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# A HEALTH STRATEGY FOR ALCOHOL : SETTING TARGETS AND CHOOSING POLICIES

By Christine Godfrey and Alan Maynard

YARTIC OCCASIONAL PAPER 1

# A HEALTH STRATEGY FOR ALCOHOL:

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## Yorkshire Addictions Research, Training and Information Consortium (YARTIC)

The Leeds Addiction Unit and the Centre for Health Economics at York are collaborating to provide a number of services for activities relating to substance misuse in the Yorkshire Health area. The Consortium has three main areas of activities. The aim of the research brief is to disseminate knowledge from national and international researchers to practitioners and stimulate research activities within the Yorkshire area. The training brief is to develop and implement Regional and district training strategies to ensure a high standard of practice amongst specialist agencies and primary care staff throughout the region. The Yorkshire Regional Substance Misuse Database, hosted by the Leeds Addiction Unit, provides basic information required by the Department of Health. This paper is the first in a series designed to review international, national, and local issues in the substance misuse field. The next paper, **The Cost Effectiveness of Alcohol Treatment**, by Christine Godfrey, will be published in June. The third in this series, **Measuring Local Alcohol and Drug Prevalance**, by Ian Golton and Mike Mckenna, is due to be published in September.

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**ABSTRACT**

Each year the use of alcohol costs the NHS hundreds of millions of pounds and is associated with the premature deaths of between 8,700 and 33,000 people. Even moderate doses of alcohol can damage health, inducing cardio-vascular disease, creating liver cirrhosis, and causing fatal accidents on the roads, at play (eg, drownings) at work.

Alcohol consumption increased by 50 per cent between 1965 and 1990. Consumption peaked in 1979, dipped until 1983 and since then has grown to 9.3 litres of pure alcohol per adult in 1990.

The price of alcohol and purchasing power have significant effects on alcohol consumption. Advertising and the number of outlets also affect use. Manipulation of these economic influences could reduce alcohol use and the damage it imposes. To achieve the World Health Organisation target, to which the British Government has agreed, of a 25% reduction in use by the year 2000, prices need to be raised above the rate of inflation by at least 5% annually. Effective workplace policies and random breath tests would reduce health damage.

Managers in the National Health Service should adopt proven low cost minimal interventions to identify heavy users and reduce adverse health effects. Alcohol advertising might be taxed with ear marked revenues being used to fund health promotion which could create greater awareness of alcohol related health risks and a culture of more careful and moderate use of this drug.

NHS purchasers should require contracting providers to screen patients for alcohol use: about

1 in 5 NHS inpatients are heavy alcohol users. GPs should be required to develop and evaluate cost effective policies.

The health losses associated with the use of alcohol in Britain could be reduced substantially. There are proven national and local NHS policies which, if deployed effectively, and enhance the length and quality of life of the vast majority (90 per cent) of the population who drink alcohol. Hopefully the Government will exploit these opportunities when it publishes its White Paper on the Health of the Nation.

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1 Alcohol related mortality is significant but difficult to estimate accurately because of poor epidemiological knowledge.

2 Using the best available 'attribution' factors, annual alcohol related mortality is between 8,700 and 33,000, and the life years lost are between 185,600 and 224,100.

3 Low dose alcohol may affect cardio-vascular disease but even moderate alcohol use can damage health.

4 The costs of alcohol related morbidity to the NHS are considerable, eg in 1987 it is estimated to have been £400m.

5 The indicators of 'damage' which can be easily monitored are liver cirrhosis and road traffic accidents but these are only indicators. Attempts should be made to provide better estimates of the full range of alcohol related harm.

## Section 2 - Consumption and Risk Behaviour - Measurement and Trends

1 Alcohol consumption increased by 50 per cent between 1965 and 1990. Consumption peaked in 1979, dipped until 1983 and has continued to grow since then to a level of 9.3 litres of pure alcohol per adult in 1990.

2 Data sources to measure risky behaviours are poor, could be improved and should be supplemented with routine NHS data collection (eg, as an integral part of the GP contract).

3 Action can be directed at consumption and/or risky behaviour.

4 In the short term per capita alcohol consumption is the best indicator of potential harm to health. In the longer term better data on risk behaviour should be evaluated and these results used to inform policy choices in addition to average consumption.

## Section 3 - Factors Influencing Drinking Patterns

1 The estimates of the effects of prices (price elasticity of demand) on consumption vary but they are robust and increased purchasing power (income elasticity of demand) vary but they indicate significant effects on alcohol consumption.

2 Both advertising and the number of outlets also affects the consumption of some

forms of alcohol significantly.

3 There is considerable scope for influencing the demand for alcohol, and at risk behaviour, by manipulating economic factors.

4 The design of a health strategy should take account of its implications for the supply of alcohol. Health concerns should be included in any proposed legislative changes affecting the industry.

## Section 4 - Non Health Service Interventions

1 A wide range of non health service interventions are available to reduce alcohol problems. Inter-agency links at a national and local level are vital to the success of a health strategy.

2 Budgets have not been used to control alcohol consumption systematically and the role of fiscal policy targetted at health gains could be significant.

3 The prices of alcohol will have to increase by 5 per cent more than the general rate of inflation every year if significant reductions in consumption and risk behaviour are to be achieved by the year 2000. If income increases by more than 2 per cent annually in the 1990s, even higher rises would be necessary.

4 The workplace is a setting where effective interventions could reduce alcohol

related problems. The evaluation of demonstration workplace alcohol schemes should be given a high priority in the Department of Health's and the NHS's research strategy.

5 Effective action (eg, random breath tests) against drink driving would reduce deaths and injuries significantly.

**Section 5 - Health Service Interventions**

1 It is recommended that a dual strategy of increased information and encouragement of the use of low cost interventions is pursued within the NHS.

2 Prevention strategies would need to be increased significantly to achieve changes in behaviour. These strategies must be continued over many years.

3 Resources to finance alcohol health education and evaluative research could be obtained from an advertising levy.

4 Mass-media and community based campaigns have an important "agenda setting" role which may help ensure the overall success of the alcohol related health strategy.

5 General Practitioners have a central role in prevention, screening, treatment and referral.

6 There is a need to introduce, via education, a culture of data collection about alcohol use of patients by both GPs and within hospitals. Purchasers should encourage hospital alcohol screening in contract setting.

7 Regional Health Authorities and purchasers should be obliged to assess the need for alcohol services in their area and ensure the provision of a wide range of cost-effective treatments.

## INTRODUCTION

The overall objective of any health strategy should be directed towards improving health outcomes and these health outcomes should be interpreted in terms of quality as well as quantity of life (health gains). Alcohol consumption is one of the risk factors contributing to ill-health. In this paper issues affecting the setting of targets, both nationally and locally, and the evidence on the choice of interventions to achieve the objectives of an alcohol strategy are reviewed. The broad goal for any targets for alcohol consumption could be evaluated in terms of the contribution towards achieving the goal of health gain for the population as a whole. Any changes in alcohol related health outcomes are the means by which the success of the strategy can be monitored. The interventions can be targeted at the risk taking behaviour or minimising the consequences of alcohol misuse.

This paper is divided into six main sections. Indicators which could be used to monitor the success of an alcohol strategy in achieving the 'goal' of improving quality and quality of life are considered in the first section. Measures of alcohol consumption, risk taking behaviour and their trends are reviewed in the second section and the issue of the choice of targets between total consumption and the numbers drinking over sensible limits is examined. The influences on drinking patterns and misuse are discussed in the third section to determine which factors are and are not amenable to policy intervention. The interventions which may achieve the goals set in a health strategy are examined in the fourth and fifth sections. The policies which could be pursued outside the NHS are considered first. The potential for changes in prevention and treatment policies within the NHS are analysed in the fifth section. Finally, some conclusions are drawn on the implementation of specific targets and how progress towards achieving health gains could be monitored and evaluated.

# 1 GOALS OF A HEALTH STRATEGY, THE ADVERSE EFFECTS OF ALCOHOL ON HEALTH AND RECOMMENDATIONS FOR PERFORMANCE INDICATORS

The purpose of this section is to assess the importance of alcohol as a health problem and the choice of indicators to monitor the progress of the health strategy. The available data on alcohol related outcomes in terms of morbidity, mortality, NHS resource use and non-health consequences are examined in turn. Problems associated with monitoring the outcomes of a health strategy are considered and available performance indicators assessed.

## 1.1 Mortality

If the exact relationship between alcohol and specific disease mortality was known the total number of alcohol related deaths could be obtained by summing the individual disease estimates. Epidemiological models of the changes in disease incidence, prevalence and health consequences could be used to predict changes in health outcomes and their timing resulting from changes in risk taking behaviour.

These models would be complex because different patterns of drinking are linked to different diseases. For example, liver disease is linked with chronic alcohol use, whereas accidents can result from single drinking bouts. Previous attempts to build such models, linking risk factor behaviours and disease outcomes, illustrate the importance of taking demographic factors and the time factors, linking changes in risk factors to changes in disease outcomes, when simulating changes in mortality (Gunning-Schepers, 1989).

Such work is inhibited and contentious because there is a lack of consensus about the risks of alcohol and the relationship of alcohol to a number of diseases, e.g. the relationship between alcohol and coronary heart disease and breast cancer continues to be fiercely debated (Godfrey and Hardman, 1990; Andreasson et al, 1991). Despite these uncertainties a number of attempts have been made to obtain some estimate of alcohol related deaths. Some have used available epidemiological evidence on attributable risks for different diseases. Another approach is to compare the death rates of those with severe drinking problems to those of the rest of the population. A third possible approach is to relate different patterns of premature deaths from population surveys with the drinking habits of the survey participants. It would be convenient if these different methods yielded similar estimates as, in this case, one or two methods could be adopted to provide estimates to monitor the progress of the health strategy. However, these different methods would only yield similar results if the medical effects of alcohol were related to a small range of diseases, linked to a heavy and continuous pattern of drinking and if such drinking habits were closely associated with the development of alcoholism. None of these conditions hold and previous studies using these different methods have yielded a wide range of estimates from 4,000 to 40,000 alcohol related deaths per year (Maynard et al, 1987).

A number of specific conditions are, by definition, alcohol related, e.g. alcohol dependence syndrome, toxic effects of alcohol and for chronic liver diseases alcohol is a major risk factor. The deaths attributed in this direct way, however, are only a small proportion of the total estimated alcohol related mortality, see Table 1. The wide range of diseases to which alcohol has been linked and the lack of a large representative group of non drinkers makes quantification of the proportionate role of alcohol in other diseases complex. Alcohol may

act as a contributory factor to other diseases in a number of ways. As well as a direct risk it is linked with other risk factors particularly blood pressure. Alcohol may also interact with some drugs, suppress the immune system and intoxication and chronic alcohol use may interfere with patients' compliance in different medical treatments. Also in some cases heavy drinking may be linked to other lifestyle factors which contribute to disease such as poor nutrition. For medical purposes and to understand the etiology of diseases, it may be necessary to distinguish the different effects of alcohol. For economic evaluations such distinctions may not be very relevant and the central issue is what health gains can be obtained from which alcohol programme at what cost?

To illustrate the range of figures that can be obtained from different methodologies several estimates of alcohol related deaths for England and Wales in 1989 are presented in Table 1. The first set of figures are for those diagnostic groups with the strongest link with alcohol. The second set of estimates are derived from Adelstein and White's (1976) study of the excess death rate of a group of severely dependent drinkers. More diseases and higher levels of risk from alcohol were listed in a set of attributable risks used to calculate the number of alcohol related deaths and life years lost derived by the Centres for Disease Control (CDC) in the US (1990). These risk factors were compiled from a variety of studies. Epidemiological estimates from a variety of sources were also applied to much broader category of diseases in the Royal College of General Practitioners (RCGP, 1986) report about alcohol misuse. The CDC factors and those from the RCGP report were applied to 1989 OPCS mortality data and the results are presented in Table 1. Details of the derivation of the figures are given in Appendix 1.

