ALCOHOL, WORK AND PRODUCTIVITY

Scientific Opinion of the Science Group
of the European Alcohol and Health Forum

September 2011

FOREWORD

Reducing the negative impact of alcohol on the workplace is one of five priorities picked out in the *EU strategy to support Member States in reducing alcohol related harm* [1], and so the Science Group of the European Alcohol and Health Forum (EAHF) was pleased to be asked to give its opinion. The Science Group was aware that there are positive opportunities afforded through work to address problems due to harmful drinking even if they may not obviously impact on productivity. Those in full-time employment – usually about two-thirds of the population of working age - spend about one-third to one half of their waking lives at work and are open to health and wellbeing influences far more frequently than in, for example, conventional healthcare settings. But we need to know if using those opportunities, if employers were to do so, really works – both in terms of economic productivity and health gain.

I am really grateful to members of the Science Group for completing this report and to the subgroup that led the work. There was a lead author for each of the two parts, Professor Peter Anderson and Dr Marjana Martinic, to whom the most credit is due. I am also grateful to the expert reviewers and to those members of the Alcohol and Health Forum who sent comments, most of which we have been able to address.

After careful discussion, the Science Group decided to keep the two parts of the report separate. While there may be an element of repetition, nonetheless they represent two important but different perspectives that the Science Group believes are complementary. Part II draws particularly on the experience of the drinks industry in tackling alcohol problems in the workplace. Of course workplace policies are by no means needed only in the drinks industry. But this seemed a particularly appropriate sector to examine for examples of policies and practices, not only because of the importance of the sector in setting an example to employers in general but also in the light of the industry representation in the membership of the EAHF that requested the opinion of the Science Group.

We have sought both to highlight the evidence and to identify the gaps in knowledge and evidence. It is clear that the evidence for the existence of health, social and economic harm from alcohol in the context of the workplace is much stronger than the evidence of how opportunities and practices at work can be used to reduce this harm. Like all good pieces of work it raises many further questions and it is hoped that it will be the stimulus for researchers within the EU and beyond. In particular there is clearly an urgent need to build proper evaluation into future workplace initiatives. Evidence to date suggests that initiatives through the workplace aimed at general health and wellbeing may be as effective as those focussed specifically on alcohol.

Where will this report lead? Firstly we hope that members and observers of the Alcohol and Health Forum will take note of the findings and take them back to the organisations they represent, whether they be industry, NGOs or governments. Secondly, and equally importantly, it will be a source of reference and advice for a much wider constituency across the countries of the EU and beyond. Our previous report examining the impact of alcohol marketing on young people has been an influential resource in just this way and we believe this second report has the potential to change current practice and show the way forward for future research.

[1] Communication from the Commission of 24 October 2006, "An EU strategy to support Member States in reducing alcohol-related harm", COM(2006) 625 final.

The enormous burden of individual harm (often to those around the problem drinker as well as the drinker themselves) and aggregated lost productivity that are highlighted in the report should make it clear to all that inactivity is not an option and complacency will cost lives. We owe it to the populations we serve to use every opportunity that is founded in sound evidence to preserve and improve health and this report should lay the foundations of applying this to the workplace. But the workplace cannot be taken in isolation: just as work affects health and wellbeing beyond the workplace, so do many factors outside work, such as the price, availability and marketing of alcohol, or access to social programs and general healthcare reflect back on the health of the workforce. The Science Group believes that the European Commission across its various directorates has the potential to be a vital catalyst for good practice in this two-way process.

Professor Ian Gilmore
Chair, Science Group

ACKNOWLEDGEMENTS

The Hospital Clínic of Barcelona University received a grant of €3000 from the European Commission to undertake a supplementary literature search in preparation of the report presented in Part I. Dr. Michaela Bitarello do Amaral Sabadini undertook the literature search and summarized the relevant identified papers.

As foreseen in the task request from the European Alcohol and Health Forum (Annex I) potentially relevant materials (Annex II), were received from several of its members, as well as feedback on draft texts.

The following companies, which are all members of the European Alcohol and Health Forum, made information about their workplace alcohol policies and interventions available to the Science Group:Anheuser-Busch InBev (ABI), Diageo plc, Heineken n.V., Pernod Ricard.

