02\textsuperscript{13}. In 1998, alcohol was detected in 31% of drug-related deaths and 26% of residents at one Glasgow rehabilitation centre had severe alcohol problems\textsuperscript{15}.

The high prevalence of Hepatitis C infection amongst current and former drug injectors in Scotland and the impact alcohol has on the speed of progression and outcome of the disease\textsuperscript{21}. Future studies of this group should also include measures of alcohol consumption.

2.5 Summary

Both national and local data on patterns of alcohol consumption amongst Scottish adults are available but our understanding of patterns amongst sub-groups, for example, BME and vulnerable and excluded groups, is limited. The value of data on adult consumption at a local level is limited by a lack of standardisation across surveys, response bias and a low and downward trend in response rate. Many surveys of schoolchildren have been conducted but only SALSUS provides continuity of trend data at both national and local levels.

2.6 Current Research

Current research into the prevalence and patterns of alcohol consumption are given below.

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2.7 Recommendations

The Scottish Executive has identified the following priority for action:

- To develop a strong evidence base on the extent and nature of alcohol problems and the effectiveness of harm reduction interventions, and ensure this is reflected in policy development and service delivery.

Suggested gaps in research

- There is a need to improve the quality of alcohol consumption data in Scotland. Better survey measures of reported alcohol consumption are required as well as customs and excise and retail sales data disaggregated to a Scotland level.

- Bespoke studies are required to improve understanding of the relationship between alcohol consumption in sub-groups of the population including black and minority ethnic groups, prisoners and recent immigrant groups.

- There is a need for longitudinal data on alcohol consumption, particularly in the 16-30 year old age group potentially via the UK Health Survey.

Additional actions

- ISD should explore with Customs and Excise and retail organisations including supermarkets what data on levels and patterns of consumption are available or could be extracted at a Scotland level.

References
4. West of Scotland Twenty-07 Study: Health in the community', Medical Research Council Social and Public Health Sciences Unit. (www.msoc-mrc.gla.ac.uk)
10. West of Scotland 11 to 16 Study and 16+ studies, Medical Research Council Social and Public Health Sciences Unit. (www.msoc-mrc.gla.ac.uk)


3. Patterns of alcohol-related harm

Alcohol-related harm falls into two broad categories, health harm and social harm. Health harm refers to the range of health problems that result from excessive alcohol consumption (increased mortality, morbidity) and social harm refers to a variety of social problems resulting from excessive alcohol consumption (violence, drunkenness, drink driving, public disorder.) Routine data are available routinely on a variety of indicators both at a national and local level.

3.1 Health harm

Routine data

Data on alcohol-related health harm are available from a variety of routine datasets. In addition, Clinical Indicators Report 2005 provides information on rates of admission for alcohol-related problems by NHS Board to help improve the quality of care provided to patients.

Alcohol-related mortality

Alcohol related deaths in Scotland have risen sharply in Scotland from less than 1 in 100 of all deaths in 1980 to 1 in 30 of all deaths in 2003, about three-quarters of which occurred in men. In 2003 there were 1,980 alcohol related deaths in with rates in men rising at a slightly higher rate than that in women. People living in the most deprived areas were nearly four times more likely to die an alcohol related death that those in the least deprived areas at 70 per 100,000 in deprivation quintile 5 compared to 19 per 100,000 in deprivation quintile 1. The majority of alcohol related deaths had a diagnosis of alcoholic liver disease. Between 1980 and 2003, there was more than a five-fold rise in the number of deaths with a diagnosis of alcoholic liver disease.

An analysis of alcohol-related mortality in Great Britain between 1988 and 1994 found there was an inverse relationship between social class and alcohol-related mortality with men in social class V more likely to die but the gradient was much steeper amongst younger men.

Most recently, an analysis of liver cirrhosis mortality rates in Britain between 1950 and 2002 gives cause for considerable concern for Scotland. While cirrhosis mortality rates have been rising steadily in England since the 1950s, there has been an exponential increase in cirrhosis mortality rates in Scotland. Between 1950-54 and 2000-02, rates in Scottish men increased by a factor of six and a factor of four for Scottish women, with the most rapid increases occurring since 1997. In 2002, cirrhosis mortality rates in Scotland were amongst the highest in western Europe at 45.2 per 100,000 in men and 19.9 per 100,000 in women. In contrast to both Scotland and Great Britain as a whole, mortality rates for European countries combined peaked in the 1970s but have steadily declined since then with the largest proportional reductions occurring in the countries of southern Europe and France.
General hospital admissions

Over 26,000 people were admitted to a general hospital with an alcohol related diagnosis in 2003/04 representing 4% of all hospital patients in that year. Overall, there has been a 13% rise in admissions since 1997/98 with a similar rise for both men and women during the same period. Men account for over 70% of admissions with men from the most deprived areas (quintile 5) more than three times more likely to be admitted than those in deprivation quintile 1. Women in the most deprived areas were more than twice as likely to be admitted than those in deprivation quintile 1.

Between 1997/98 and 2003/04, the number of patients admitted with alcoholic liver disease rose by 41%. A number of studies have also demonstrated the considerable impact of alcohol consumption on particular hospital specialties have also been conducted. One particular study found that 44% of the gastroenterology inpatient workload was for alcohol related disease and 37% associated with decompensated alcoholic liver disease. The highest level of prevalence was found amongst males from the West of Scotland.

Between 1997/98 and 2003/04 there was also an 80% rise in the number of patients admitted with a diagnosis of harmful use of alcohol. During 2003/04, over a quarter of all alcohol related general hospital admissions had a diagnosis of acute intoxication.

GP consultations

Between 1998 and 2003 there has been an 11% increase in the numbers of both men and women consulting their GP with an alcohol related problem. It is estimated that over 42,000 people attended a GP with an alcohol related problem.

Epidemiological and other studies

Physical health risks
The relationship between alcohol consumption and a range of conditions have been analysed in a number of studies. Associations were found between alcohol consumption and liver cirrhosis, haemorrhagic stroke, hypertension, chronic pancreatitis, injuries as well as 10 cancers – oropharyngeal cancer, female breast cancer, oesophageal cancer, laryngeal cancer, liver cancer, stomach cancer, colorectal cancer, lung cancer ovarian cancer, and cancer of the prostate. The study by Corrao and colleagues suggests that even low levels of consumption (25gms/day) equivalent to 3 units of alcohol a day is associated with an increase in risk for most of these conditions.

Foetal Alcohol Syndrome (FAS) and alcohol-related birth defects
Heavy maternal drinking during pregnancy is associated with the development of FAS. Infants usually survive but are mentally retarded and often show growth retardation and a characteristic pattern of craniofacial features. Babies born with FAS are permanently affected. In addition to FAS there are two further categories, partial FAS (with confirmed maternal alcohol exposure)
and alcohol-related birth defects that may occur at lower levels of alcohol exposure. Babies may have neuro-developmental problems, behavioural problems and learning difficulties.

FAS is usually only associated with very high levels of daily drinking but there has been little research to determine the threshold for alcohol-related foetal damage. A recent systematic review\textsuperscript{11} of the foetal effects of low-to-moderate alcohol consumption, conducted for the Department of Health, concluded that for a range of outcomes, including still birth, pre-term birth, malformations, head circumference and birth length and postnatal growth, there was no consistent evidence of adverse effects across studies. Although the authors concluded that the evidence was not strong enough to rule out any risk. The review also considered the effects of binge drinking and concluded that there was some more consistent evidence of adverse effects of this pattern of drinking on neuro-developmental outcomes.

**Mental health risks**

Alcohol related brain damage (ARBD)

ARBD refers to a spectrum of disorders that result in changes to the structure and function of the brain. There is a lack of robust epidemiological data on the prevalence and incidence of ARBD which relates in part to the lack of standardised diagnostic and assessment tools\textsuperscript{12}.