**Table 1 Estimates of Alcohol Related Mortality, 1989, England and Wales**

| Source of Figures | | Male | Female | Total |
|---|---|---|---|---|
| Alcohol psychosis | | 5 | 5 | 10 |
| Alcohol dependence syndrome | | 96 | 52 | 148 |
| Toxic effect of alcohol | | 74 | 34 | 108 |
| Chronic Liver Disease (1) | | 1065 | 930 | 1995 |
| Total - Directly alcohol related deaths | | 1240 | 1021 | 2261 |
| Adelstein and White (2) | Low | 4512 | 1955 | 6467 |
| | High | 6965 | 2668 | 9633 |
| Centres for Disease Control (CDC) Attributable Factors (3) | | 11839 | 10219 | 22058 |
| Royal College of General Practitioners Attributable Factors | | 23897 | 9344 | 33241 |

Notes:

1 66 per cent of chronic liver disease is attributed to alcohol, Maynard, Hardman and Whelan, 1987.

2 These totals include direct alcohol related deaths as above and estimate of alcohol related road traffic accidents, calculations derived using the methodology of Holterman and Burchell (1981) and Maynard, Hardman and Whelan (1987).

3 Total alcohol related deaths from all causes, attributable risks are set out in Appendix 1.

Sources: See Notes and OPCS Mortality Statistics by Cause 1989.

**Table 2 Proportion of Alcohol Related Deaths and Life Years Lost - Estimates from Two Sources**

| Disease Group | Males | | | | Females | | | |
|---|---|---|---|---|---|---|---|---|
| | ASW (1) (High) | | CDC (1) | | ASW (High) | | CDC | |
| | Deaths % | LYL (2) % | Deaths % | LYL % | Deaths % | LYL % | Deaths % | LYL % |
| Infection | 1.2 | 1.1 | - | - | 0.0 | 0.0 | - | - |
| Neoplasms | 0.0 | 0.0 | 36.3 | 16.9 | 5.8 | 3.0 | 26.0 | 17.0 |
| Circulatory | 9.3 | 1.9 | 15.6 | 3.6 | 9.8 | 1.2 | 29.5 | 6.9 |
| Respiratory | 7.0 | 0.9 | 4.9 | 0.7 | 6.6 | 1.0 | 9.7 | 1.0 |
| Digestive (3) | 24.2 | 12.9 | 13.2 | 13.7 | 41.3 | 35.0 | 13.5 | 24.4 |
| Mental Disorders | 1.5 | 1.3 | 1.5 | 2.8 | 2.1 | 2.5 | 1.0 | 3.4 |
| Injury and Poisoning | 56.7 | 82.0 | 27.0 | 61.9 | 34.5 | 57.3 | 17.9 | 46.5 |
| Other | 0.0 | 0.0 | 1.9 | 0.4 | 0.0 | 0.0 | 2.5 | 0.8 |
| | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Numbers | 7,000 | 147,400 | 11,800 | 156,700 | 2,700 | 38,600 | 10,200 | 67,400 |

Notes: 1 ASW refers to Adelstein and White's (1976) attributable risk factors and CDC to the Centres for Disease Control List of attributable risks, see Appendix 1 for details.

2 Life Years Lost calculated by average life expectancy.

3 Includes chronic liver disease.

Sources: See Table 1.

Other estimates provided by the Royal College of Psychiatrists (1986) using data from the Malmo study (25,000) and from Anderson (1988) who applied American population survey data to English death and drinking pattern data (28,000) are of a similar magnitude to the figures derived from the CDC attributable factors presented in Table 1. The estimates for alcohol related deaths are much lower than the comparable smoking figures (Maynard et al, 1987) but are still sizeable and, by changing behaviour, a large proportion may be preventable.

An alternative way of considering the mortality burden of diseases is to calculate life years lost from premature deaths. This measure is more akin to the measure of potential health gains set out in the introduction of this paper. Table 2 contains a comparison of alcohol related deaths and life years lost (calculated as the difference between age at death and life expectancy) for major groups of diseases using two different sets of attributable risk factors. As would be expected accidents which occur, on average, at a younger age are a more important source of potential health gains in life years lost than in numbers of death. Injuries and poisonings, which include road traffic accidents, are the leading cause of deaths of young people (Department of Health, 1991). Alcohol, as one of the risk factors amenable to change, would therefore need to be a major component of a health strategy for this group of the population. Only limited data on other preventable life years lost is available (Godfrey, Hardman and Maynard, 1989) but where such figures are compiled over a range of risk factors and diseases alcohol becomes a more important priority than if ranked by the number of deaths.

## 1.2 Moderate Alcohol Consumption and Mortality

There is agreement that excessive alcohol consumption is associated with a large number of premature deaths and that a reduction in alcohol misuse would result in health gain. A more controversial issue is whether moderate compared to no alcohol consumption has some beneficial effects particularly for coronary heart disease. This is an important issue for the design of a health strategy given the importance of coronary artery disease in the deaths of middle aged men. Shaper (1990, 1991) has argued that the observed J or U shaped curve in CHD and total mortality observed from data from the British Regional Heart Survey is a function of the behaviour of ex-drinkers. The study results suggest that there is a dynamic relationship between ill-health and drinking behaviour in which men who are diagnosed as having heart or other diseases had an increased likelihood of becoming non drinkers or occasional drinkers.

Marmot and Brunner (1991) in a review of a number of studies conclude, unlike Shaper, that there is some weight of evidence, despite the many methodological flaws contained in the reviewed studies, that two drinks a day are associated with no cardiovascular harm and may be protective against coronary heart disease. They suggest however that above two drinks a day there is evidence of harm, biological as well as social. Two drinks a day is below current recommended lower sensible limits. Also it should be recognised that the "protective effect" has been discussed mainly in terms of the middle aged. For the younger age groups accidents are the major cause of alcohol related premature deaths. Andreasson et al (1991) found, in their longitudinal study of Swedish conscripts, an increasing divergence in mortality between abstainers and moderate drinkers. Marmot and Brunner conclude that, "the balance of harm

and benefit does not weigh in favour of making a recommendation to the public to increase consumption in order to prevent coronary heart disease."

## 1.3 Alternative Mortality Indicators of Alcohol Related Harm

The reduction of alcohol related diseases will produce health gains in terms of quantity of life. The choice of indicator to monitor any changes in outcomes is, however, less clear cut. A number of strategies have included liver cirrhosis or chronic liver disease either as a target or outcome measure, e.g. New Zealand, United States, and by the Faculty of Public Health Medicine for the UK. The advantage of this indicator is its measurability and uncontroversial link with alcohol. Also it is considered a reasonable proxy for some other health outcomes and generally rises and falls with alcohol consumption (Royal College of Psychiatrists, 1986). Its disadvantage is that it is a condition linked with chronic alcohol consumption and may, therefore, not reflect fully changes directed specifically at other types of alcohol misuse, such as "binge" drinkers. Also whilst there are sufficient numbers of alcohol related deaths to monitor trends at a national and regional level, district monitoring over short periods is more difficult because of small numbers.

To avoid reliance on a single indicator other strategies, for example, in New Zealand and the Faculty of Public Health Medicine (1991), have advocated monitoring alcohol related road traffic accidents. Figures are available from the Department of Transport but are calculated in a different form from those reported in OPCS mortality statistics and are subject to some criticism (Harrison, 1987). Also the data are not available by Regional or district health boundaries and even if they were, might need careful interpretation because of small numbers.

Recent trends show improvements and provide an additional measure which, together with alcohol related injuries and poisonings would be useful supplementing measures.

Thus it would be difficult to monitor changes in all alcohol related deaths. A more systematic recording of alcohol histories in hospitals and primary care would aid epidemiological research (Tolley and Rowland, 1991). Reductions in the gaps in epidemiological knowledge needed to assess fully the health problems associated with alcohol misuse are well known but little progress has been made in mitigating them (McDonnell and Maynard, 1985). Without this research only a partial measurement of the alcohol related mortality can be made, and the potential health gains of an alcohol related strategy may consequently be underestimated.

## 1.4 Morbidity and NHS Costs

Previous estimates of alcohol related morbidity and associated costs have used similar methodologies and sources of attributable risks as those applied to mortality figures (Holtermann and Burchell, 1981; Maynard et al, 1987). Some treatments and conditions are directly related to alcohol and estimates of the inpatient costs incurred in psychiatric and non-psychiatric hospitals related to these conditions are given in Table 3. Scheffler et al (1987) suggested that the estimates of non psychiatric inpatient care related to these selected conditions were grossly underestimated because of the use of average instead of actual length of stays and the failure to consider directly alcohol related second or third diagnoses.

The bulk of alcohol related morbidity and costs from existing estimates are associated with a wider range of diseases. Two methods have been used to calculate these estimates. One

method is to use the same attributable factors as used in mortality estimates. An alternative methodology is to use surveys of inpatients and the relationship of their condition to their drinking histories. Such surveys have indicated that up to 1 in 5 admissions may be alcohol related (Barrison et al., 1982; and Lockhart et al, 1986) although other studies in the UK (Taylor et al., 1986) and New Zealand (Rayner et al., 1984) have suggested lower levels. In Table 3 the high figure is derived from using the assumption of 1 in 5 of all admissions to non psychiatric hospitals are alcohol related and the low figure is obtained by taking 5 per cent of general medicine and general surgery admissions only.

The figures in Table 3 only represent estimates of inpatient costs. Accident and emergency costs have been calculated at £18m to £25m per year in 1987 prices (Backhouse et al, 1986). No estimates are available for outpatient care either for directly related alcohol conditions and treatments or the wider range of diseases. In recent years the focus of alcohol treatment has moved from inpatient to outpatient care (Ettore, 1988). Also there is considerable involvement of non statutory agencies in providing a wide range of treatment and preventive services. These agencies receive funds from a wide range of bodies including local authorities, social security payments, voluntary contributions, private health insurance payments as well as grants from the Department of Health and local health authorities (Stockwell and Clement, 1989).

Primary health costs are also excluded from Table 3. The costs associated with severely dependent drinkers has been estimated at £2.26m in 1987 prices (Maynard, 1989) but this is without doubt an underestimate and does not include the wider hidden costs of alcohol related conditions. For example, alcohol may be the principal cause of 10 to 30 per cent of

hypertension and this is associated with high pharmaceutical costs in general practice (Saunder, 1987).

**Table 3 Estimates of Alcohol Related Inpatient Costs, 1987**

| | | £m |
|---|---|---|
| Psychiatric inpatient costs (directly alcohol related) | | 23.98 |
| Non psychiatric inpatient costs (alcohol psychoses, alcohol dependency syndrome; toxic effects of alcohol, chronic liver disease (66%) | | 11.5 |
| Other inpatient costs | | |
| Adelstein and White factors | Low<br>High | 52.30<br>88.60 |
| RGCP factors | | 361.41 |
| Admission survey | Low<br>High | 59.00<br>506.00 |
| TOTAL INPATIENT COSTS | Low<br>High | 88<br>530 |

Source: Godfrey and Hardman (1990).

While the estimates are not precise the conclusion that alcohol is associated with substantial amounts of current NHS resource use is obvious. However, even if these estimates were improved it is not clear that it would make an appropriate indicator or outcome measure.

Levels of expenditure or morbidity measures such as bed days reflect current medical practices and are process rather than outcome measures. More effective alcohol strategies may in the short term increase expenditure because there is more accurate identification of alcohol related health problems and more referrals for alcohol related treatment or prevention programmes. The available evidence on cost effectiveness of different strategies is discussed below. For outcome measures indicators of the effects of alcohol on ill-health and quality of life are required. This type of information may be built up if alcohol histories are a more routine part of medical examinations and the relationship between alcohol consumption, ill-health and health status is evaluated over a wide range of diseases.

## 1.5 Other Adverse Outcomes

Alcohol misuse is associated with social and legal problems as well as ill-health (Thorley, 1982). Also the costs of ill-health fall far wider than on the health service. Cost-effectiveness criteria applied to all these outcomes is likely to result in a different ranking of alcohol compared to other health care interventions than if only health outcomes are considered. Previous estimates of the social cost of alcohol misuse suggest that the costs to society fall mainly outside the health sector. Some estimates of these costs are presented in Table 4. Other aspects not explicitly included in these figures are the intangible costs to the families and victims of alcohol misusers arising from pain, grief and suffering.