The following independent experts provided upon request by the Commission an appraisal of draft texts, giving attention to the adequacy and accuracy of the analysis and discussion, the use of evidence to support key statements, the clarity of presentation and the breadth and accuracy of referencing:

Professor Ann Crosland
Department of Pharmacy Health and Well-being, University of Sunderland

Dr. Ulric Hermansson
Department of Clinical Neuroscience, Karolinska Institutet, Stockholm

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TABLE OF CONTENTS

SUMMARY

Impact of alcohol on the workplace and productivity

Globally, alcohol is the world's number one risk factor for ill-health and premature death amongst the 25-59 year old age group, the core of the working age population. It is unsurprising, therefore that lost productivity costs feature as the dominant element in social costs studies arising from the harm done by alcohol (contributing to one half or more of the total social costs). Becoming unemployed worsens alcohol-related harm, and heavy drinking, itself, leads to unemployment. Alcohol is a significant risk factor for absenteeism and presenteeism at work, largely in a dose response manner, with a relationship between societal and individual level of alcohol consumption and sickness absence. Although some studies have reported a positive impact of alcohol consumption on earnings, a proxy measure of productivity, a meta-analysis of relevant studies suggested that the relationship was an artefact. Often forgotten is the impact of drinkers on the productivity of people other than the drinker. An Australian study found this to be comparable in cost size as the lost productivity costs of the drinkers themselves. The work place itself also impacts on alcohol-related harm. Certain occupations (in particular bar staff and sea workers) are at particular risk, and, in general, stressful working environments increase the risk of alcohol-related harm.

Reducing the negative impact of alcohol on the workplace and productivity

Despite the extensive evidence base for the potential negative impact of alcohol consumption on productivity, the evidence base for effective responses is rather poor. It is not known if changing work structures can reduce workplace alcohol-related harm. Whilst there is some limited evidence from systematic reviews for an impact of counselling based interventions at the work place, peer support programmes and web based programmes, most of the evidence is based on self-report, with few outcomes that are objective. Mandatory screening programmes seem to have an impact and can be appropriate for those employees in high risk situations, such as in the transport sector. Although systematic reviews find in general that health promotion programmes at the workplace have little impact, with, perhaps the exception of programmes that promote physical activity, well-being at work programmes seem to bring a productivity return on investment of 2.73 financial units for every financial unit spent. There are a number of ways in which the evidence could be bettered, for example by extending the volume of evaluation through partnerships between academia and the private sector. Partly, the lack of robust evidence is due to the difficulty in accessing information due to confidentiality and other issues. Independent data gathering by academics may be a solution if employees can be assured that employers will not have access to their personal data. Finally, policies outside the workplace seem to have an impact. Investing in social welfare programmes and active labour programmes to keep and reintegrate workers in jobs can mitigate the negative effective of economic downturns on alcohol-related deaths. Alcohol polices themselves, such as increases in the price of alcohol, can reduce sickness absence and overall unemployment and improve overall productivity.

Wider deployment in more workplace settings

Given the lack of a robust evidence base for workplace based alcohol activities that focus on individual counselling, it may be better to focus activities under the umbrella of well-being at work initiatives, particularly those that focus on presenteeism, and those that bring a good return on investment, with core components including structural factors and management and leadership styles. Increasing the extent of alcohol free workplaces will result in reductions of alcohol-related work place accidents and injuries, as well as creating a culture for a more healthy relationship with alcohol that impact on families and friends through social networks.

Based on known rates of alcohol-related mortality, three occupational target groups stand out for action: those working in the retail alcohol trade, labourers in the construction industry, and seafarers and dockers. Two population target groups stand out for action: the young, because they suffer from both differential high rates of unemployment and risky drinking, compounded by the stresses when joining the labour market, and, the middle age because they have the absolute highest rates of alcohol-related disability and premature death.

Additional research and data

There is a wealth of breadth and depth of work place based programmes that are being implemented, but that have not been evaluated. Partnerships between academia and the private sector could help close this gap.

Research could focus on a range of work place and productivity-related interventions including the impact of:

1. Well-being based programmes that reduce stress at work and restructure effort-reward imbalances;
2. Programmes that alter the use and availability of alcohol at work, and attempt to modify the descriptive and injunctive norms around alcohol at work;
3. Workplace based programmes on family and friends outside of work;
4. Heavy drinking on the productivity of people other than the drinker; and
5. Incentives-based programmes.

Greater investment needs to be made in measuring and costing presenteeism, also bearing in mind that presenteeism leads to greater lost productivity than absenteeism.