Scottish studies have found high prevalence in hospital admissions in the East End of Glasgow\textsuperscript{13} and in psychiatric patients resident in Scottish mental hospitals\textsuperscript{14}. There is also evidence of marked regional variations with rates higher in the West of Scotland particularly Glasgow and Argyll and Clyde. The lower than expected male to female ratio, combined with trend data showing women are presenting with the syndrome at an earlier age, suggests that women are at greater risk of developing this syndrome. A recent report of an expert working group on ARBD\textsuperscript{12} gave a much higher prevalence of 7 cases per 10,000 in Argyll & Clyde compared with 4 per 10,000 in Glasgow but this could reflect differences in rates of detection.

Most recently, a study in Glasgow\textsuperscript{15} found that 78% of a sample of homeless hostel dwellers were drinking hazardously, 61% met the criteria for lifelong alcohol dependence and 21% had been diagnosed with ARBD.

**Mental health problems**

There is a strong link between alcohol and mental health problems but there has been little research in Scotland or the rest of the UK. A recent report from an expert working group on co-occurring substance misuse and mental health problems in Scotland estimated that about 1 in 2 patients with alcohol problems also have mental health problems and 2 in 5 people with mental health problems may also have a drug or alcohol problem\textsuperscript{16}.

The underlying reasons why people use alcohol is explored in the Mental Health Foundation report, ‘Cheers?’, and suggest that many people in the UK ‘self medicate with alcohol to help them cope with emotions or situations. The
concept of 'self-medication' is therefore used not just in relation to those with more severe mental health problems who may also self-medicate using alcohol\textsuperscript{17}.

In 2001/02, over 40\% of individuals who sought treatment for problem drug use had a mental health problem\textsuperscript{16}. There is no equivalent national database for specialist alcohol services and data on the presence of co-occurring mental health problems are not recorded by Local Councils on Alcohol or voluntary alcohol counseling services. In terms of psychiatric unit discharges in 2000/01, almost 20\% of patients discharged from a psychiatric unit had an alcohol related diagnosis with two thirds having a diagnosis of alcohol dependence. There has been a 9\% decrease in the number of patients discharged between 1997/98 and 2000/01 with an alcohol related diagnosis\textsuperscript{2}.

**Suicide**

Alcohol consumption has been found to be a precursor of suicide. A review of 386 suicide cases that had occurred between 1988 and 1995 found that 45\% had consumed alcohol and 19\% were drunk at the time of suicide. Men were more likely to have consumed alcohol and intoxication was more pronounced in those aged 25-54 compared with those 55 years of age or older\textsuperscript{18, 19}. An Inquiry into Suicide and Homicide by People with Mental Illness (2001)\textsuperscript{20} found that 53\% of people in Scotland who committed suicide had a history of alcohol problems and had been in contact with services prior to their death and 17\% of this group had a diagnosis of alcohol dependence.

### 3.2 Social harm

The ISD *Statistics Digest*\textsuperscript{2} provides a variety of statistics on alcohol-related harm from a wide range of different sources. A short summary is given below.

**Community problems**

Four out of five adults surveyed in the Scottish Crime Survey viewed 'alcohol abuse' as the third most serious social issue in Scotland\textsuperscript{21}. One in 25 people also reported 'alcohol abuse' as an aspect of their neighbourhood they disliked\textsuperscript{22}. The number of recorded offences for drunkenness has been falling in recent years\textsuperscript{23} but this has been accompanied by a rise in the number of offences of drinking in designated (prohibited) places\textsuperscript{24}.

**Risk of harm to children and young people**

School surveys indicate that alcohol consumption in 15 year olds is associated with an increase likelihood of sexual intercourse and unprotected sex as a result of drinking\textsuperscript{25}. School children have also reported a range of negative effects as a result of drinking in the previous year including being involved in an argument or a fight, trying drugs or being absent from school\textsuperscript{25}. Between 1997/98 and 2002/03 he number of referrals to the Children’s Reporter on grounds of misuse of alcohol and/or drugs doubled.\textsuperscript{26}
**Drink driving**

Between 1996 and 2002 there was no clear trend in total convictions for drink driving overall but drink driving offences increased both for women and the under 21s\(^{27}\). Between 1998 and 2002 in Scotland, there was also an increase in the estimated number of drink drive accidents and casualties and an estimated one in six deaths on Scotland’s roads were caused by drunk driving\(^{28}\).

**Fatal fires**

In 2002/03, 84 people died in Scotland as a result of fire. The misuse of alcohol was a direct contributory factor in 32 (54%) fatal fires and an indirect factor in a further 5 (8\%)\(^{29}\).

**Alcohol and violence**

In 1999, one in eight violent incidents reported by respondents to the Scottish Crime Survey\(^{30}\), occurred in or around pubs and clubs. Over two thirds (72\%) of victims of assault, who said they could tell, thought the perpetrator was under the influence of alcohol. Male offenders were more likely to be under the influence of alcohol (69\%) than female (30\%). Alcohol was most likely to be a factor in muggings (88\%) and crimes committed by strangers (88\%) or acquaintances (82\%). Alcohol was involved in the majority of domestic abuse incidents reported by respondents to the Scottish Crime Survey. Alcohol was also known to be a factor in half of those accused of homicide in Scotland in 2003.

**Prison and probation**

The association between alcohol and crime has been well established. A third of prisoners surveyed believed alcohol was a factor in their incarceration\(^{31}\). One in four prisoners agreed that many of their crimes were committed while drunk and this rose to over a half (54\%) of younger prisoners. 29\% of prisoners reported a history of violent behaviour relating to alcohol. One in four women prisoners also reported committing crimes when drunk.

### 3.3 Costs of alcohol misuse

The cost of alcohol misuse to the NHS in Scotland at 2001/02 prices was estimated to be £95.6 million, and the total cost to Scottish society was an estimated £1.1 billion. As well as costs to the NHS, the estimated total cost included resource costs are borne by other services and groups include social work services, criminal justice system and emergency services, wider economic costs such as working days lost due to alcohol-related absenteeism and human costs\(^{32}\).
3.4 Summary

There has been a rapid increase in alcohol-related morbidity and mortality during the 1990s and 2000s. The increase has occurred across all age groups in spite of an apparent stabilisation in reported alcohol consumption in the general population surveys. Alcohol-related morbidity and mortality is by far the greatest amongst Scots from the most deprived areas. The very rapid increase in alcohol-related mortality in Scotland, particularly since 1997, cannot be explained by available data on patterns and trends in consumption and gives cause for considerable concern.

There are a variety of data available on alcohol-related social harm but further more detailed studies are also required.

3.5 Current research

<table>
<thead>
<tr>
<th>Title</th>
<th>Development of aetiological fractions for alcohol attributable problems for Scotland &amp; estimating the burden of alcohol-related disease</th>
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<tr>
<td>Researchers</td>
<td>Ian Grant &amp; Stephen Pavis, Information &amp; Statistics Division NHS National Services Scotland</td>
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<tr>
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<th>Record-linkage study to determine the hospital utilisation, morbidity and mortality related to diagnosed HCV infection and association between alcohol and diagnosed HCV infection among injectors in Scotland.</th>
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<tr>
<td>Researchers</td>
<td>Sharon Hutchinson, Health Protection Scotland</td>
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<th>Title</th>
<th>Drinking to the future: Adult outcomes of adolescent alcohol involvement in the 1970 British Cohort Study.</th>
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<td>Researchers</td>
<td>Jim McCambridge, National Addiction Centre, Institute of Psychiatry</td>
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### 3.6 Recommendations

**The Scottish Executive has identified the following priorities for action:**

- To tackle health inequalities
- To reduce alcohol-related violence and offending

**Suggested gaps in research**

- Available data on consumption and alcohol-related hospital admissions do not explain the recent exponential increase in rates of liver cirrhosis mortality in Scotland. A comprehensive portfolio of studies should be funded to explore the range of likely causes of this increase and to model the likely impact of a range of interventions on future mortality.