The existence of costs outside the health sector may aid the inter-agency aspect of a health strategy. Conversely however it may lead to the attitude that action within the Health Service is only marginal to the programme. Previous attempts to co-ordinate strategies across

agencies have only met with limited success (Robinson and Maynard, 1989; Tether and Robinson, 1986).

**Table 4 Non Health Related Costs**

| | £m |
|---|---|
| Sickness Absence | 774 |
| Material Damage Road Traffic Accidents | 103 |
| Police and Admin Costs Road Traffic Accidents | 13 |
| Criminal Justice Administration | 24 |
| Probation | 3 - 30 |

Source: Godfrey and Hardman (1990)

## 1.6 Summary

1 Alcohol related mortality is significant but difficult to estimate accurately because of poor epidemiological knowledge.

2 Using the best available 'attribution' factors, annual alcohol related mortality is between 8,700 and 33,000, and the life years lost are between 185,600 and 224,100.

3 Low dose alcohol may affect cardio-vascular disease but even moderate alcohol use can damage health.

4 The costs of alcohol related morbidity to the NHS are considerable, eg in 1987 it is estimated to have been £400m.

5 The indicators of 'damage' which can be easily monitored are liver cirrhosis and road traffic accidents but these are only indicators. Attempts should be made to provide better estimates of the full range of alcohol related harm.

# 2 CONSUMPTION AND RISK BEHAVIOUR - MEASUREMENT AND TRENDS

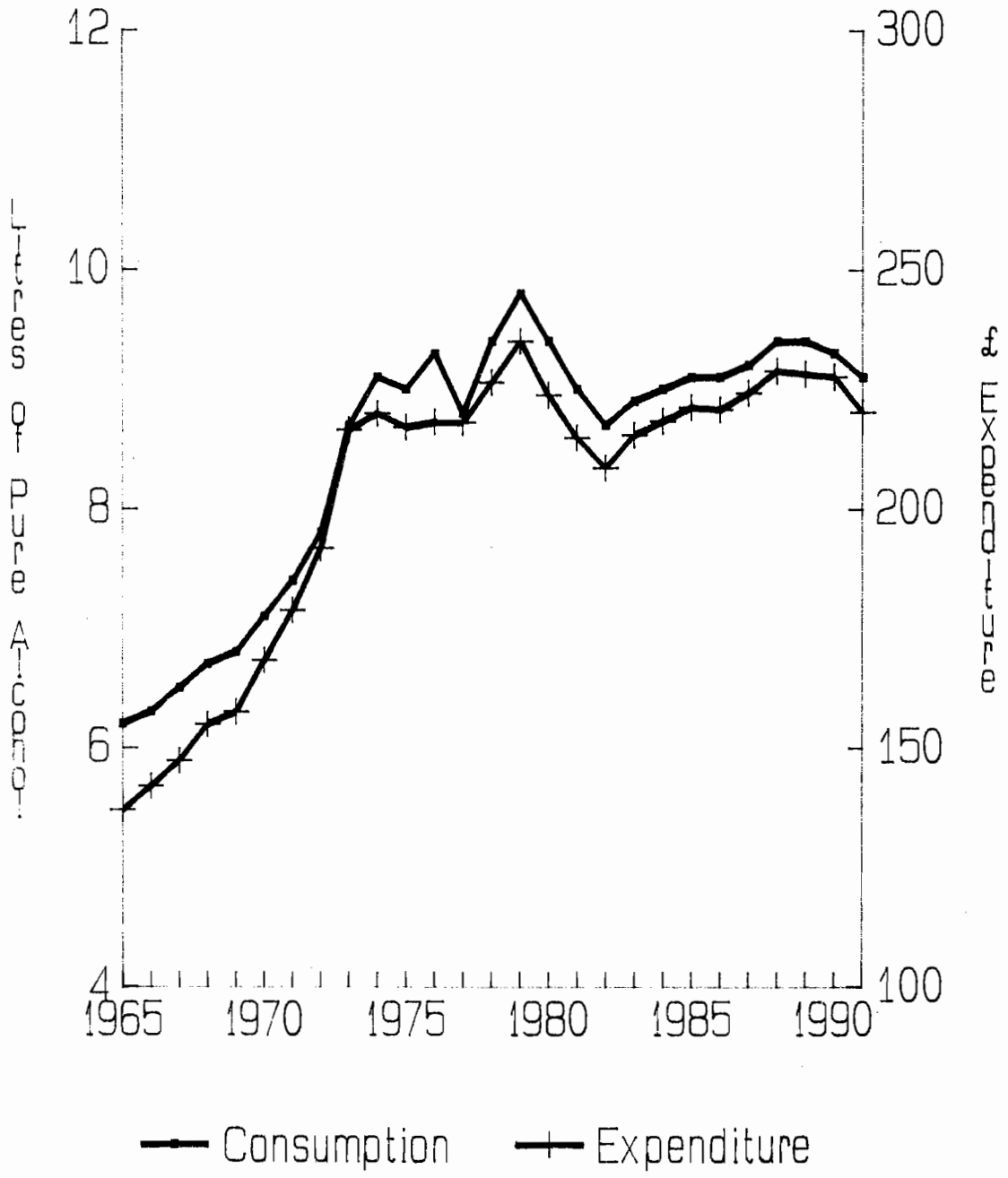
Alcohol problems result from a wide range of drinking patterns not just from chronic drinking. Some consensus has emerged on the use of sensible limits based on units of alcohol consumed (Royal College of Psychiatrists, 1986). These limits are in the form of a range where consumption below the lower level signifies little risk of long term health damage, consumption between the lower and higher level is associated with an increasing risk of harm, and consumption above the higher limit is thought more certain to be associated with health risks. However, consumption concentrated on a single occasion (or binge), drinking below the limits can be a factor in causing accidents or violence. Sensible limits are one way of measuring risk taking behaviour and the advantages and disadvantages of using this measure or using a total consumption measure are examined in this section.

## 2.1 Total Alcohol Consumption Measures

The advantage of total alcohol consumption measures are their availability and accuracy. Volume figures are compiled by Customs and Excise, based on the excise tax collection system, and these figures are used with price and some sales data to compile the expenditure figures used in the National Income and Expenditure Accounts. Expenditure figures are the easiest to combine across beverages. Volume figures need to be converted to a common unit, usually in terms of pure alcohol content. This requires some assumptions to be made about the average alcohol strength of the beverages and estimates may vary slightly from different sources.

**Figure 1**

UK Alcohol Consumption and Expenditure per capita (15 years and over) - Litres of pure alcohol and £ per head 1965-1991



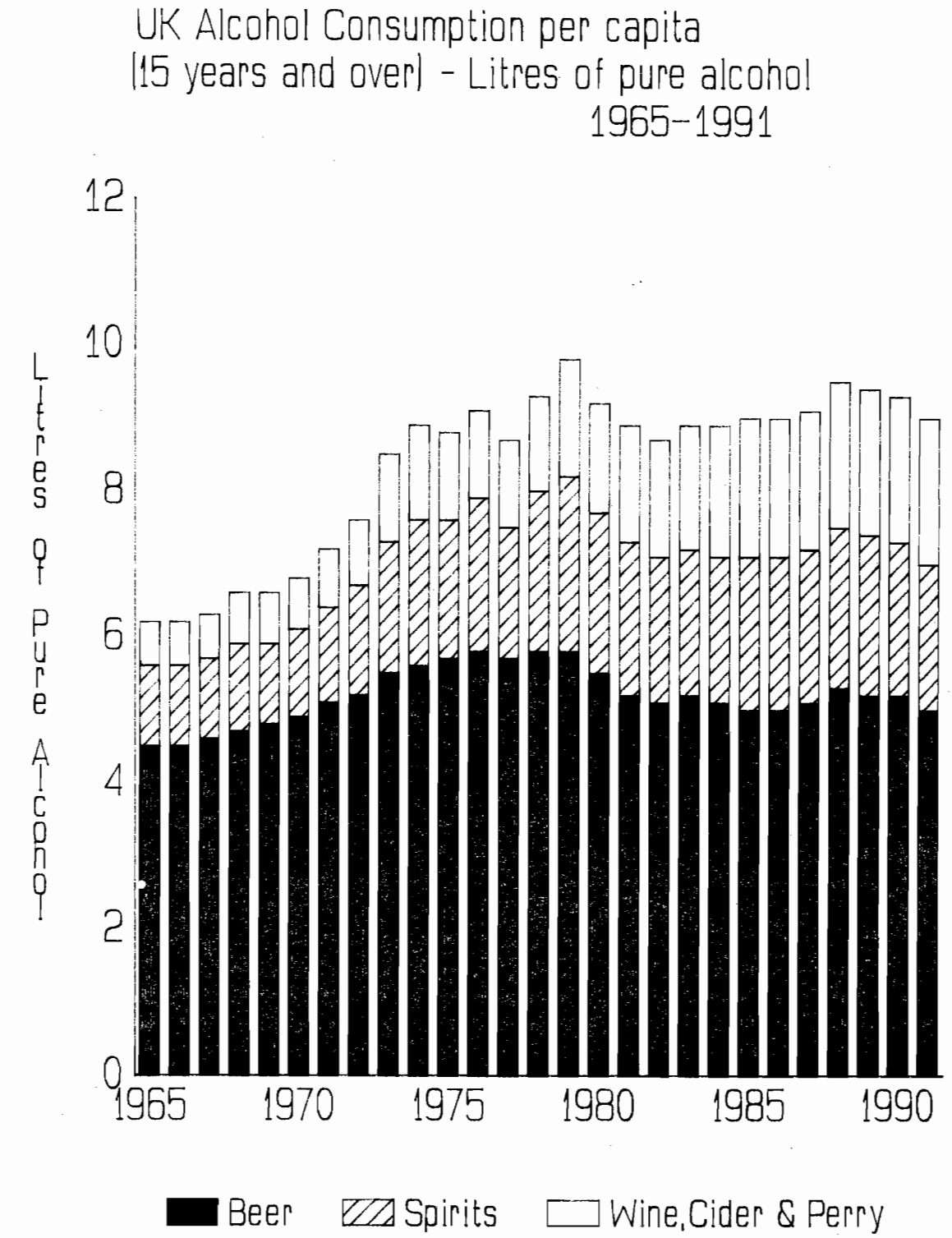

Source: Customs and Excise ;
Centre for Health Economics database

In Figure 1 trends in alcohol consumption for expenditure and volume series per head of the population over 15 years old are presented. Both series have generally moved in line with one another but the annual rates of change in consumption differ substantially in some years. Alcohol consumption rose steeply in the 1960s and 70s. There was a sharp decline between 1979 and 1983. More recent figures would seem to be indicating a rising trend. It is clear from this figure that the achievement of the WHO Health For All (HFA) target of a 25 per cent reduction in consumption from 1980 levels by the year 2000 will not be achieved without significant new policy initiatives (WHO, 1985).

Trends in different types of alcohol beverages are illustrated in Figure 2. Wine consumption has continually increased in both level and share of the alcohol market rising from a 9.0 per cent in 1965 to 19.4 in 1990. Spirits consumption has been more variable but also accounts for a larger proportion of consumption now than in 1965. Beer consumption still has the largest share but its relative importance has fallen dramatically since 1965. Levels of beer consumption have changed in line with the total. Figures do not include home brewed alcohol. Some restrictions on alcohol consumption, for example, large price changes may lead to increases in home brewing.

A more recent trend has been a growth in the production and consumption of no and low alcohol beers. These sales are, however, a very small proportion of total sales and after initial growth the sales may be levelling off, see Table 5.

**Figure 2**




Source: Customs and Excise ;
Centre for Health Economics database

**Table 5 Percentage of Low Alcohol Beer Sales**

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|
| Draught | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.4 |
| Packaged | 0.2 | 0.3 | 0.6 | 1.1 | 1.0 | 0.8 |
| Total sales: hectolitres (Figures are production figures adjusted for overseas trade and include duty free sales) | 62,359 | 62,285 | 62,850 | 63,274 | 63,213 | 63,095 |

Source: Brewers' Society Statistical Handbook, 1991.