Addressing alcohol-related harm in the workplace

The workplace represents a useful access point for health promotion, including for addressing alcohol-related harm. Various approaches exist, ranging from legislation to prevention efforts and interventions implemented by individual employers. However, a common workplace policy on drinking does not exist at EU level and action is largely left in the hands of individual employers. As a result, workplace interventions are inconsistent and, in many instances, altogether absent.

Employers can play an important role in reducing alcohol-related harm through the workplace by putting into place comprehensive measures that include clear policies around alcohol in the workplace, as well as screening, education, and interventions aimed both at problem drinkers in the workforce and at changing the workplace culture. Comprehensive guidelines for alcohol policies in the workplace exist and many large employers already have measures in place to reduce alcohol-related harm among their employees. This report includes an overview of how one industry – producers of alcohol beverages and members of the Alcohol and Health Forum – has implemented workplace policies and applied interventions to address employees at risk, high-risk settings, and education among its employees. However, a broader overview of workplace practices across the EU is needed, which would examine efforts to reduce alcohol-related harm in other industries, among government employees, and among those working in NGOs and civil society organizations. A survey of this kind would help identify gaps and possible ways forward towards a more integrated and uniform approach that would combine legislation, alcohol-free workplaces, and interventions aimed at those employees whose drinking patterns have an impact on performance at work.

1. BACKGROUND AND CONTEXT

The European Alcohol and Health Forum[2] requested in the spring of 2010 the Science Group to provide a summary of the evidence base and advice for possible actions by Forum members to address the Strategy's goals of preventing alcohol-related harm among adults and reducing the negative impact on the workplace (Annex I).

In particular, the Science Group was asked to provide:

1. A quantification of the impact on alcohol on the workplace, and an evaluation of the effects on the productivity of the EU workforce.
2. A concise overview of the current state of play across Europe, highlighting key trends and/or any variations in national or sector experiences as well as between larger or smaller workplace settings.
3. Any pointers towards:
   (a) High value options for additional research or collection of additional data and indicators;
   (b) Effective approaches to consider for wider deployment in more workplace settings, including any guidance as to the need for prioritisation of action targeting particular sectoral, professional or age specific groups.

The Chair of the Science Group suggested the establishment of a dedicated Working Group to prepare a scientific report on the topic. The Working Group consisted of the following persons: Professor Peter Anderson (chair), Dr. Marjana Martinic, Dr. Anders Romelsjö.

The report in Part I deals with items 1 and 3 of the above task requests. The content of the report includes the impact of alcohol on productivity both in work (absenteeism and presenteeism) as well as out of work (unemployment) as these are all related, particularly in times of economic downturn, when workers need to be re-integrated back into the workforce. The report in Part II, Approaches to reducing alcohol-related harm in the workplace, describes a number of workplace interventions in practice implemented by beverage alcohol producer companies. While workplace interventions are applied across many industries and sectors, these companies were selected because they are members of the Alcohol and Health Forum and information about their practices was accessible to the Science Group. The examples are provided as illustration of what can be done by employers.

Findings presented in Part I are primarily based on a review undertaken for the European Workplace and Alcohol Project (Anderson 2011), an ongoing project co-financed by the European Commission (http://www.eurocare.org/eu_projects/ewa), supplemented with evidence from previous publications, including the Alcohol in Europe report (Anderson & Baumberg, 2006), the report of the FASE project on the impact of work place policies and programmes to reduce the harm done by alcohol to the economy (Anderson 2010), and the report of the SMART Project on Cost Benefit Analyses of alcohol policies (Anderson & Baumberg 2010).

A literature search strategy was used to identify any additional relevant articles published from 2008 to end June 2011. The search was restricted to articles in English or Spanish and the databases searched were EconLit, PubMed and Google scholar. Articles from gray literature were also included. The following headings were searched: alcohol and employment/unemployment, absenteeism, presenteeism, productivity/wages, workplace accidents, workplace structure and alcohol problems, and workplace policies and

[2] http://ec.europa.eu/health/alcohol/forum/index_en.htm

programmes to reduce alcohol related harm. The flowchart is illustrated in Figure 1. Of 545 titles identified, only 32 additional publications were considered relevant for the report.