- This portfolio of research should be linked to detailed analyses of trends in alcohol-related physical and mental illness, their relationship with sex, age and socio-economic factors and the implications for the provision of services.

- A study of the prevalence and trends in alcohol related brain damage (ARBD) is required. This should include work to develop effective diagnostic and screening tools.

- Further research is required on the prevalence and levels of drinking during pregnancy and the related consequences, including foetal alcohol syndrome (FAS) and other alcohol-related developmental disorders.

- There is a lack of information about the prevalence of children affected by parental problem drinking and the views and needs of these children. A systematic analysis of Child Protection and Children’s Reporter cases is one of the approaches required.

- There is a lack of understanding on the links between misuse/harm and deprivation and the relationship between drinking patterns and harm.

- There are few data on alcohol consumption, sexual risk-taking and sexual assault. Further research is required and there is potential to link with broader work on risk-taking behaviour in young people.

- Further research is required to improve understanding of links between alcohol and crime.

- Improved use of costs of alcohol misuse data e.g. impact on employment, productivity and absence.
**Additional actions**

- There are no national data on users of specialist alcohol services and on those with co-occurring mental health problems. ISD should assess the feasibility of developing national standards for local recording compared with developing a national database.

**References**


26. Scottish Children’s Reporter Administration


4. Drinking cultures

The survey data reported earlier describe a Scottish culture in which heavy drinking is commonplace. Although total alcohol consumption is less than in some other European countries, Scotland has a ‘binge drinking’ culture in which drunkenness has become both common and the norm amongst men and young adults. This contrasts sharply with patterns of alcohol consumption in southern European countries such as France and Italy.\(^1\)

The frequency of drinking and the amount consumed on drinking occasions is dependent on age, sex and social class. Therefore, drinking cultures are not homogeneous but little is known about the contexts in which drinking takes place, the attitudes of the groups towards drinking or the values they attach to the behaviour. Another important area on which we have little data is the impact of marketing and the media on attitudes towards alcohol and drinking behaviour.

4.1 Social context of drinking

The 2003 Scottish Health Survey which found that for about three quarters of Scots the most common drinking location is at home and this increased by age. Men and young people are most likely to drink in pubs. Drinking companions were similar for both sexes (partner/spouse; other family/relatives; groups of friends). The 16-24 year olds tended to drink with friends and this declined with age. Men tended to drink with a partner and older women tended to drink with family/relatives.\(^2\)

Street drinking is most common in young people and a survey in Drumchapel, Glasgow\(^3\) found this group were generally male, single, unemployed and living in their own accommodation. Social reasons were usually given for street drinking, although adverse consequences relating to stigma, personal safety and criminality were also raised. Street drinkers reported faster rates of alcohol consumption to avoid alcohol being confiscated by the police. The ‘West of Scotland 11 to 16 Study’ has also reported an increase in street drinking in 15 year old girls.\(^4\)

Data from SALSUS\(^5\) and the Edinburgh Study of Youth Transitions and Crime\(^6\) indicate that drinking is a common place activity for school age children and 15 year olds have little difficulty in obtaining alcohol. About half of 15 year old drinkers report purchasing alcohol themselves, with the licensed grocer or corner shop the most common source. The Edinburgh Study of Youth Transitions and Crime found that purchasing alcohol is strongly related to involvement in delinquent behaviour and was a better predictor of delinquent behaviour than frequency of drinking. Those who had purchased alcohol were more likely to drink more frequently: 42% of alcohol buyers drank on a weekly basis compared to 8% of non-buyers. Many respondents had also experienced adverse effects of drinking such as being drunk or not able to remember some of the things they had done.
There are very few qualitative studies that have explored in detail the social context of drinking behaviours.

4.2 Knowledge of sensible drinking limits

About 85% of Scottish adults understand the concept of alcohol units, the standard measure used to monitor alcohol consumption levels\(^7\). This figure has remained constant over the last decade. However, there is some evidence of an increase in awareness of the recommended weekly limits in Scotland. In 1996, 44% of respondents to the Health Education Population Study (HEPS) indicated that they did not know what the limit was compared with 30% in 2003. In addition, the proportion that were able to give the correct weekly limit rose from 9% to 21% over the same time period\(^7\). Although in some sub-groups such as Scottish fishermen, awareness of units and weekly sensible drinking limits may be considerably lower\(^8\). In a recent study of drinking in the home, researchers found that that home measures of wine and spirits measured on average two units of alcohol.\(^9\)

4.3 Attitudes towards alcohol

The 2004 Scottish Social Attitudes Survey\(^10\) included a module of questions on alcohol and alcohol-related issues. Two-thirds of the sample agreed that ‘Drinking is a major part of the Scottish way of life’ and about a half of men viewed alcohol as a ‘social lubricant’. Younger people were much more likely than older people to think that drunkenness and binge drinking were acceptable behaviours and less likely to think that these behaviours could lead to serious long-term health effects. The survey also highlighted the perception of stigma attached to not drinking in Scotland.

The social attitudes survey also found that a high proportion of the sample (46%) thought that alcohol caused more harm than other drugs. This is consistent with a qualitative study\(^11\) which found a strong consensus that Scotland has a problem with alcohol misuse, particularly among young people but participants felt that prevailing cultural attitudes towards alcohol presented the main barrier to tackling alcohol misuse.

Focus groups conducted with 98 young people aged 9 to 19 years also found a high level of understanding about the dangers of drinking both on a personal level and a societal level as well as the associated health risks. Nevertheless, there is a clear gap between knowledge and action as many young people in the study were making an active and informed choice to drink\(^11\).

An earlier study conducted by MacAskill and colleagues\(^12\) (2001) explored in more detail the views of young people aged 15 to 24. Drinking alcohol and intoxication were perceived as the norm and was a leisure activity. However, ‘binge drinking’ was confined to one or two days per week, most often at the end of the week and structured around other priorities such as work or study. In addition, the aim of ‘a good night out’ was controlled intoxication rather than alcoholic stupor and this was achieved by staged consumption of different
types of drink through the night in different venues. There were many perceived benefits associated with drinking, for example, reducing inhibition, facilitating fun and providing ‘the ultimate excuse for bad behaviour’. Alcohol-related activities and environments were also central to socialising and meeting people and were often seen as the only leisure option. The immediate consequences of intoxication such as vomiting and hangovers were regarded as a routine part of drinking and, paradoxically, these negative consequences were sometimes seen as part of the fun. Even extreme consequences, for example a trip to the A&E department, was a marker of a good night out and would be more likely to be treated with sympathy than disapproval.

There are only a few data on the views of young people from other ethnic groups. A small-scale study of alcohol consumption amongst Indian, Chinese and Pakistani young people aged 16-25 years provides some interesting findings. There was an inverse relationship between self-reported importance of religion and alcohol consumption and respondents were more likely to drink alcohol when they reported having friends outside, as opposed to within, their own ethnic community. In addition, respondents were more likely to drink if they had friends within their community who also drank alcohol. Pakistani men indicated that their alcohol consumption had an effect on their relationship with parents and upon their work, largely in a positive way, whereas Chinese men tended to say that it had no effect at all to either of these aspects. Women of different ethnicities did not differ in whether they reported an effect or not on their relationship with parents or upon their work. A third of Pakistani respondents felt their community ignored or hid alcohol problems compared with 6% in each of the other ethnic groups.

4.4 Influence of marketing

Since the early 1990s there has been a rapid diversification of drink products beginning with alcopops followed by pre-mixed spirits and shots. This diversification is a global phenomenon has been accompanied by intensive marketing of alcoholic products targeted specifically at young adults. The high level of activity and investment reflects the importance of the youth/young adult market to the drinks industry.