The method of collection of national data results in its major inadequacy. The data are collected from production or warehouse facilities not at the point of sale and so no regional or other geographical breakdowns of consumption are available. It is not even possible to separate out English levels of consumption from the rest of the UK. As well as accuracy, however, the advantage of these figures is that they are already available and are published regularly and swiftly.

To conclude, trends in this indicator can be speedily and cheaply monitored.

## 2.2 Measuring Risk Behaviour

An alternative to measuring total consumption is to monitor risk taking behaviour. The measure suggested in the **Health of the Nation** is to use sensible limits although other measures could be devised. Data of this kind requires sample surveys but estimates of alcohol consumption patterns obtained from surveys has been criticised because of its unreliability. Grossing up estimates from available surveys suggest that consumption is seriously underestimated. For example, the shortfall from grossing up the Family Expenditure Survey has been estimated at between 40 and 45 per cent (Kemsley et al, 1980). Investigation of this and other surveys suggest that heavy drinkers are underrepresented in sample surveys (Pernanen, 1974). This may be due to non-response and to sample designs which concentrate on private households and may exclude those in institutions, transient workers and publicans, groups which usually have higher than average levels of alcohol consumption.

The second problem associated with using figures from available surveys is that high risk behaviour and alcohol consumption are measured in a variety of ways and comparisons between surveys is impaired. Variations exist in the questions and time period for asking about the amount consumed, some surveys have used frequency as well as quantity indices and a variety of alcohol problem scales have been used as an alternative measure of risk behaviour. There is therefore a need to get uniformity and consistency across national and future regional sources of data.

A number of sources of data are currently available and the use of available data may

influence the choice of indicator. Two household surveys are used to collect data on alcohol: the Family Expenditure Survey annually contains data on household alcohol expenditure, and the General Household Survey biennially includes a section on drinking habits. Between 1978 and 1984 a quantity frequency index was used to classify alcohol consumption but the measure adopted was subject to a number of criticisms, e.g. the same level of at risk consumption was used for both men and women. Since 1986 a new measure has been used and the Alcohol Consumption rating measure provides estimates of "usual" consumption in terms of units of alcohol and, if considered a reliable measure, could be used to monitor the number drinking above safe limits. At present only results for 1986 and 1988 have been published but the GHS questions on usual consumption yielded similar results to the ad-hoc drinking surveys which asked about consumption in the previous week.

Ad-hoc surveys are another source of data and such surveys were conducted in 1978, 1987 and 1989 by OPCS. Questions can be more detailed than the GHS but the numbers interviewed are smaller and this limits the meaningful comparisons that can be made between different groups of the population. The numbers were too small for example to examine regional changes in drinking between the 1979 and 1987 surveys (Ikin and Goddard, 1988). Increasing the number and regularity of such ad-hoc surveys would involve additional costs. Other government sponsored surveys have been conducted into adolescent drinking, women drinkers and regional drinking habits. It may be expected that it would be necessary to supplement surveys on regular drinking habits with more detailed studies of this kind.

Results from ad-hoc surveys have not shown great variations in the number of at risk drinkers but these surveys have been undertaken in years when the total alcohol consumption per head

has been similar. This raises the question of whether data from these types of surveys is sufficient and can usefully add information to a monitoring of the per capita trends. In the latest survey (Goddard, 1991) it was calculated that a survey of 50,000 adults would have been needed to detect with 95 per cent confidence that the number of heavy drinkers was different between the 1987 and 1989 surveys. The current survey was of only 3,600 adults. Publication of such survey results are also generally not available until two years after the survey is conducted.

The small numbers in each sample means that these National surveys provide little useful regional data and few consistent patterns have emerged other than East Anglia has lower than average consumption while Northern Regions generally have above average consumption levels (Ikin and Goddard, 1989, OPCS, 1988).

The amended drinking measure used in the GHS is one useful source of information but larger ad-hoc surveys (held at least every 5 years) would also be needed to monitor the success of the strategy across different groups of the population. Regional and local data are not readily available and a more fundamental review of locally available data and how it may be improved is needed.

Local population surveys with sufficient numbers could be expensive and would be needed to monitor local trends. Central guidance on the collection of new data and the use of existing data, (e.g. from GP practices) would be an important part of ensuring local implementation of any alcohol strategy. At present there is insufficient data on high risk behaviour and this would not be suitable on its own, for monitoring changes in behaviour.

## 2.3 The Choice of Targets: Risk behaviour or total consumption monitoring?

At the national level the major question remains as to whether targets should be set on total consumption or high risk behaviour, or whether both measures should be used. The focus on the number of drinkers over sensible limits suggested in **Health of the Nation** varies from the positions set out in most other national strategies and reports on the UK (eg, Faculty of Public Health Medicine, 1991; Smith and Jacobson, 1988). These strategies have focused solely on total consumption measures or have used both types of measures.

Part of the choice of indicator is determined by the views on whether the objective is high risk or population focused. The arguments for a population strategy include the fact that problems occur below sensible limits and that a general change in attitudes to alcohol are needed to change risky behaviour. Also there is the view that a focus on high risk behaviour could be counterproductive if general perceptions of safe limits is far in excess of those recommended. The drink-driving campaign which had the slogan to "drink sensibly" was for example subject to criticism from many bodies. Another argument is that by using sensible limits, those at risk are difficult to identify and therefore to target. Also, it is suggested that the drinking habits of those at risk vary with the same factors as all other drinkers. This is not to suggest that most people can enjoy alcohol without damaging themselves and others and that this type of strategy would be directed at minimising harm.

In terms of monitoring behaviour, rather than the design of interventions discussed further in Section 3,4 and 5, the need to distinguish between at risk behaviour and per capita consumption disappears if both indicators move in line with one another. The choice would

then rest with the availability and reliability of these indicators as discussed above. The single distribution theory suggests that there is a correlation between the prevalence of heavy drinking and mean consumption, and Rose and Day (1990) suggest that an increase in average consumption of about one drink a week would be associated with a 10 per cent increase in the prevalence of heavy drinkers.

This more general epidemiological theory and the Ledermann (1956) hypothesis which postulated a particular mathematical relationship between mean consumption and the number of the heaviest drinkers has been the subject of considerable debate.

Duffy (1991) has recently challenged the view that average consumption is a good proxy for the prevalence of heavy drinkers using commercial data on drinking habits. These data are not without their problems. In this data set alcohol consumption is only measured in terms of the frequency of drinking, no data on the quantities of alcohol drunk on any occasion is collected. Heavy drinkers were defined by Duffy as those who drink daily. Light daily drinkers would, however, have lower weekly totals below sensible limits, while many alcohol misusers drink large amounts over limited numbers of days. Duffy's results are not supported by the limited evidence available from official studies discussed above. Also there is long run data which suggests that the levels of many alcohol problems generally move in line with total consumption (Department of Health, 1990; Royal College of Psychiatrists, 1986). There is therefore more consensus in a "weaker" version of the single distribution theory in that the number of drinkers above sensible limits will generally move in line with total consumption levels.

The balance of arguments suggests that per capita consumption should be included as an indicator to target in any national strategy. However, an effective alcohol strategy may influence the relationship between per capita consumption and the distribution of drinkers eg, better understanding of sensible limits may, for example, lead to an increase in drinking for some. A system of monitoring the estimated numbers of drinkers at risk would therefore be a useful additional indicator particularly in the longer term. These type of data would be especially important in monitoring the effects of the strategy over different groups of the population and help to target future development of local and national strategies.

## 2.4 Summary

1 Alcohol consumption increased by 50 per cent between 1965 and 1990. Consumption peaked in 1979, dipped until 1983 and has continued to grow since then to a level of 9.3 litres of pure alcohol per adult in 1990.

2 Data sources to measure risky behaviours are poor, could be improved and should be supplemented with routine NHS data collection (eg, as an integral part of the GP contract).

3 Action can be directed at consumption and/or risky behaviour.

4 In the short term per capita alcohol consumption is the best indicator of potential harm to health. In the longer term better data on risk behaviour should be evaluated and these results used to inform policy choices in addition to average consumption.

# 3 FACTORS INFLUENCING DRINKING PATTERNS

Alcohol consumption like other goods is influenced by the behaviour of consumers (demand), producers (supply) and government regulations. The evidence about the factors which help determine both overall levels of consumption and risk behaviour is briefly reviewed in this section. Some assessment is made of the factors which may be amenable to intervention through a health strategy and the other factors which are not.

## 3.1 Factors influencing the demand for alcohol

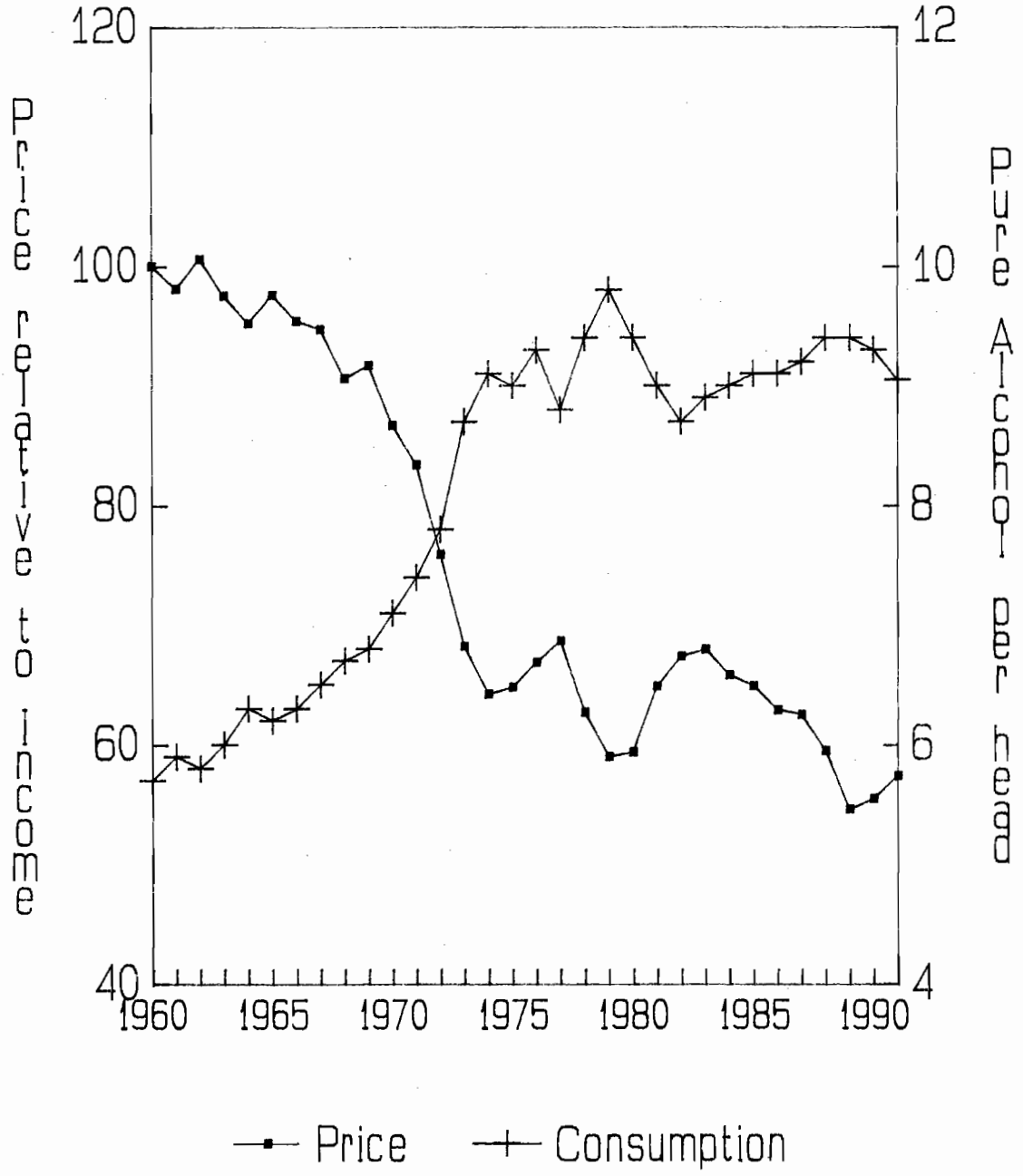
As with other commodities, price and income are major determinants of the demand for alcohol. Figure 3 illustrates the relationship between alcohol prices in relationship to income and consumption in terms of litres of pure alcohol. Within this overall relationship, however, the influence of prices and income vary between different beverages. Other influences on alcohol consumption include advertising, licensing and a range of social and cultural factors. Different data and methodologies have been used in these studies and considerable care has to be taken in interpreting results (Godfrey, 1989a).

Price and Income Effects

The interrelationships between prices, income and the other factors which influence demand are usually investigated using multivariate techniques designed to disentangle the separate effects of different factors. The presentation of simple trends between two variables has to be treated with considerable caution because as ever, correlation does not mean causation!.

**Figure 3**

Retail Price of Alcohol relative to Personal Disposable Income, and Consumption of Pure Alcohol per head of population aged 15 and over - 1960 to 1991




Source: Customs and Excise ;
Centre for Health Economics database

In comparing the results from different studies it usual to consider elasticities which are unit free measures, eg a price elasticity, for example, is defined as the ratio of the proportionate change in demand to proportionate change in price, all other factors being held constant.

It is important to estimate separately the demand for beer, spirits and wine rather than use of model for all alcohol consumption (Walsh, 1982). A summary of the estimates of price and income elasticities from UK studies for different beverages is presented in Table 6. Demand for beer has generally been found to be price inelastic, i.e. a rise in price results in a less than proportionate fall in demand, other things being equal. Demand for wines and spirits has been found to be more price responsive than beer, but the range of estimates of price elasticities is wide. These results suggest that equal increases in price induced, for instance, by tax policy across beverages will result in different changes in consumption. Also, given the differences in these estimates, there are difficulties in forecasting accurately the effects of price changes.

If there are changes in the relative prices of alcoholic drinks that there may be changes in consumption as one type of beverage is substituted for another. Most estimates of these cross price effects suggest these responses are small (Godfrey, 1990) but there may be a stronger relationship between alcohol and tobacco consumption (Jones, 1988).

**Table 6 Alcohol Prices and Income Elasticities for the UK**

| Details of Study | Own Price Elasticities | Income Elasticities |
|---|---|---|
| a) Spirits | | |
| Walsh, 1982 (1955-1975, annual) | -0.45 to -0.47 | 0.99 to 1.20 |
| McGuinness, 1983 (1956-1979, annual) | -0.38 | 1.54 |
| Duffy, 1983 (1963-1980, annual) | -0.8 to -0.1 | 1.6 |
| Godfrey, 1988 (1956-1980, annual) | -0.56 to -3.03 | 0.60 to 2.76 |
| Baker and McKay, 1990 (1970-1986 FES) | -0.94 | 1.00 |
| b) Wine | | |
| Walsh | -0.28 to -0.38 | 0.49 to 0.51 |
| McGuinness | -0.17 | 1.11 |
| Duffy | -0.7 to -1.0 | 2.2 to 2.5 |
| Godfrey | -0.26 to -2.67 | 1.10 to 2.53 |
| Baker and McKay | -1.37 | 1.61 |
| c) Beer | | |
| Walsh | -0.13 to -0.26 | 0.12 to 0.13 |
| McGuinness | -0.30 | 0.13 |
| Duffy | n.a. | 0.80 to 1.1 |
| Baker and McKay | -0.88 | 0.89 |

Note: Estimates of beer price and income elasticities were not available from the Godfrey (1988) study.

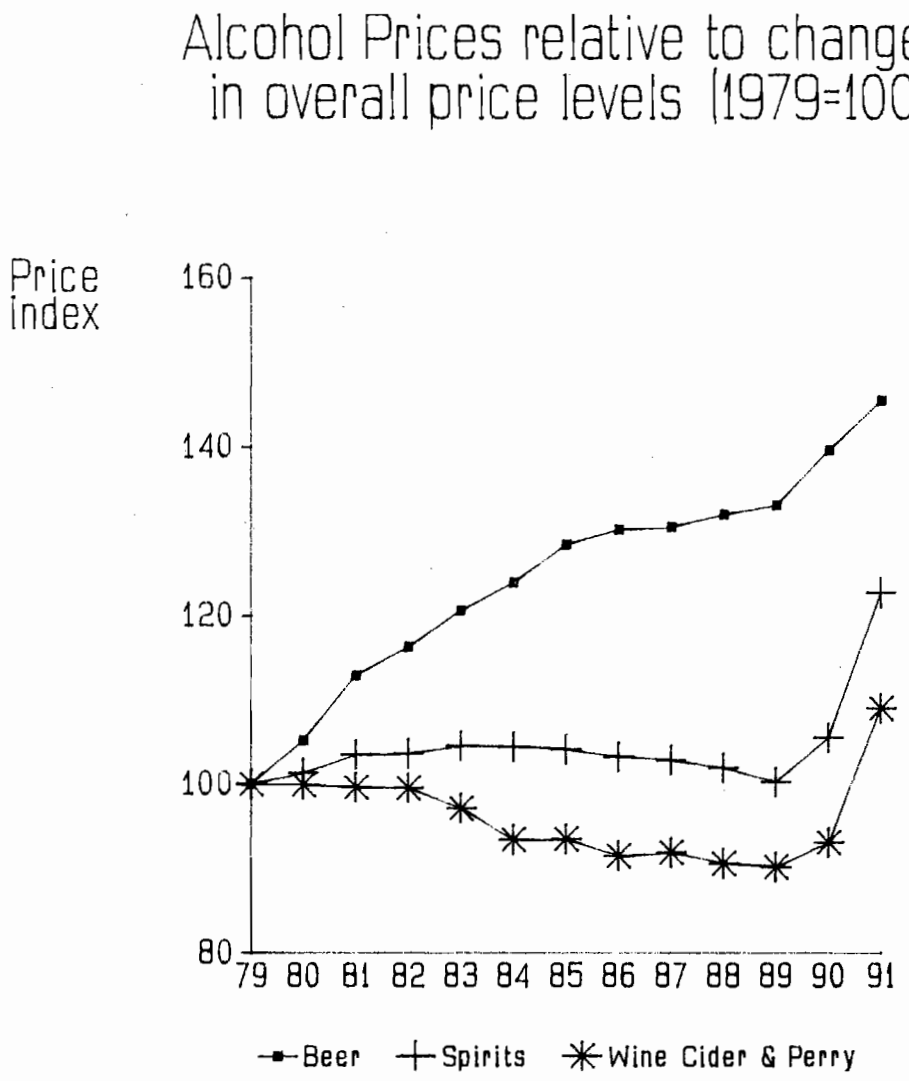
Source: Godfrey (1989a), Baker and McKay (1990).

Between 1965 and 1979 beer prices were at a similar level while the relative price of spirits and wine had fallen by 34 per cent and 21 per cent respectively (Hardman and Maynard, 1990). Trends in prices relative to general inflation for different alcoholic beverages are illustrated in Figure 4 for the years 1979 to 1990. There has been considerable divergence between beer prices and the prices of other beverages since 1979. Beer prices have risen faster than the general level of prices. Wine is relatively cheaper than in 1979 whereas the price of spirits has fluctuated around the level of 'general' inflation.

There are a number of influences on price and it is important to recognise that beer prices rose above the rate of inflation even in years when excise duties remained unchanged because producers raised prices. (Further implications of these trends on tax policy and price levels are considered in the next section.)

The size of income elasticities reported in Table 6, especially for wines and spirits, suggests that considerable increases in alcohol consumption are likely to occur when incomes rise. Income effects are not amenable to direct control and need to be taken into account when evaluating the success of any health strategy. Clearly controlling alcohol consumption is easier in recessions than when the economy is rapidly growing.

**Figure 4**




Source: Central Statistical Office

## Advertising

The effect of advertising on consumption has been widely disputed. Some studies have found positive effects, but in general, the elasticities calculated from the results are small. The estimates for alcohol consumption suggest that if advertising expenditure on a particular beverage fell by 10 per cent, consumption would fall by not more than 3 per cent. For the UK, data are only available for the level of press and television advertising and no account can be taken of switching to other forms of advertising. It would also be unwise to use existing estimates of advertising elasticities to estimate the effect of major policy change like the banning of advertising. Estimated models are based on previously observed data variations and may break down in the event of major changes. Also some advertising policies pursued in furtherance of a health strategy may change the social acceptability of the product and therefore have additional health education effects to those calculated from elasticity estimates.

## The Number of Outlets

There are two reasons why the number of outlets licensed to sell alcohol may have a direct effect on demand. A restricted number of outlets may increase transaction costs for buyers, eg, the costs of travel, and outlets may also act as an advertisement stimulating demand. It may also be expected, however, that an increase in demand for alcohol may result in an increase in the number of outlets despite licensing restrictions. In attempting to measure the effect of licenses on demand rather than on supply some care is needed and the results of studies which have not taken potential feedbacks into account have to be treated with caution.

In investigating the role of licensing on alcohol demand no feedback effects were found for spirits and wine (Godfrey, 1988). Spirits consumption would seem to unaffected by the number of licensed premises but this variable was found to be a significant influence on wine consumption with estimated elasticities from 1.4 to 4.9. The low estimate would suggest that a 10 per cent decline in the number of licenses would by accompanied by a 14 per cent fall in wine consumption. Feedback effects were found between the number of licenses and beer consumption which suggest that the number of licenses could play a significant part in the determination of beer demand but unfortunately the empirical work did not yield precise estimates of these effects.

Health Education

Multivariate methods have not been used to investigate the effects of health education on alcohol consumption in the same way as has been undertaken for cigarette consumption. Although there are some signs that attitudes are changing, especially for example towards drinking and driving, the trends have most probably been too short and too small to detect by examining changes in total consumption. Evidence on the evaluation of specific interventions is reviewed in Section 5.

Factors influencing at Risk Behaviour

Most of the empirical work has been undertaken with data aggregated over the whole population. Available evidence using different surveys does suggest that the heaviest drinkers do respond to economic factors in a similar way to the rest of the population (e.g. Kendell

et al, 1983). Baker and McKay (1990) used their estimates based on FES data to simulate the effects of tax reforms to level up the tax per unit of alcohol to spirits duty rates in 1989. The results suggests that average consumption of pure alcohol would be reduced by around 19 per cent and this would be accompanied by a 50 per cent fall in the number of households where average consumption per male equivalent person exceed 35 units per week. American studies have shown that price increases would reduce liver cirrhosis rates (Cook and Tauchen, 1982) and teenage road traffic fatalities (Saffer and Grossman, 1987).

## 3.2 Supply of Alcohol

Consumption of alcoholic beverages is clearly influenced by the behaviour of producers and government regulators as well as by the action of consumers. As well as playing a major role in determining market forces, such as prices and advertising levels, producers and providers will also pursue measures to minimise the effect of any prevention policies on themselves. The alcohol industry is dominated by the major brewers and distillers who have been thought in the past to have a major lobbying influence (Booth et al 1990; Baggott, 1990). The industry has always been subjected to a high degree of regulation and licensing laws have had an important influence on the structure of the industry.

Any health strategy will take place against a background of other policy initiatives. Concern for inflation or employment losses may be seen as a barrier to prevention policies but industrial lobbies will tend to exaggerate the adverse effects of any prevention policies (Baggott, 1990; Godfrey and Hartley, 1990). The brewing industry is undergoing major changes following the recommendations of the Monopolies and Mergers Commission Report

(1989). The changes in the supply of beer were designed to increase competition and if successful it may be expected that beer prices would be lower with consequent effects on health policies.

The industry could be encouraged to play an active role in the health strategies and in recent years there has been a number of attempts to persuade the industry to fund some of the initiatives aimed at reducing alcohol misuse. There is also a role for the active encouragement of product modification through the production and marketing of low alcohol beverages and the labelling of drinks with guidelines on alcohol content and health effects.