The marketing of alcohol has also included a range of other tactics including the packaging and labelling of products, drinks promotions in pub and club chains and promotions advertised via the Internet and mobile phones. Research to date has focused almost entirely on the impact of advertising and although findings are mixed they indicate that young people are more susceptible than adults to advertising influences. In addition, there is a small but significant association between exposure to advertising and awareness of drinks advertising and young people’s beliefs about drinking.

4.5 Media representations of alcohol

The mass media has tended to emphasise the positive aspects and represent drinking as normal, expected and unproblematic while, at the same time,
minimising or ignoring any negative consequences. Evidence suggests that mass media portrayal does have a small but short-term effect on alcohol consumption\textsuperscript{18} but perhaps more importantly it reinforces existing cultural beliefs and expectations. Images and representations in media entertainment may contribute more to the beliefs and perceptions about alcohol than product advertising\textsuperscript{15}.

One particular pattern that emerged during the 1990s was the broadcasting of self-reported accounts of heavy drinking by youth role models and opinion leaders, particularly on radio and television. It seems likely that this has an influence on prevailing opinion about ‘acceptable’ patterns of behaviour including public drunkenness, although there are no data to support this.

The impact of the mass communications media as a potential source of influence on alcohol-related knowledge, attitudes and behaviour has been largely ignored in the Scotland and the rest of the UK and research from the US and Canada has tended to focus on the alcohol-related content of television programmes\textsuperscript{17}. In Scotland, Amos\textsuperscript{18} (1992) examined the alcohol-related content of youth oriented magazines. Not only were alcohol advertisements focused on youth magazines but the glamorous portrayal of alcohol was presented without any editorial comment on the health consequences of excessive drinking. The same observation has been made more recently by MacAskill and colleagues\textsuperscript{12}. In addition, the development of new media such as the Internet and marketing via the mobile phone network has increased the number of different communication channels.

4.6 The family

The ‘Pathways to Problems’\textsuperscript{19} report includes an insight into the characteristics and circumstances of young people who are most at risk of hazardous use of tobacco, alcohol and other drugs. Drawing from the findings of the ESPAD\textsuperscript{20} and SALSUS\textsuperscript{21} surveys, the report highlights low parental supervision and living with a single or step-parent as important factors associated with young people smoking cigarettes, drinking alcohol or using cannabis.

4.7 Summary

A variety of factors have contributed to recent changes in drinking culture, including the diversification of the alcohol product base and aggressive advertising and marketing of alcohol products.

4.8 Current research

In 2005 and 2006 a number of important studies were commissioned to fill previously identified research gaps. These included a detailed study of different drinking cultures in Scotland and three studies that will examine the impact of alcohol marketing on youth drinking, alcohol-related public disorder and street drinking respectively.
### Study of drinking cultures

- **Researchers**: Susan MacAskill, Institute for Social Marketing, University of Stirling.
- **Funder**: Health Scotland
- **Budget**: £120,000
- **Duration**: 2006 - 2007

### Assessing the cumulative impact of alcohol marketing communications on youth drinking

- **Researchers**: Gerard Hastings, Institute for Social Marketing, University of Stirling.
- **Funder**: National Prevention Research Initiative
- **Budget**: £341,596
- **Duration**: 2006 - 2010

### Assessing the relationships between late night drinks marketing and alcohol-related disorder in public space

- **Researchers**: Alisdair Forsyth, Glasgow Caledonian University
- **Funder**: Alcohol Education and Research Council
- **Budget**: £46,964
- **Duration**: 2005 - 2006

### Young people’s street drinking behaviour: investigating the influence of marketing and subculture.

- **Researchers**: David Shewen, Glasgow Caledonian University
- **Funder**: Alcohol Education and Research Council
- **Budget**: £38,146
- **Duration**: 2005 - 2006

### 4.9 Recommendations

**The Scottish Executive has identified the following priorities for action:**

- To change the culture of excessive drinking and drinking to get drunk to a culture of drinking for responsible enjoyment.
- To reduce the number of young people and young adults under the age of 25 who drink excessively and face particular health and social risks.
- To reduce the number of people of working age (25-64) who are routinely exceeding weekly limits and are at risk of future health harm.
- To reduce the number of women whose drinking puts them at particular health and personal safety risks.

### Suggested gaps in research

- Trends in attitudes to alcohol and alcohol consumption should continue to be monitored. Possible vehicles include the Scottish Health Survey, the Health Education Population Survey and the Scottish Social Attitudes Survey.
Further research is required to develop a better understanding of the marketing strategies of alcohol producers when developing alcohol-related public health and information campaigns.

References

5. Prevention and education

A range of prevention initiatives have been implemented that aim to prevent alcohol misuse or alcohol-related harm in children and young people; promoting sensible drinking to adults; and preventing alcohol-related harm in adults.

5.1 Prevention and education initiatives for children and young people

Mulvihill et al\(^1\) (2005) report that there is a lack of review-level evidence for the effectiveness of interventions that aim to reduce alcohol misuse in young people. A variety of approaches have been adopted including school-based initiatives, harm reduction and peer education programmes.

**School-based initiatives**

School-based alcohol education is the central plank of Scotland’s alcohol prevention action targeted at children and young people and most schools in Scotland provide some education on alcohol issues. A recent review of drug education (including alcohol education) in Scottish schools found significant shortcomings in the methods adopted, materials used and based on ineffective practice\(^2\). There is little evidence that school-based interventions have lasting effects on behaviour\(^3\). Alcohol education, life skill programmes and parent-based interventions increased knowledge but did not change attitudes or behaviour\(^4,5\).

A systematic review of alcohol prevention measures for the Cochrane Collaboration found that only one intervention out of fifty-six assessed – the Strengthening Family Programme – demonstrated long-term effectiveness in reducing drinking\(^6\). In addition, a culturally focused skills training programme\(^7\), which reduced drinking quantity over a three and a half year period, also has potential.

**Harm reduction**

There has been very little research into the effectiveness of school-based harm reduction interventions for young people. The School Health and Alcohol Harm Reduction Project (SHAHRP) is an intervention with an explicit goal of harm minimization that aimed to reduce the harm that young people experience from their own, and from other people’s use of alcohol. Based in Australia, the programme was aimed at 13-15 year olds and the evaluation followed individual students exposed to SHAHRP and those unexposed in a comparison group over a 32 month period with follow-ups at 8 and 20 months. There were differences between the groups’ knowledge, attitude and behaviour in the first phase that continued, to varying degrees, for the duration of the study although attitude and knowledge started to converge 17 months following completion of programme\(^8\). Students reported reductions in alcohol-related harm from their own alcohol use even at 17 months. The programme had an impact on the context in which alcohol was used: larger
changes in the drinking of unsupervised drinkers and delay and/or reverting
unsupervised drinkers and supervised drinkers to non-drinkers. The authors
argue that the harm reduction approach employed has resulted in larger
reductions in alcohol consumption than either classroom-based or
comprehensive programmes that promote abstinence and delayed use.

Peer education programmes
Scottish peer education programmes have also been reviewed. The study
found that while there was considerable diversity in definitions of 'peer
education', evidence of effectiveness was limited to changes in knowledge
and attitude in the target group rather than in behaviour. Peer educators were
found to have improved self-esteem, personal development and
communication skills as well as an improvement in lifestyle measures. This
approach continues to have appeal because of the underlying principle of
empowerment, its efficiency in accessing marginalised and disenfranchised
groups and its comparative cheapness. The authors also discuss evaluation
difficulties arising from lack of clarity about programme aims and lack of any
monitoring or assessment procedures.