## 3.3 Summary

1 The estimates of the effects of prices (price elasticity of demand) on consumption vary but they are robust and increased purchasing power (income elasticity of demand) vary but they indicate significant effects on alcohol consumption.

2 Both advertising and the number of outlets also affects the consumption of some forms of alcohol significantly.

3 There is considerable scope for influencing the demand for alcohol, and at risk behaviour, by manipulating economic factors.

4 The design of a health strategy should take account of its implications for the supply of alcohol. Health concerns should be included in any proposed legislative changes affecting the industry.

# 4 NON HEALTH SERVICE INTERVENTIONS

The importance of departments and agencies outside the health sector in achieving improvements in health is recognised in the **Health of the Nation**. The significance of inter-agency links for tackling the problems associated with alcohol misuse has long been recognised and several attempts have been made to co-ordinate actions at a national and local level. The evaluation of the success of inter-ministerial groups and the Regional Alcohol Co-ordinators scheme may provide useful lessons for the health strategy as a whole. The importance on interventions outside the health service has also been recognised previously and Table 7 contains the recommendations from a previous review. The Ministerial Committee on Alcohol (1989) also set out recommendations for a wide range of Departments. Fiscal policy was not, however, included in this initiative.

Alcohol problems are wide ranging and at a national level the policy map indicates a large number of networks and subnetworks (Tether and Harrison, 1988). There needs to be some mechanism to ensure health outcomes are addressed when policy changes, for example, in licensing or safety regulations, are being considered. In this section some comments are made on areas with particular relevance to health outcomes. The prevention possibilities of tax and advertising policies are examined and the capacity to minimise harm through workplace alcohol policies and drink driving measures considered.

**Table 7 Alcohol Policy Recommendations, Prevention and Health, 1977**

Government Response

A - accepted
B - accepted with reservations
C - under consideration
D - not accepted

| Recommendation from Sub Committee | |
|---|---|
| A larger proportion of the £2,200 million raised in duty and taxation on alcohol should be devoted to educating children and young adults in the dangers of alcoholic dependence. | C |
| The money remaining in the Licensing Compensation Fund should be released for health education purposes. | C |
| The Government should instigate, and support, research into the identification of those groups of drinkers most at risk. | A |
| Television should be more extensively used to put across the dangers of alcohol abuse to particular identifiable groups as in the current excellent television advertisement warning the drinking driver. | B |
| The age at which alcohol is made legally available should in no circumstances be lowered. | C<br>A in Scotland |
| The inevitable overlap of preventive work being done by various bodies existing to counter alcoholism should be reduced by co-ordinating these bodies under one umbrella organisation. | B |
| The price of alcohol drink should remain at the same level relative to average incomes as it is now is, and should not be allowed to become a relatively cheap item in the shopping basket. | C |

Source: DHSS (1977) Prevention and Health, Cmnd 7047.

## 4.1 Tax Policies

Price is an important determinant of alcohol consumption as indicated in Section 3. Using a number of assumptions based on the elasticities reported there, some illustrative simulations of the possible effects of a health based alcohol tax policy are presented in Table 8. Clearly the predicted consumption falls depend crucially on income forecasts. If income growth is small then the WHO HFA targets may be achieved given the assumptions underlying these simulations. However even forecasts of modest growth in personal disposable income considerably cuts the forecasted drop in consumption. To achieve the target set by the Faculty of Public Health Medicine of 7 units per capita by the year 2000 would require considerable cumulative price increases of at least 5 per cent above the RPI each year, even if other measures, eg health education campaigns, contributed to the fall in consumption. It is difficult to translate these falls in consumption into predictions of the numbers drinking over sensible limits but the available data suggest the falls in this group will at least be as large if not larger (Goddard, 1991, Baker and McKay, 1990).

The development of a tax policy which resulted in consistent price rises as assumed in Table 8 would be difficult. Analysis of past budgetary policies suggests that health concerns have never been a major determinant of tax changes for alcohol or tobacco (Leedham and Godfrey, 1990). In a number of recent budgets alcohol duties have not been uprated at all which implies that the tax element of price falls in value, see Table 9. The falls in the real value of taxes have not in recent years been reflected in price falls because producers have raised prices, as shown in Section 3. Manipulating alcohol prices through taxes is more difficult than for cigarettes because tax is a lower overall proportion of price.

**Table 8 Simulations of a Tax Policy**

| Assumptions | | | Prediced Consumption 2000 - litres of pure alcohol per capita over 15 (1) | % Change 1992 (2) | % Change 1980 |
|---|---|---|---|---|---|
| a) | 5% Price Rises Every Year, no income changes | Beer<br>Spirits<br>Wine | 4.1<br>1.2<br>1.0 | -20<br>-42<br>-43 | -25<br>-45<br>-24 |
| | Total Alcohol | | 6.3 | 31 | 30.5 |
| b) | 5% Price Rises, 2% annual increase in income | Beer<br>Spirits<br>Wine | 4.5<br>1.6<br>1.3 | -13<br>-24<br>-26 | -18<br>-29<br>-1 |
| | Total Alcohol | | 7.4 | 20.5 | 20 |
| c) | 5% Price Rises 3% annual increase in income | Beer<br>Spirits<br>Wine | 4.7<br>1.8<br>1.5 | -9<br>-15<br>-15 | -15<br>-20<br>+15 |
| | Total Alcohol | | 8.0 | -14 | -13.5 |

Notes:

1 Using price elasticities of -0.5, -1.3 and -1.3, and income elasticities of 0.6, 1.4 and 1.6 for beer, spirits and wine respectively.

2 Assuming 1992 consumption is at the same level as for 1990.

**Table 9 Budget Tax Changes 1986-1992**

| | % Change in Excise Rates | | | | Resulting Change in Price (%) | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Beer | Wines | Spirits | Cider | Beer (pint) | Whisky (bottle | Wine (bottle) | RPI change previous year |
| 1986 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 4.2 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 4.0 |
| 1988 | 4.7 | 4.5 | 0.0 | 9.7 | 1 | 0 | 1 | 3.5 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 7.9 |
| 1990 | 7.8 | 7.7 | 10.0 | 7.7 | 2 | 6 | 3 | 8.1 |
| 1991 | 9.3 | 9.3 | 9.3 | 9.3 | 4 | 8 | 6 | 8.2 |
| 1992 | 4.5 | 4.5 | 4.5 | 4.5 | 1 | 2 | 2 | 4.1 |

| Tax and VAT as % Price | | | |
|---|---|---|---|
| Year | Beer (pint) | Whisky (bottle) | Wine (bottle) |
| 1979 | 32.3 | 78.2 | n.a. |
| 1986 | 36.3 | 72.1 | 57.4 |
| 1987 | 35.1 | 71.8 | 55.8 |
| 1988 | 35.3 | 69.4 | 56.8 |
| 1989 | 33.6 | 68.7 | 55.6 |
| 1990 | 32.7 | 66.8 | 55.2 |
| 1991 | 33.0 | 68.1 | 56.5 |
| 1992 (E) | 32.8 | 64.7 | 54.9 |

(E) = estimated

Note: From April 1991 VAT was increased from 15% to 17.5. This increase has been taken into account in the above calculations.

Source: Leedham and Godfrey (1990). HM Customs and Excise - updated.

Tax levels are also subject to a number of constraints. EC rules have been imposed to equate tax levels, on a pure alcohol basis, between beer and wine. A common price policy may alter these relativities especially if producers pass on tax increases in a differential way between the two beverages. The final position of tax harmonisation as part of the 1992 proposals is unclear but the setting of minimum rates only, leaves some flexibility for a health policy. The proposed changes in the structure of wine taxes may affect consumption in the UK.

## 4.2 Advertising Policies

Econometric evidence suggests that restrictions on alcohol advertising would only have a modest effect on consumption. There are however a wide range of other advertising policies available from self regulated or legally based codes of practice, content labelling and health warnings, voluntary advertising and sponsorship agreements, tombstone (restrictions on the contents of) advertising, partial to complete advertising and sponsorship bans. New media forms and internationalisation of markets suggest that complete bans may be difficult to implement (Harrison and Godfrey, 1990). The present policy is based on codes of practice and voluntary agreements and this approach has been subject to considerable debate. Of particular concern is the effect on children and young people and research suggests that alcohol advertisements are amongst the most popular and recognisable (Aitken et al, 1988). Future policy making may be focused at an EC level and therefore national policies may be constrained by international agreement but a considerable amount of action can be taken locally (Tether and Robinson, 1986).

In 1989 the advertising of alcohol products in the press and TV was estimated at £158.9m.

(MEAL, 1989). There is considerable additional expenditure on posters, sports sponsorship and other marketing activities. Effective health education campaigns are difficult to mount given the much greater volume of alcohol advertising. There have been attempts in other countries, France being a recent example, to levy alcohol advertising to finance health promotion campaigns. There are precedents for this type of levy in the UK. For example, the football pool betting duty levy was increased in the 1990 Budget to help pay for football ground improvements and similarly funds from betting tax have been channelled into race course improvements and veterinary science. More recently the Pools Promoters have allocated £60m to fund the arts and sport (this, in effect, is revenue which could have been taxed by the Exchequer). Given that the total alcohol advertising and sponsorship budget is around £200m., a 10 per cent ear marked levy would generate significant new funds for an expanded health promotion programme. It would need this increase of expenditure to be of the same level as recent AIDS or drugs campaigns. Such a levy would be unlikely to have any serious effect on the employment in the advertising industry and if passed on in higher alcohol prices could have an additional health benefit in reducing consumption.

### 4.3 Alcohol in the Workplace

Most of those who misuse alcohol are of working age and some of the costs of lower productivity, absenteeism, sickness absence, job turnover and alcohol related accidents fall on employers as well as affecting the health of the population. Alcohol related workplace policies could reduce costs for employers, improve the health of individuals and possibly, in the long term, reduce demands on the health service.

The evidence on the effectiveness of workplace policies is mixed (Powell, 1990). The incentives for workplace policy adoption in the UK is reduced because employers are not generally directly responsible for health care costs. Recent surveys of employing organisations for the Department of Employment reveals depressing but familiar feature characteristics, ie there is a lack of awareness of the nature of work-related alcohol problems (Britton et al. 1990). Alcohol problems were only thought to be related to those who were drunk at work or to employees who reach the severely dependent stage. There was little evidence that existing programmes by health authorities, the HEA or Alcohol Concern had reached the organisations surveyed although some recent drink-driving campaigns had some impact. The improvement of the penetration of existing workplace policy promotion programmes and the effective dissemination of information about setting up effective and low cost workplace policies especially for smaller companies are relevant and potentially useful policies. Organisations require information about policies which have proven effectiveness to reduce costs before they will adopt alcohol workplace schemes. The evaluation of demonstration projects in industry should be given a high priority.

### 4.4 Drinking and Driving

The scope for reducing alcohol related mortality on the road exists if the Government is prepared to encourage the police to enforce existing legislation more vigorously and if it follows police advice, and introduces random breath testing. The impact of such policies in other countries (eg the State of Victoria in Australia) has been significant and this policy has easily defined process and outcome targets which can be monitored.

Accidents are the leading cause of death among the young. Regional and District strategies should address local situations but the question of how they could make operational any concern about, for example, local accident blackspots remains unclear. These interagency issues need to be confronted.

## 4.5 Summary

1 A wide range of non health service interventions are available to reduce alcohol problems. Inter-agency links at a national and local level are vital to the success of a health strategy.

2 Budgets have not been used to control alcohol consumption systematically and the role of fiscal policy targetted at health gains could be significant.

3 The prices of alcohol will have to increase by 5 per cent more than the general rate of inflation every year if significant reductions in consumption and risk behaviour are to be achieved by the year 2000. If income increases by more than 2 per cent annually in the 1990s, even higher rises would be necessary.

4 The workplace is a setting where effective interventions could reduce alcohol related problems. The evaluation of demonstration workplace alcohol schemes should be given a high priority in the Department of Health's and the NHS's research strategy.

5 Effective action (eg, random breath tests) against drink driving would reduce deaths and injuries significantly.

# 5 HEALTH SERVICE INTERVENTIONS

Alcohol misuse generates a range of health problems. While the heaviest drinkers are likely to suffer the most individual damage, the majority of alcohol related problems are attributable to the larger group drinking above sensible limits (Kreitman, 1986). Minimising the harm associated with alcohol misuse requires interventions over large sections of the population and the health service may be expected to take a lead role in many of these activities. In this section evidence on the cost effectiveness of primary promotion, secondary prevention and treatment programmes are reviewed briefly and the roles of different sectors within the NHS in implementing a health strategy are assessed.

## 5.1 Primary Promotion and Prevention

Direct health education or information provision is only part of health promotion. Individual behaviour may also be modified by teaching life skills. There is also the potential for product modification and environmental changes including, for example, the clearer labelling of alcohol beverages (eg, to indicate alcohol content, Government health warnings (eg, as in California) and safe limits) and the portrayal of alcohol use and misuse in the media. Finally there are wider roles for health promotion linked to the policy making process. If legislation is planned, for example, on drink driving, policy makers may consider a health education campaign to alert the general public to the problem and to generate support for the legislation once implemented. The Department of Transport, for example, have stated aims of using their drink-driving campaigns to change the "climate of opinion" on drink driving and stimulate media coverage of the issue. These wider aims have also been recognised as part

of the function of the HEA. It was stated, for example, in the first report of the Ministerial Group on Alcohol Misuse (1989) that the HEA's aim is " to reduce harmful consequences of alcohol misuse to individuals and to society, to promote sensible drinking and to develop a climate of opinion to facilitate prevention measures at national and local level." Changing local activities will include "educating the educators" (eg, doctors, social workers and teachers) or peer group leaders to believe it is legitimate to discuss alcohol problems with their clients.

The Cost Effectiveness of Health Education

Reviews of the effectiveness of health education have yielded mixed results. Grant (1989) suggested that school and other targeted population based education programmes, and public education campaigns via the mass media have not proved effective in reducing alcohol related problems. There is some evidence that, in the short term, there is increased knowledge about problems and sometimes changes in attitudes. For example, Rundall and Bruvold (1988) in an analysis of 29 alcohol school based interventions suggested that such programmes do increase knowledge about alcohol but only half the studies achieved desirable attitude changes. They found only a modest increase in behaviourial outcomes when the results of a number of studies were pooled.

Bagnall (1989) also reports modest but positive impact on the alcohol related knowledge, attitudes and behaviour of a group of 13 year olds exposed to a low cost alcohol education package when compared to a control group. She concluded, however, that school based alcohol education needs to be reinforced at the level of the individual family and by

community and national health promotion activities.

Casswell et al (1990) evaluated a joint mass media and community programme aimed at the total population in New Zealand. Attitudes towards alcohol use were affected by the mass-media campaign but the combined approach in selected cities showed a slightly greater impact. The authors conclude that the mass media campaign did serve the function of keeping alcohol problems on the agenda and in the intervention cities increased support for healthy public policies.

Redman et al (1990) in an extensive general review on the effectiveness of mass media campaigns, concluded " . . . there is currently no evidence that the media component makes a major contribution to the effectiveness of (such) combined programmes. It may be that the community component presented alone or in combination with a cheaper method of agenda setting can provide similar magnitude behaviour changes." It is clear, however, that mass campaigns do promote extensive media coverage. In their evaluation of drink-driving campaigns the Department of Transport found that the majority who were aware of the campaign message got their information from editorial coverage on television and in the newspapers (Harrison and Tether, 1990).

While there is little robust cost-effectiveness information, a number of suggestions for improving effectiveness and reducing cost of programmes can be derived from existing evaluations. Grant (1989) suggests three ways which may improve the success of health education programmes: the need to combine mass media campaigns with other measures; the involvement of the community; and addressing several types of behaviour rather than single

problems. This latter point is important if the final **Health of the Nation** strategy addresses more than one risk factor.

The complexity of the message in many alcohol campaigns compared to smoking messages does make the design of effective campaigns more difficult. Thorley (1985), in reviewing alcohol related campaigns in the North-East, suggested the more culturally and class sensitive the campaign and its messages, the more successful it will be. Also, different age groups may require different approaches. Many school based programmes emphasise the long run health effects rather than those which may have more immediate effects on the young such as intoxication or drinking and driving (Milgram, 1987)

Bagnall and Plant (1988) in a review of school based alcohol education comment on the inefficiency of each group or school developing their own programme. At a national level there was also little communication between different ministries with educational interests before the formation of the inter-departmental committee on alcohol misuse in 1987 (Harrison and Tether,1990)

Effectiveness of Other Measures

There are a wide range of activities which could accompany a health education campaign and available but limited research supports the view that these mixed and comprehensive programmes are more effective than unco-ordinated ones. Labelling of alcoholic beverages, for example, has been discussed at the European policy level as a common approach is seen as one the requirements in the creation of the Single Market. To be effective and not

counterproductive such labels have to reinforce existing health promotion messages. In the United States the Department of health and Human Services commissioned a report on the effects of health warning labels for alcohol (Richardson et al, 1987). The conclusions of this review were:

> "Alcohol warning labels, if adopted, should be designed carefully to take account of the research findings on how consumers respond to health warning labels in general. Specifically, the design of the labels should take account of consumer characteristics that influence consumer response to warning labels. Issues of label format should also be considered.
>
> The impact of alcohol warning labels could be enhanced by systematic public education efforts designed to increase consumers' knowledge of the health hazards associated with alcohol consumption." (p.5).

These issues should also be evaluated in the UK and in mainland Europe.

Community Programmes

Local health promotion activities can reinforce national initiatives and similar problems of co-ordination across different agencies can occur. Anderson (1990) described some aspects of a community programme in Oxford and the advantages of a local focus to a campaign. District Health Authorities and FHSA's have a role in undertaking community surveys of the drinking habits of local populations and their beliefs about alcohol and health promotion.

Such surveys, as well as providing valuable information on which to plan prevention work, may also serve an "agenda setting" function. It should also be noted, however, that such campaigns may increase the demands on treatment and advice services (Budd et al, 1982).

Health Promotion Resources

In general health promotion spending is low compared to advertising budgets. It is difficult to estimate the total sum from all health, local and school based activities but the HEA spend about £1.5m., while Scotland and Wales budget total approximately £0.5m, the Alcohol Education and Research Council spends about £0.5, and the Portman Group, sponsored by the alcohol industry, about £1.5m. In addition, the Department of Transport has responsibility for the public education on drinking and driving with an annual cost of between £0.6m and £2.5m. (Harrison and Tether, 1990). This compares to alcohol advertising in the press and TV of £160m in 1989 and sports sponsorship and other marketing activities costing about £40m. An adequate mass media backed campaign would involve a considerable increase in resources although as suggested above this may be financed by an advertising levy. Alcohol Concern have suggested a target of £30m (Alcohol Concern, 1988). As an alternative or in addition there is scope for other types of campaigns such as Drinkwise Days. One objective of such campaigns is to gain "free" and concentrated media coverage. National smoking days are thought to be cost-effective in achieving some permanent changes in behaviour (Townsend, 1984) but messages about sensible drinking are more difficult to portray in events of this kind.

One source of finance for campaigns is the alcohol trade. Grant (1984) reviewed trade

sponsored programmes and concluded that co-operation was possible and such campaigns may have value despite differences in opinion between the trade and health educators on the purpose of the campaign. Ross (1987) suggests that co-operation between the trade and health educators is easier for some issues such as deterring drink drivers, than others such as the general problems of alcohol misusers. It can not be expected that the trade could support all types of campaigns nor should health education be constrained by tied finance. The acceptability of co-operation depends on whether co-operation in seen as an addition to or a substitute for publicly funded programmes.

There is limited evidence available on the effectiveness of population and community based primary promotion initiatives. Media campaigns are an expensive part of a prevention strategy but may be a useful part of a strategy to raise the awareness of alcohol related problems. Where such campaigns have been shown to have a measurable impact, for example in the US for cigarette and drugs, considerably more media coverage (either through purchase or "free" time obtained by legislation) than present levels have been obtained. An advertising levy (as discussed in Section 4) is one source of such resources and should be exploited to both fund and evaluate these activities.

### 5.2 General Practitioners

General practitioners and other primary workers have a central role in prevention, screening, treatment and referral. Heavy drinkers are more likely to have health problems than average and are therefore more likely to visit their GP. Anderson (1990) lists several other advantages to primary health care prevention and management of alcohol problems. Services are

generally low cost and accessible to the community with workers having established credibility. The primary health care setting also avoids the problems of stigma and labelling which often arise when a patient is treated by specialist alcohol services. The disadvantages of the primary care team is that at present most problems go unrecognised. There is a general pessimism about the effectiveness of prevention or treatment. Uncertainty and lack of faith about local services may affect referral patterns (RCGP, 1986).

The new GP contract has emphasised the role of health promotion and alcohol is included in health checks. The cost-effectiveness of the use of health promotion clinics in general practice rather than opportunistic screening has been questioned (Scott and Maynard, 1991). The cost-effectiveness of simple advice for other lifestyles, particularly smoking, has ranked favourably compared to many other health care interventions (Godfrey, Hardman and Maynard, 1989).

Current knowledge about community drinking habits is limited and GPs and FHSAs, by systematic collection of data at health checks, could play an important role in improving data and monitoring activity. Another way of obtaining information is by mailing health questionnaires and reasonable response rates have been found for surveys of drinking habits (Wallace and Haines, 1985).

As well as being in a position to give general advice about alcohol consumption, the GP can undertake screening for those drinking more than recommended limits and attempt to identify those problem drinkers who may benefit from more intensive advice and treatment. Such screening is possible from practice records and questioning and a number of screening

questionnaires are available. Brief interventions for some patients may also be effective. Wallace et al (1988) undertook a randomised control trial where the treatment group were interviewed, received advice and information and given a drinking diary by their GP. Patients were followed up at one, four, seven and ten months. A 45.8 per cent reduction in consumption was apparent in the study group compared to a 27.3 per cent reduction in the control group.

The willingness of GPs to undertake this work will, however, depend on a number of factors. Anderson (1988) in a survey of GPs attitudes to working with problem drinkers found that whereas 93 per cent of the doctors studied felt that they had a legitimate right to work with drinkers only 44 per cent felt capable of doing so and only 39 per cent were motivated to do so. Also services have to be available and known. A characteristic of treatment services reviewed below is their variety of content and settings and the perceived lack of effectiveness.

A recent study has suggested that primary care may also be a low cost and effective means of delivering treatment. Drummond et al (1990) report on a trial where problem drinkers screened at a specialised clinic were randomly allocated to either GP or specialist clinic treatment group. The findings show that after an initial screening and advice session, the treatment provided by the GPs was at least as effective as that from a specialist clinic.

This example indicates the potential interaction between specialist and GP services. To improve the GP's ability, confidence and motivation to screen and deal with alcohol misuse requires training. The setting up of Community Alcohol Teams was an initiative which was designed to give advice and provide a link with specialist agencies and help train primary

health and other care workers. The evaluation of the scheme suggests that CATs were successful in making specialist services more accessible and were quicker to respond and better at engaging clients in treatment than hospital services (Stockwell and Clement, 1989). They were not, however, an inexpensive way of reducing demand on overstretched traditional services but rather created an additional layer. The pressure to undertake clinical work limited their educational role but where undertaken Stockwell and Clement concluded that there was encouraging evidence that training opportunities were an effective way of improving the knowledge and skills of primary care workers in dealing with alcohol related problems.

## 5.3 Hospital Screening

Alcohol misuse causes a large excess demand of inpatient services but much is unrecognised. Inpatient settings including accident and emergency departments provide an opportunity to screen for alcohol problems and provide advice or more intensive therapy. As with GP screening such studies serve a dual function of improving knowledge and estimates of the size of the problems as well as providing opportunities for early interventions.