5.2 Public education campaigns
Mass media campaigns that aim to communicate health promotion messages
tend to affect knowledge and attitudes rather than behaviour. The exception
to this is the drink driving campaigns during the 1980s that resulted in a 50% fall
in drink driving. However, the media campaign was followed by changes in
legislation. It is argued that in this case the mass media served to increase
knowledge, raise awareness of the risks and influence social norms about
drink driving, thus paving the way for behaviour change following the
introduction of the new legislation.

The 'Don’t let too much alcohol spoil a good night out' advertising and
promotional campaign was introduced in Scotland in 2003. The aim of the
campaign was to encourage individuals and society as a whole to take
personal responsibility for the negative impact of alcohol misuse by
challenging Scotland’s drinking culture. An evaluation found that awareness of
the campaign peaked at 75%. There was also a gradual increase in
agreement with the campaign statements ‘Drinking too much when you are
out can get you into trouble or danger’ (86%) and ‘When I’m drinking I always
know my limit and when to stop’ (74%). No data were collected on behaviour
change.

Evaluation data from Drinkwise, the national campaign that ran in Scotland
from 1996 to 2002 suggested that it did increase awareness of sensible
drinking. One of the strengths noted was the implementation of the national
campaign at a local level which led to the development of a sustainable broad
base of activity which involved partnerships amongst a wide range of health
and social agencies.
5.3 Promoting sensible drinking

In adults

Evidence from systematic reviews suggests that several measures including providing cheaper soft drinks and low alcohol drinks in pubs and clubs, reducing alcohol promotions and providing information about alcohol unit content on product labels can reduce alcohol consumption\(^5\).

In pregnant women

Evidence on the effectiveness of alcohol interventions for pregnant women to prevent FAS/birth defects is also lacking\(^5\) and the need for a systematic review on interventions to reduce alcohol consumption in pregnancy has been highlighted\(^1\).

5.4 Drinking and the workplace

Workplaces and occupational groups can develop cultures that promote and reinforce regular or excessive drinking. Workplace alcohol policies and health checks have been introduced to ensure the safety of staff and service users and to help and support employees with alcohol problems. However, there is limited information on the proportion of workplaces that have introduced an alcohol policy and there has been no systematic study of their implementation or an assessment of their effectiveness\(^13\). Workplace health checks were found to be effective in reducing self-reported alcohol consumption\(^14\) and a complementary observational study found that behaviour change occurred amongst people who perceived themselves to be at risk and were sustained at one year\(^15\).

Data on outcomes for employees with alcohol problems are also limited. An audit of alcohol-related referrals to Greater Glasgow Occupational Health Service found that the clinical care of employees with alcohol problems was variable and occupational health practice could be improved by the establishment of assessment protocols and treatment plans\(^16\).

5.5 Community programmes

Community-based interventions are multi-component programmes and include a range of different kinds of initiative that aim to address a number of issues such as under-age purchase, drink driving and alcohol-related violence as well as prevention. Ludbrook\(^3\) (2004) reported that community action can reduce drink related problems. Ritson\(^17\) (1995) describes a framework for designing, implementing and evaluating sustainable action in communities to combat alcohol misuse.
5.6 Summary

A number of familial, social and contextual factors influence the development of drinking patterns during adolescence. Good family relations and a supportive family environment seem to be most strongly linked to lower levels of drinking. Most prevention and education interventions targeted at young people are school-based but at best, most only increase knowledge and have little impact on attitudes or behaviour. However, a small number of targeted interventions have demonstrated longer-term impacts on drinking behaviour or show potential to do so.

There are a number of measures that are effective in reducing drinking in adults and can be taken up by the drinks trade. These include reducing the cost of soft and low alcohol drinks and stopping drinks promotions. Workplace alcohol policies are also regarded as a potential mechanism for promoting sensible drinking and supporting employees with drink problems. However, little is known about how effectively they are implemented, their impact on drinking behaviour or the effectiveness of support provided for problem drinkers.

5.8 Current research

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<tr>
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<td>Martine Stead, Institute for Social Marketing, University of Stirling</td>
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<td>Hazel Watson, Glasgow Caledonian University</td>
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<td>Researchers:</td>
<td>Caroline Cherry, Greater Glasgow Alcohol Team</td>
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<td>Researchers:</td>
<td>Ruth Whatling, Analytical Services Division, Scottish Executive Health Department &amp; Mori Scotland, Scottish Executive Health Department</td>
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5.9 Recommendations

**The Scottish Executive has identified the following priority for action:**

- To develop educational and workplace cultures which promote healthy lifestyle choices and provide people with or at risk of developing alcohol problems with appropriate support.

**Suggested gaps in research**

- There is a lack of evidence on the best way to reduce drinking in school age children. Targeted school-based and family-based interventions show potential for preventing drinking and harmful drinking in adolescence but further research is required both to develop interventions that are culturally appropriate for the Scotland and to evaluate their effectiveness.

- There has been little systematic study of workplace policies on alcohol in Scotland. Further research is required to determine both their extent and effectiveness.

**References**


6. Treatment and support services

There is now a considerable body of evidence from systematic review about the effectiveness of treatment interventions for the identification and treatment of alcohol problems including three major Scottish reviews.\textsuperscript{1,2,3}

6.1 Screening and detection

There are three methods of screening patients for alcohol problems - screening tools based on self-reported behaviour, biological markers and measures of blood alcohol concentration. Evidence from systematic reviews indicates:

- CAGE (4 item test) is the most effective screening tool for identifying alcohol dependence and abuse in the general population
- AUDIT (10 item test) is most effective for detecting hazardous drinking before the onset of problems
- Shortened versions of AUDIT have only slightly diminish sensitivity and have been found useful in A&E (FAST and PAT) and Obstetrics (TWEAK and T-ACE)
- Biological markers lack sensitivity and in general are not as effective as screening tools based on self-reported drinking.
- Mean red blood cell volume (MBV) is the least sensitive and does not detect recent relapse. Both gamma-glutamyl transferase (GGT) and MBV give more false positives than carbohydrate deficient transferrin (CDT), with the latter giving a more accurate marker of recent drinking.
- Biological markers are of most valuable when drinkers have reason to under report drinking and for monitoring progress in reducing drinking.
- Blood alcohol concentration (BAC) has been found to be useful for monitoring patients in the community.
- The breathalyser is a reliable method for detecting very recent intake.
- Saliva alcohol tests also reliably measures blood alcohol concentration

6.2 Brief intervention

There is evidence from a review of reviews\textsuperscript{4} that:

- brief interventions are cost effective
- brief interventions can moderate alcohol consumption amongst heavy drinkers
- extended brief interventions (several visits) in primary care settings for women can be effective
- brief interventions in primary care settings are equally effective in men and women for hazardous alcohol consumption
- brief interventions can be effective in opportunistic (non-treatment-seeking) samples and as typically delivered by healthcare professionals
- there is a lack of evidence of a dose-effect relationship linking the intensity of brief interventions with outcome
brief interventions are effective but there are gaps in knowledge about the critical components of effective brief interventions, their effectiveness in different settings (such as hospital settings) and with different populations.

6.3 Detoxification

Evidence from systematic reviews indicates that:

- Benzodiazepines should be the first choice drug therapy based both on their safety and effectiveness.
- There is insufficient evidence to determine whether long-acting benzodiazepines are more effective than shorter-acting drugs. However, it has been demonstrated that diazepam has been associated with misuse and alcohol-related fatalities.
- Chlormethiazole is also an effective treatment for alcohol withdrawal but a fatal interaction with alcohol, makes its use unsafe without very close supervision.
- Major tranquillisers and related antipsychotic drugs are effective in preventing delirium but an increased risk of seizure limits their use to within specialist services.
- Outpatient detoxification has been shown to be safe for mild to moderate drinkers. In addition, outpatient and home detoxification are as effective as inpatient detoxification and are more cost-effective.
- Some patients may also prefer home detoxification as it interferes least with work and family.
- Epilepsy and concurrent medical or psychiatric illness have been identified as contraindications for outpatient detoxification.

6.4 Relapse prevention

- There are a range of psychosocial interventions - Cognitive Behavioural Therapy (CBT), Motivational Enhancement Therapy (MET), and Twelve Step Facilitation (TSF) – which are equally effective in reducing alcohol consumption, with MET representing the briefer and therefore more cost-effective alternative. All three forms of therapy almost double rates of abstinence or controlled drinking compared with spontaneous remission.
- At present there is no evidence regarding the effectiveness of the non-directive/client-centred counselling. This is the most common approach used in Scotland and the rest of the UK.
- There is no evidence of greater benefits of inpatient over outpatient treatment, although outpatient treatment is more cost effective. However, in-patient care is essential for patients with limited social support or a poor social environment and those with serious medical or psychiatric conditions.
- Certain forms of therapy work better with certain co-morbid psychiatric conditions and appropriate drug treatment of co-morbid psychiatric conditions is essential.
• Attendance failure is common with patients with alcohol problems and is associated with delay between referral and start of treatment.
• Acamprosate and Naltraxone are effective pharmacotherapies for preventing relapse when used as an adjunct to psychosocial interventions.
• Limited data indicate that Naltraxone may be useful in cases where the availability of psychosocial interventions is restricted.
• Evidence for Disulfiram (Antabuse) is mixed, but its use may be beneficial for subgroups of alcoholics when combined with psychosocial treatment family involvement, and supervision and coercion.
• In patients with alcohol problems, anxiety and depression usually resolve with alcohol treatments but with co-morbid depression antidepressants improve depressive symptoms. There is insufficient evidence that antidepressants improve drinking outcomes in non-depressed patients.

6.5 Preventing Wernicke-Korsakoff's Syndrome

Thiamine supplement has been shown to prevent irreversible brain damage seen in excessive drinkers with Wernicke-Korsakoff's Syndrome\(^5\) and the results of an Australian health economic simulation suggest that supplementing full strength beer with thiamine rather than wine or bread-making flour would be most cost effective\(^1\).

Targeted thiamine supplementation may also have a role to play in reducing alcohol-related harm. It is estimated that at least half of patients presenting to hospitals with a head injury have an alcohol problem\(^6\) and as a group, patients with alcohol problems suffer greater mortality from traumatic brain injury (TBI) than other patients. Those who survive also have poorer prognosis, particularly with respect to cognitive function. A study of an Edinburgh specialist neurosurgical unit found that less than a half of head injury patients who were at risk of being thiamine deficient as a result of very heavy drinking were given thiamine. Furthermore, when thiamine was given, it was usually administered orally, despite the fact that with this group of patient oral absorption is poor, and at low doses of short duration\(^6,7\).

Further research is required to determine the potential role of targeted thiamine supplementation in improving the outcome of patients who are at risk of developing Wernicke-Korsakoff's Syndrome.

6.6 Alcohol treatment in Scotland

The Health Technology Board for Scotland (now Quality Improvement Scotland) conducted two surveys of relapse prevention (psychosocial and pharmacological) to assess the provision of services by NHS Boards and non-NHS providers. The response rate from non-NHS providers was relatively low giving only a partial picture of relapse prevention within this sector. No information is available on approaches to screening and detecting, detoxification or brief intervention\(^8\).
At present there is little evidence about the effectiveness of treatment interventions for young people with alcohol problems or the treatment needs of older people with alcohol problems.

6.6 Services for families of problem drinkers

There is little evidence about the effectiveness of interventions to support the families of problem drinkers. However, a feasibility study of an intervention based on the stress-coping-health model found that the intervention when delivered by trained health care professionals significantly reduced physical and psychological symptoms experienced by relatives, and increased tolerance and coping behaviour. The confidence and motivation of the health care professionals were also improved by working directly with the relatives.

A scoping study of parental substance misuse in Scotland found that while the impact of, and risks associated with, parental misuse have been well mapped, not much is known about the views and needs of children. However, the experiences of young people aged 15-27 years, who had at least one parent with a drug or alcohol problem, have been explored encompassing aspects of their childhood, current situation and future. The authors conclude that the complexity of the experiences reported suggest the need for integrated policy and service provision extending from childhood into young adulthood. In addition, they argue that young people affected by parental substance misuse need to become part of debates about the kinds of supports they need and value.

6.7 Training

A study comparing videotaped patient interview, real and simulated patients (played by trained actors) – did not find differences in levels of knowledge or attitudes to patients with alcohol misuse problems. However, undergraduate students rated simulated patients as significantly more helpful than the other two methods regarding the acquisition of interview skills. The advantage of simulated over real patients was that they described the entire range of alcohol-related problems (dependence, withdrawal, delirium tremens, etc.) but in a guarded and defensive fashion. This facilitated the development of an appropriate questioning style, empathy and patience.

A medical research team at the University of Newcastle has also been considering how to encourage medical and nursing staff to deliver alcohol interventions. The study found that higher levels of alcohol-related postgraduate training and education resulted in better recognition, diagnosis and management of alcohol-related problems by GPs.

Further research is now required to determine if recent curriculum developments in the training of medical, nursing and social work students have improved the management and treatment of patients/clients with alcohol problems and the delivery of treatment services. This might also include an assessment of awareness of the importance of and current practice in recording.
6.8 Summary

There has been a considerable amount of research into the effectiveness of treatment interventions for problem drinkers, which has provided a sound evidence base for the development of treatment services, but there are still many research questions that need to be answered. Some trials have been conducted in Scotland but they have tended to be of insufficient power and to have methodological problems that limit the conclusions that can be drawn.

Further research is needed to determine the feasibility of delivering screening and brief interventions in different settings and with different populations. Further research is also required to determine how to extend the impact of brief intervention; to determine the effectiveness non-directive client-centred counselling traditionally used in the UK; and to determine how to maximise the benefits of drug therapies Acamprosate and Naltrexone. This research might be taken forward at either a Scottish or UK level.

6.9 Current research

<table>
<thead>
<tr>
<th>Title:</th>
<th>Intensive Support and Monitoring Service (ISMS) evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers:</td>
<td>John Boyle, DTZ Research &amp; Consulting</td>
</tr>
<tr>
<td>Funder:</td>
<td>Scottish Executive Education Department</td>
</tr>
<tr>
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<table>
<thead>
<tr>
<th>Title:</th>
<th>Development, implementation and evaluation of a pilot project to deliver interventions on alcohol issues on community pharmacies</th>
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<tbody>
<tr>
<td>Researchers:</td>
<td>Derek Stewart, School of Pharmacy, The Robert Gordon University</td>
</tr>
<tr>
<td>Funder:</td>
<td>Alcohol Education and Research Council</td>
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<tr>
<td>Budget:</td>
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<table>
<thead>
<tr>
<th>Title:</th>
<th>Predictors of outcome following brief intervention in patients with alcohol related facial injuries</th>
</tr>
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<tbody>
<tr>
<td>Researchers:</td>
<td>Ashraf F Ayoub, University of Glasgow</td>
</tr>
<tr>
<td>Funder:</td>
<td>Alcohol Education and Research Council</td>
</tr>
<tr>
<td>Budget:</td>
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<td>Duration:</td>
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<tr>
<th>Title:</th>
<th>Homelessness and substance misuse – evidence review to inform development of intervention for this group</th>
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<tbody>
<tr>
<td>Researchers:</td>
<td>Contractor to be appointed</td>
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<tr>
<td>Funder:</td>
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<tr>
<th>Title:</th>
<th>Problematic drinking: estimating the problem and charting service capacity.</th>
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<td>Researchers:</td>
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<tr>
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</tr>
</tbody>
</table>
6.9 Recommendations

<table>
<thead>
<tr>
<th>Suggested gaps in research</th>
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</table>
Specifically within a Scottish context gaps identified include:

- Evaluation against best practice of the new treatment services for young people with alcohol problems and their ability to reach vulnerable young people such as offenders and the homeless.