There is evidence the early interventions can be effective (Babor et al., 1986; Chick et al, 1985; Hodgson, 1989). Also alcohol screening questionnaires have been shown to be more sensitive and less costly in identifying problem drinkers than invasive laboratory tests. A study of the identification of alcohol related problems in a general hospital indicated that screening and education could be effective but several factors influence the cost effectiveness between different methods of implementing a programme (Tolley and Rowland, 1991). The

results suggest that a greater positive identification rate could be achieved by employing a specialist worker, but at greater cost. Nurses were more accomplished than doctors at screening patient admission which offset the negative effects of their lower positive case identification rate. As they have a lower opportunity cost for their time nurses were found to be a more cost-effective screening option than the use of doctors. Difficulties were encountered in getting doctors to participate and they achieved much lower rates (27 per cent) than nurses (just under 50 per cent). Doctors gave a low priority to routinely screening patients and a gap was found between attitudes and action (Rowland et al, 1988).

Both short term and longer term training initiatives may be required to guarantee the success of wider initiatives to undertake such screening. There is a need to induce, via education, a culture of data collection about patients' drinking habits (as has happened with regard to tobacco). This is an initiative which could also be tackled through contracts with providers.

Further development of minimal interventions, which could accompanying a screening programme, is necessary.

### 5.4 Specialist Treatment Services

Few cost effectiveness studies of alternative treatments exists. There are a wide range of different types of treatment, different settings and other factors which do make such evaluations difficult (Godfrey, 1989b). Evidence from the US suggests that specialist treatment costs may be offset by a reduction in other health service demands (Holder, 1987, Luckey, 1987 and Holder and Blose, 1991). Also in Ontario some correlation has been found

between the level of treatment services and liver cirrhosis rates. Whether these effects would occur in the UK is unknown but it is clear that in economically evaluating different treatments it is necessary to take account of all possible social, employment and health benefits rather than focusing on narrow medical outcomes such as abstinent days (Godfrey, 1989b).

Available studies on the effectiveness of treatment have consistently suggested that outpatient care is at least as effective as inpatient care and service provision in the UK has responded to these findings (Ettore, 1988). A recent American study has reviewed evidence on a wide range of treatments together with estimates of costs. The results suggest that modalities with the most evidence of effectiveness, based on three or more clinical trials, are not the most expensive. Those treatments with little evidence of effectiveness were found to be in the higher cost categories. Another US study, by contrast, found that inpatient treatment, for a group identified through a workplace scheme, resulted in considerably higher numbers who abstained completely from drinking than others randomly assigned to Alcohol Anonymous or given a choice of treatment. Some may benefit from more intensive treatment and considerable research is being undertaken on matching patients to different treatments. Hence low cost options may be as effective as high cost treatments for the majority of problem drinkers but a wide range of treatments may be necessary. Research has also suggested that problem drinkers in seeking help are likely to demand and use a range of different services (Allan, 1989). Also some would regard alcohol dependence as a chronic disease with individuals requiring many episodes of treatment to keep the problem under control (Valliant, 1988).

The **Health of the Nation** has a welcome focus on prevention but services and treatment for

problem drinkers would be an important part of a health strategy for alcohol. Indeed effective prevention measures may substantially increase demand on services which currently only deal with a small proportion of those who are known to be severely alcohol dependent. Estimates have suggested that approximately 14,500 are treated from a population of 300,000 to 500,000 of those who may be recognised as being in need of treatment and 1.4m drinking over the higher recommended limit (Department of Health, 1991). Many of the services provided for problem drinkers are undertaken by agencies outside the NHS and a mixed economy of care already exists in this sector. Service provision is affected both by the NHS reforms and the Care in the Community initiative. Existing provision of services is patchy and a number of recommendations to assist providers and purchasers have already been put forward (Alcohol Concern, Scoda, 1990).

District and Regional Health Authorities have an important role in assessing the need for services and the work of Rush (1990) in Ontario provides a useful model.

## 5.5 Summary

1 It is recommended that a dual strategy of increased information and encouragement of the use of low cost interventions is pursued within the NHS.

2 Prevention strategies would need to be increased significantly to achieve changes in behaviour. These strategies must be continued over many years.

3 Resources to finance alcohol health education and evaluative research could be

obtained from an advertising levy.

4 Mass-media and community based campaigns have an important "agenda setting" role which may help ensure the overall success of the alcohol related health strategy.

5 General Practitioners have a central role in prevention, screening, treatment and referral.

6 There is a need to introduce, via education, a culture of data collection about patients alcohol use by both GPs and within hospitals. Purchasers should encourage hospital alcohol screening in contract setting.

7 Regional Health Authorities and purchasers should be obliged to assess the need for alcohol services in their area and ensure the provision of a wide range of cost-effective treatments.

# 6 CONCLUSIONS

In considering alcohol as a risk factor which could be targeted as part of a health strategy there is a fundamental lack of existing information on which to base the monitoring of risk factors, the health outcomes which may result from changes in drinking patterns and the effectiveness of the interventions available. This is not to suggest, however, that alcohol as one of the most important risk factors in premature deaths and ill-health should be excluded from the **Health of the Nation** or any local initiative. Many things can be done at all levels as is indicated in this review and others (see, for example, Robinson, 1989). The strategy would need to be a developing one with an initial emphasis on information so that more detailed targets can be both set and monitored.

## 6.1 Setting Goals and Targets

The goal should be to improve the quality and quantity of life of the population. To monitor this goal a more comprehensive assessment of the total effects of alcohol related problems from all types of drinking patterns is required. Opinions should be sought to clarify existing epidemiological knowledge and set priorities for future research.

The best available current indicator to monitor drinking behaviour is per capita alcohol consumption. Efforts to improve measurement of at risk behaviour using the Royal College of Psychiatrist's units scale should be made at a national, regional and local level. The role of collecting information routinely through hospital screening and GP health clinics should be actively encouraged. This will require additional training and education for medical and

supporting staff. If pursued vigorously at all levels improvements in information could be realised within 3 years.

In the light of the gaps in information no specific targets are proposed. If there is a period of prosperity even maintaining existing patterns could be challenging.

## 6.2 Interventions

A wide range of interventions exist both within and outside the NHS. The importance of non-health care interventions in attempting to minimise alcohol related problems have been recognised and some attempts have been made to co-ordinate policies. Useful lessons about the difficulties of achieving common goals could be applied to other areas of the **Health of the Nation**.

The role of fiscal policy is significant. Budgets have not been used to control alcohol consumption in the past and duty levels have been allowed to fall in real terms. In the 1980s and 1990s the brewers have increased the price of beer significantly and this has helped moderate the growth in consumption. This trend may not continue and coupled with income growth consumption could rise significantly. Without an active fiscal policy reductions in alcohol related problems will be difficult to achieve. This does not imply that interventions at a number of levels could help certain problems and minimise harm.

Prevention policies have an important role. Financing effective policies could be difficult as service costs are likely to rise in the short and medium term if alcohol problems are more

generally recognised. A levy on alcohol advertising is proposed to finance such policies. Prevention strategies directed at alcohol, however, are unlikely to result in large behavioural changes or measureable changes in health outcomes in the short term. Smoking habits, for example, have been reduced significantly but this was only achieved over a key time period and after repeated and prolonged health promotion about smoking and its risks.

In the immediate future more specific targets could be set to achieve the changes in information gathering and more rational service provision discussed in the paper.

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## APPENDIX 1 Alcohol Related Disease Factors

1 Royal College of General Practitioners, 1986

| ICD Code | Disease | Percentage of Deaths Attributable to Alcohol | |
|---|---|---|---|
| | | Male | Female |
| 140-239 | Neoplasms | 4 | 3 |
| 430-438 | Cerebrovascular disease | 12 | 3 |
| 460-519 | Respiratory disease | 11 | 2 |
| 520-570 | Disease of the digestive system | 12 | 3 |
| 572-579 | apart from chronic liver disease | | |
| 571 | Chronic liver disease and cirrhosis | 80 | 80 |
| | Injury and poisonings | 40 | 40 |
| 800-999 | Other | 6 | 1 |

2 Adelstein and White*, 1976

| ICD Code | Disease | Percentage of Deaths Attributable to Alcohol | |
|---|---|---|---|
| | | Male | Female |
| 291 | Alcohol psychosis | 100 | 100 |
| 303 | Alcohol dependency syndrome | 100 | 100 |
| 860 | Toxic effects of alcohol | 100 | 100 |
| 571 | Chronic liver disease and cirrhosis | 66 | 66 |

| | | High | Low | High | Low |
|---|---|---|---|---|---|
| 001-139 | Infectious and parasitic diseases | 6.95 | 4.12 | - | - |
| 140-239 | Neoplasms | - | - | 0.22 | 0.13 |
| 390-459 | Diseases of the circulatory system | 0.51 | 0.31 | 0.19 | 0.12 |
| 460-519 | Diseases of the respiratory system | 1.46 | 0.86 | 0.53 | 0.32 |
| 520-570 | Diseases of the digestive system | | | | |
| 572-579 | apart from chronic liver disease | 9.92 | 5.88 | 1.82 | 1.08 |
| 800-809 | Injuries and poisonings apart from | | | | |
| 830-859 | 'toxic effects of alcohol' and 'road | 33.02 | 19.57 | 6.20 | 3.68 |
| 861-999 | traffic accidents' | | | | |
| 810-829 | Road traffic accidents | 40 | 20 | 40 | 20 |

* As used by Holterman and Burchell (1981) and Maynard et al (1987).

3 Centres for Disease Control (CDC), 1990

| ICD Code | Disease | Percentage of deaths attributable to alcohol | |
|---|---|---|---|
| 140-149 | Neoplasm of lip, oral cavity and pharynx | | |
| | - Male | 50 | >35 years |
| | - Female | 40 | >35 |
| | Neoplasm of the | | |
| 150 | - oesophagus | 75 | >35 |
| 151 | - stomach | 20 | >35 |
| 155 | - liver | 15 | >35 |
| 161 | - larynx | | |
| | - Male | 50 | >35 |
| | - Female | 40 | >35 |
| 291 | Alcohol psychosis | 100 | >15 |
| 303 | Alcohol dependency syndrome | 100 | >15 |
| 305.5 | Alcohol | 100 | >15 |
| 401 | Essential hypertension | 8 | >35 |
| 425.5 | Alcoholic cardiomyopathy | 100 | >15 |
| 430-438 | Cerebrovascular disease | 7 | >35 |
| 011-012 | Pulmonary tuberculosis | 25 | >35 |
| 480-487 | Pneumonia and influenza | 5 | >35 |
| 530-537 | Diseases of the aesophagus, stomach and duodenum | 10 | >35 |
| 535.3 | Gastritis caused by alcohol | 100 | >15 |
| 571.0 | Alcohol fatty liver | 100 | >15 |
| 571.1 | Acute alcohol hepatitis | 100 | >15 |
| 571.2 | Alcoholic cirrhosis of liver | 100 | >15 |
| 571.3 | Alcoholic liver damage, unspecified | 100 | >15 |
| 571.5-571.6 | Cirrhosis of liver without mention of alcohol | 50 | >35 |
| 577.0 | Acute pancreatitis | 42 | >35 |
| 577.1 | Chronic pancreatitis | 60 | >35 |
| E810-E825 | Motor vehicle traffic and non-traffic accidents | 42 | >0 |
| E826.9 | Pedal cycle accidents | 20 | >0 |
| E830-E838 | Water sport accidents | 20 | >0 |
| E840-E845 | Air and space transport accidents | 16 | >0 |
| E860 | Accidental poisonings by alcohol | 100 | >15 |
| E880-E888 | Accidental falls | 35 | >15 |
| E890-E899 | Accidents caused by fire | 45 | >0 |
| E910 | Accidental drownings | 38 | >0 |
| E916-E928 | Other accidents | 25 | >15 |
| E950-E959 | Suicide and self-infliected injury | 28 | >15 |
| E960-E969 | Homicide and injury purposely inflicted | 46 | >15 |
| 250 | Diabetes mellitus | 5 | >35 |
| 357.5 | Alcoholic polyneuropathy | 100 | >15 |
| 790.3 | Excessive blood level of alcohol | 100 | >15 |