- There is also a lack of evidence on effective treatment interventions for older people and for families of problem drinkers.

- Further research is required to determine the potential role of targeted thiamine supplementation in improving the outcomes for patients who are at risk of developing Wernicke-Korsakoff's syndrome.

- Further research is required to determine the clinical and cost-effectiveness of alcohol interventions in an acute setting e.g. the delivery of brief interventions, treatment of liver cirrhosis, identification of problem drinking.

- Better understanding of the impact of curriculum developments in the training of medical, nursing and social work students on the management and treatment of patients/clients with alcohol problems is required.

- There is a lack of research on the effectiveness of brief interventions in a range of settings.

- The future impact of alcohol harm on the NHS should be modelled.

References

7. Protection and controls

In this chapter we summarise available review level evidence\textsuperscript{1,2,3,4} on the effectiveness of policy and legislative interventions to control alcohol consumption and reduce alcohol-related crime and disorder.

7.1 Controlling alcohol consumption

\textit{Pricing and taxation}

Alcohol costs about half of what it did, in real terms, in 1980 and about two thirds of what it did in 1990\textsuperscript{5} and the price and relative affordability of alcohol has been shown to directly affect total alcohol consumption. There is additional evidence that alcohol taxation is effective in reducing alcohol consumption and alcohol-related harm. However, there is a gap in understanding about the size of the price effects, particularly in relation to subgroups within the population including young drinkers, different income groups and heavy drinkers\textsuperscript{1}.

\textit{Advertising and promotions}

In the UK alcohol advertising is permitted on television and radio and in print media with content controlled by a voluntary code. There is still no clear evidence about the relationship between alcohol advertising and alcohol consumption. However, advertising content may shape attitudes to alcohol, particularly among young people. Evidence on the banning of alcohol advertising is mixed, but most recent studies show bans on alcohol advertising reduce consumption\textsuperscript{6}. Only a small amount of research has been conducted into sports sponsorship and internet promotions.

Drink promotions conducted both by the drinks industry (free drinks in cinemas) and the license trade (\textit{happy hours} and \textit{two for one} promotions) are very common. Evidence on their impact is limited but suggests that these promotions do increase consumption levels.

\textit{Underage sales}

Evidence from community enforcement programmes provides only limited support (US data), while high profile policing and enforcement of law on underage sales was associated with a reduction in the number of crimes and arrests. Campaigns on underage sales, training schemes for sales outlets and age checks as well as proof of age card schemes may have an impact, although evidence in a Scottish context is very limited.
7.2 Reducing alcohol-related crimes and disorder

An increase in alcohol consumption is linked to an increase in violence with the majority of incidents occurring in public space, between young males, either outside licensed premises or while in transit between them.

A Home Office study estimated that 25% of all crimes were attributable directly or indirectly to alcohol. Applying this estimate to Scottish criminal justice statistics, it is estimated that about 42,500 adults are proceeded against annually in Scotland for crimes in which alcohol has been a causal or contributory factor.

Licensing legislation

In the US increasing the minimum legal drinking age to 21 has reduced alcohol-related crashes and injuries and may also reduce alcohol consumption, but this may not transfer to the UK. Opening times and outlet density is positively associated with an increase in alcohol consumption and public order, with longer sales hours being linked to increased alcohol-related crime and disorder, although UK and Scottish evidence on this is mixed. Lowering the age for drinking and buying alcohol may increase male juvenile crime, whereas staggering opening times (and curfews) has been shown to reduce alcohol-related disorder.

The Licensing (Scotland) Act will be implemented in 2008/09 and includes measures that will allow for more flexible opening, but the presumption is against 24 hour opening. It will also specifically ban of ‘two for one’ promotions and promotions that encourage speed drinking, and will make server training mandatory for most bar staff. Provisions to extend recent changes in Lord Advocate’s prosecution policy to allow for test purchasing of age-restricted goods to include alcohol, are also included.

Related legislation, the Antisocial Behaviour (Scotland) Act 2004 gives the police powers to control low level antisocial behaviour which includes being drunk and incapable in a public place; refusing to leave a licensed premise when requested to do so; and consuming alcohol in a public place when drinking is prohibited by bye laws.

Research should be conducted to determine the impact of measures in the Licensing (Scotland) Act and the Antisocial Behaviour (Scotland) Act 2004.

Policing

In addition to enforcing existing licensing law, high profile policing around licensed premises, closed circuit television to mobilise police force, pub watch schemes, actions addressing drink driving and prohibition of drinking in public places all reduce levels of intoxication and alcohol-related public disorder.
**Pub safety measures**

Several measures have been shown to increase pub safety. The use of trained security staff at night, intensive, high quality, face to face server training, when accompanied by strong and active management support, enforcement of ‘server law’, pub layout, noise levels and crowding and the provision of food on the premises are all associated with reduced levels of intoxication and public disorder and violence.

In addition, public transport initiatives that facilitate the movement of the public away from busy city centres have reduced levels of violence as has rigorous application of liquor licensing arrangements as demonstrated in the Torquay experiment.

A UK survey of patients with facial injuries found that over half were related to alcohol consumption and introduction of toughened drinking glasses has been effective in reducing glass attacks and facial injuries. However, health warning information has little effect on alcohol-related crime and disorder.

### 7.3 Drink driving

There is strong evidence from the US that: BAC laws of 80mg/100ml or lower; lower BAC for young and inexperienced drivers; and sobriety check points reduce alcohol-related crash fatalities. There is review level evidence that selective breath testing, sobriety checkpoints and random breath testing are effective in preventing alcohol-impaired driving, alcohol-related crashes and associated fatal and non-fatal injuries. Ignition interlock devices are effective in reducing recidivist intoxicated driving. Vigorously enforced and high public profile action was most successful.

Evidence from the US indicates that a minimum legal drinking age also prevents alcohol-related crashes and associated injuries but this could be seen as a further criminalisation of these groups. Effectiveness is also heavily dependent on enforcement but there is little UK evidence regarding what constitutes optimal enforcement.

**Drink driving in Scotland**

A retrospective analysis of biological samples from drivers suspected to drive under the influence of alcohol or drugs, covering the Strathclyde region the period from 1995-1998, showed a higher incidence of drugs than alcohol in the blood or urine samples. However, blood samples taken from fatally injured drivers indicated that alcohol was the main causal factor in fatal road accidents. More recent data collected in 1999 in the Strathclyde region showed that about 20% of living drivers were impaired by alcohol, with an average BAC of 148mg/100ml (range 41-333mg/100ml) among the alcohol-only drivers. Among fatally injured drivers over the same period (26 cases) alcohol and drug misuse was shown to be minimal, with two of the 5 alcohol containing blood samples being under the legal driving limit.
A survey of a representative sample of 1,000 Scottish drivers conducted in 2000 found that although 37% of drivers had driven after drinking alcohol in the last 12 months but only 5% had done so when they believed that they were over the limit. Young males aged 17-29 years were most likely to admit (13%) to having driven while over the limit in the last 12 months.\(^{13}\)

### 7.4 Summary

There is now considerable evidence that a range of fiscal, legislative and other measures are among the most effective in reducing alcohol consumption and alcohol-related crime, violence and disorder. However, the strength of evidence of the effectiveness of these interventions is not reflected in measures to reducing alcohol-related harm that have been implemented, either at a Scottish or UK level.

### 7.5 Current research

<table>
<thead>
<tr>
<th>Title</th>
<th>Test purchasing pilot for illegal sales of alcohol to children under the age of 18.</th>
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<tbody>
<tr>
<td>Researchers:</td>
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<tr>
<td>Funder:</td>
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<table>
<thead>
<tr>
<th>Title</th>
<th>The relationship between off-sales and problem drinking in Scotland</th>
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<td>Researchers:</td>
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<tr>
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### 7.6 Recommendations

**Suggested gaps in research**

- Further research is required to determine the extent and impact of both the direct and indirect promotion of alcohol.
References


8. Conclusions

Alcohol consumption and alcohol-related harm

A considerable amount of data is collected on alcohol consumption using cross sectional surveys. However, the quality of the data needs to be improved and there is a lack of data for particular sub-groups of the population, for example black and minority ethnic groups. In addition, longitudinal data are rarely collected. Given the recent increase in drinking in young people longitudinal data for the 16 to 30 year old age group represent the most serious gap.

Scotland has a wealth of routine data on alcohol-related morbidity and mortality. Further systematic analysis of this data is urgently required to improve understanding of trends in alcohol-related physical and mental illness and their relationship with sex, age and socio-economic factors. An increase in analytical capacity will be required.

The recent report of an exponential increase in deaths due to cirrhosis of the liver urgently requires a systematic and comprehensive exploration of the factors that have contributed to this both in Scotland and the rest of the UK.

There are a variety of data available on alcohol-related social harm but further more detailed studies are also required. A study of the nature, extent and impact of parental problem drinking on children and the relationship between alcohol, sexual risk taking and sexual assault are two priority areas.

Effective interventions

There is now a growing body of evidence about the effectiveness of strategies and interventions to reduce alcohol and alcohol-related harm. Recent reviews\(^1,2,3\) have consistently found that control and protection measures that reduce the availability of or restrict access to alcohol and reduce drink driving have the greatest impact, are comparatively cheap to implement and maintain. Interventions that alter the drinking environment are also effective providing that they are actively enforced.

Treatment interventions are effective but only relevant to the minority of the population who are alcohol dependent. However, brief intervention, for a larger minority of heavy non-dependent drinkers is both effective and cost-effective and has the potential to make a significant impact on alcohol consumption. In contrast alcohol education and public information campaigns have only very limited effect and while easy to implement are resource intensive.
**Developing a research programme**

A considerable amount of alcohol research has been conducted in Scotland but studies have often been small in scale. Where trials have been conducted they have often suffered from methodological problems or have lacked power to detect differences between intervention and control groups.

The research programme should focus research resources on:

- Developing capacity for secondary analysis of existing datasets in order to better understanding of trends in alcohol consumption and related harms in Scotland including international comparisons
- A small number of well-designed studies that are of sufficient size to generate findings that are of value and that inform policy development.
- Natural and planned experiments of population-level interventions, such as changes in licensing laws, pricing policies.
- Developing a research network of alcohol problem services to host trials of new interventions

The research programme should also be coordinated with work that is being funded by UK research councils and agencies elsewhere in the UK (NICE and Joseph Rowntree Foundation) and Europe (WHO). A UK-wide database of current research would help facilitate coordination. Funding should also be linked to the effective dissemination of research findings.

**References**

Appendix 1

Search strategy

Material was identified for the review using the bibliographic, electronic databases Medline, CINAHL, Embase and PsycINFO. A compact search strategy was constructed which presented a ‘palate’ of concepts, which were arranged in search ‘strings’. This was a helpful way of simplifying the potential search combinations, but also producing a more manageable picture of the search subject.

As a main strategy a truncated keyword alcohol*$.mp was used but further filters were included to avoid including irrelevant material (e.g. research primarily focusing on the chemical and compound properties of alcohol):

- database subject terms (e.g. exp *ALCOHOL ABUSE/)
- a set of words descriptive of alcohol drinking (e.g. drunk)
- descriptors for alcohol context areas (themes including health education and promotion, health interventions, attitudes and behaviour, safety, communication, society, crime, and health services).

Literature published in or about Scotland were identified in the major bibliographic databases searched (Medline, CINAHL, Embase and PsycINFO) through institution fields specifying the primary author’s organisational affiliation (Scottish place name and institution terms covering major cities and academic establishments). Searches were limited to records dated from 2002 to 2006 (searches were conducted between 19 and 30 June 2006).

CINAHL
1. ((drink or drinking or drunk or drank) adj (excessiv$ or bing$ or heavy or hazard$ or problem$ or harmful or sensible)).mp.
2. (Scotland or Edinburgh or Glasgow or Strathclyde or Dundee or Stirling or Aberdeen or Robert Gordon or Abertay or Heriot or Napier or Paisley or St Andrews or Queen Margaret).in.
3. (Scotland or Edinburgh or Glasgow or Strathclyde or Dundee or Stirling or Aberdeen).mp.
4. exp *ALCOHOLIC BEVERAGES/ or exp *ALCOHOLIC INTOXICATION/ or exp *ALCOHOLISM/ or exp *ALCOHOL ABUSE/
5. ALCOHOL$.mp. [mp=title, cinahl subject heading, abstract, instrumentation]

MEDLINE
1. ((drink or drinking or drunk or drank) adj (excessiv$ or bing$ or heavy or hazard$ or problem$ or harmful or sensible)).mp.
2. ALCOHOL$.mp.
3. exp *Alcoholism/ or exp *Alcohol Drinking/ or exp *Alcoholic Intoxication/ or exp *Alcohol-Related Disorders/
PsycINFO
1. ((drink or drinking or drunk or drank) adj (excessiv$ or bing$ or heavy or hazard$ or problem$ or harmful or sensible)).mp.
2. ALCOHOL$.mp. [mp=title, abstract, subject headings, table of contents, key concepts]
3. exp *Alcohol Abstinence/ or exp *Alcohol Abuse/ or exp *Alcohol Drinking Attitudes/ or exp *Alcohol Drinking Patterns/ or exp *Alcohol Education/ or exp *Alcohol Intoxication/ or exp *Alcohol Rehabilitation/ or exp *Alcohol Withdrawal/ or exp *Alcoholic Beverages/ or exp *Alcoholic Hallucinations/ or exp *Alcoholic Psychosis/ or exp *Alcoholics Anonymous/ or exp *Alcoholism/ or exp *Blood Alcohol Concentration/ or exp *Detoxification/ or exp *Sobriety/
4. (Scotland or Edinburgh or Glasgow or Strathclyde or Dundee or Stirling or Aberdeen or Robert Gordon or Abertay or Heriot or Napier or Paisley or St Andrews or Queen Margaret).in.
5. (Scotland or Edinburgh or Glasgow or Strathclyde or Dundee or Stirling or Aberdeen).mp.

EMBASE
1. ALCOHOL$.mp.
2. ((drink or drinking or drunk or drank) adj (excessiv$ or bing$ or heavy or hazard$ or problem$ or harmful or sensible)).mp.
3. (Scotland or Edinburgh or Glasgow or Strathclyde or Dundee or Stirling or Aberdeen or Robert Gordon or Abertay or Heriot or Napier or Paisley or St Andrews or Queen Margaret).in.
4. exp society/ or exp "psychological and psychosocial phenomena"/ or exp CRIME/ or exp Legal Aspect/ or exp Breath Analysis/ or exp Financial Management/ or exp "health care facilities and services"/
5. exp *ALCOHOL ABSTINENCE/ or exp *ALCOHOL ABUSE/ or exp *ALCOHOL BLOOD LEVEL/ or exp *ALCOHOL CONSUMPTION/ or exp *ALCOHOL INTOXICATION/ or exp *ALCOHOL METABOLISM/ or exp *ALCOHOL TOLERANCE/ or exp *ALCOHOL TOLERANCE/ or exp *ALCOHOL WITHDRAWAL/ or exp *ALCOHOL/ or exp *ALCOHOLICS ANONYMOUS/ or exp *ALCOHOLISM/ or exp *BEER/ or exp *DRUG ALCOHOL INTERACTION/ or exp *WINE/