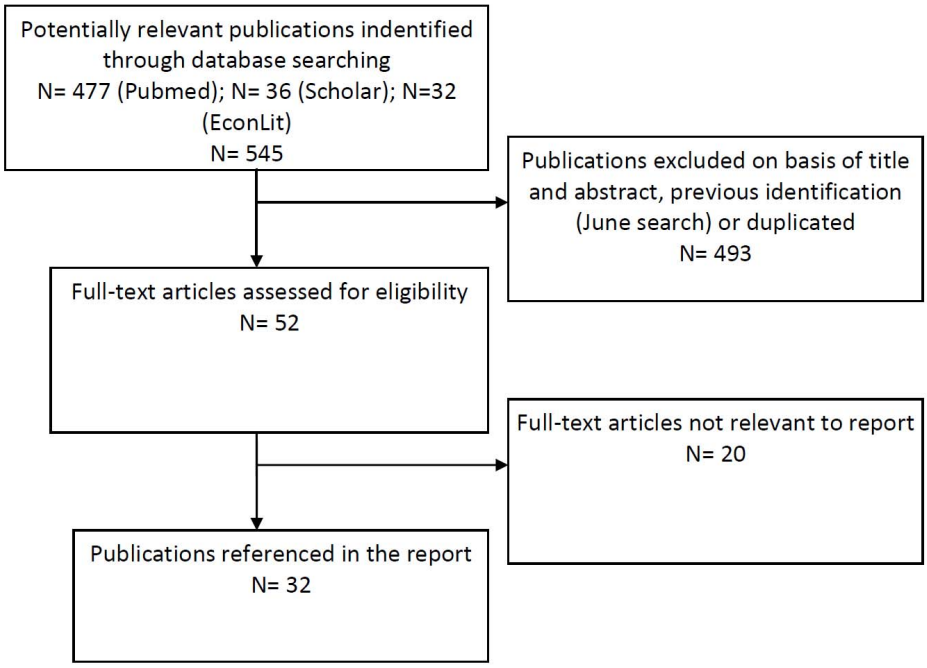

Figure 1 Results of additional searches

A healthy and productive workforce is critical for economic success and population health. Ill-health at the workplace can result in lost productivity, which arises from two sources: absenteeism and presenteeism. Absenteeism refers to an employee's time away from work due to illness or disability (Schultz et al 2009). Presenteeism refers to the decrease in productivity in employees whose health problems have not necessarily led to absenteeism and the decrease in productivity for disabled workers before and after their absence period (Burton et al 1999). It is defined as being present at work, but limited in some aspects of job performance by a health problem, and it is often a hidden cost for employers (Schultz et al 2007). Presenteeism includes time not spent on job tasks and decreased quality of work (e.g. product waste and product defects) (Loeppke et al 2003). Absenteeism and presenteeism are part of a continuum within which workers likely transition back and forth over time, as well as in and out of employment (Escorpio et al 2007).

Health promotion activities in the workplace can be defined as preventing, minimizing and eliminating health hazards, and maintaining and promoting work ability (Naumanen 2006). Worker health and wellness is maintaining a balance of the physical, mental and social ingredients, as well as health habits associated with good physical condition, energy and vitality (Robertson & Cooper 2011). Workplace-based health promotion programmes vary considerably in size and composition, and they have evolved significantly over the past 30 years. While containing health care-related costs and absenteeism are important strategies for employers, greater gains may be realized by improving on-the job productivity (Pelletier 2009; Kuoppala et al 2008; Terry et al 2008; Tompa et al 2009; Dew et al 2005). Presenteeism generally accounts for a greater proportion of the productivity loss than absenteeism. For example, a study of the US workforce in the Dow Chemical Company found that the associated absenteeism by chronic condition ranged from 0.9 to 5.9 hours in a 4-week period, and on-the-job work impairment ranged from a 17.8% to 36.4% decrement in ability to function at work (Collins et al 2005). The total cost of chronic conditions was estimated to be 10.7% of the total labour costs, of which two-thirds were attributable to work impairment alone.

PART I

2. IMPACT OF ALCOHOL ON THE WORKPLACE AND PRODUCTIVITY

The answers to ten questions summarize the impact of alcohol on the workplace and productivity:

1. There are three lines of evidence that suggest that alcohol could impair productivity: alcohol, particularly episodic heavy drinking, can diminish human capital accumulation through reducing academic performance; the peak age of alcohol-related death is in middle age, often a peak time of work; and, alcohol is the world's most important risk factor for disability and premature death in the age range 25-59 years, when 80% of the European population is in full time work.
2. Lost productivity costs feature as the dominant element in social costs studies arising from the harm done by alcohol, being about half of the total social cost of alcohol to the European Union.
3. Becoming unemployed seems to worsen alcohol-related harm – in the European Union, a more than 3% increase in unemployment is associated with a 28% increase in deaths from alcohol use disorders.
4. Heavy drinking increases the risk of unemployment by as much as about five-fold, compared with light drinking.
5. Heavy drinking increases the risk of absenteeism, largely in a dose-response manner.
6. Heavy drinking increases the risk of presenteeism by as much as about three-fold, compared with light drinking; presenteeism is more important for lost productivity than absenteeism.
7. A meta-analysis of eleven studies that have reported a positive impact of alcohol consumption on earnings, a proxy measure of productivity, suggested that the relationship was an artefact, with alcohol consumption proving to be an imperfect proxy for all personality traits that have a positive influence on human capital.
8. An Australian study which reviewed the magnitude and range of alcohol's harm to others found the size of the social cost to be similar as that from the direct harm of the drinker. Two-thirds of this cost resulted from productivity costs due to lost and spent time as a result of a heavy drinker. The annual cost of extra hours worked by workers because of a co-worker's drinking and the cost of absenteeism due to someone else's drinking were almost as large as that due to one's own drinking.
9. The highest levels of alcohol-related mortality for both men and women are generally found among those who work in the on-license retail sales drinks industry. In England and Wales, over the last 20 years, alcohol-related mortality for doctors has decreased from being amongst the highest to the lowest.
10. The workplace, itself, can lead to alcohol-related harm through structural factors, stress, high effort/low reward work, the ease of obtaining and using alcohol, the extent to which members of an individual's workplace social network use alcohol or work while impaired by alcohol at work, and, the extent to which members of an individual's workplace social network approve of using or working under the influence of alcohol at work.

2.1 Could alcohol impair productivity?

There are three lines of evidence to suggest that alcohol could impair productivity: its impact on human capital accumulation through education; the time in life when alcohol leads to ill-health and premature death; and its importance in the working age population, relative to other risk factors, in leading to impaired health and premature death.

Alcohol and educational attainment

There is evidence, although not from all studies (Dee & Evans 2003), that drinking (Koch & Ribar 2001), and, in particular, binge drinking, (Renna 2009) impacts on the number of years at school (Lye & Hirschberg 2010). In the United States, for example, Koch & Ribar (2001) concluded that delaying drinking onset by one year increased schooling by 0.47 years for men and 0.36 years for women. Other studies find a significant negative relationship between drinking and measures of education that reflect the quality of human capital accumulation. Williams et al. (2003) found a negative impact of drinking on grade point average mediated via a reduction in the hours spent studying. Binge drinking, particularly, is shown to lower predicted grades (Wolaver 2007).

Carrell et al (2011) exploited the discontinuity in drinking at age 21 years at the United States Air Force Academy, in which the minimum legal drinking age is strictly enforced. They found that drinking caused significant reductions in academic performance, particularly for the highest-performing students. Their results indicated that the negative consequences of alcohol consumption extended beyond the narrow segment of the population at risk of more severe, low-frequency, outcomes.

Time in life when alcohol leads to ill-health and premature death

Globally, the peak age of alcohol-related death is in middle age and older middle age, a time often of peak performance at work (Rehm et al 2006). As an illustration of this, the age of alcohol-related hospitalizations and deaths has been estimated in the United Kingdom, for conditions solely and partially due to alcohol (Jones et al 2008). For both men (Figure 2) and women (Figure 3), the estimated highest absolute number of deaths from alcohol-attributable conditions occurred in the age ranges 45-64 years, an important part of the working age population (OECD 2010). This age group could also bring their alcohol-related problems with them as they retire and move into older age (Anderson & Scafato 2010).

The line in figures 2 and 3 going from the top left to the bottom right indicates the proportion of all deaths in an age group that are due to alcohol. Here, it can be seen for both men and women, that young people, although having a small absolute number of alcohol-related deaths, have the highest proportion of all deaths in the age group being due to alcohol-related conditions. This is not surprising, since the highest rates of heavy alcohol use and binge drinking occur among young adults aged 18-25 years. In 2010, youth unemployment in developed countries and the European Union stood at over 18% (ILO 2011). This is a risk factor for alcohol-related harm. In addition, for those joining the labour market, the transition from school to the labour force represents a high-risk time for alcohol use. Specific job-related influences associated with problem drinking, including job stressors and participation in work based drinking networks, may pose a particular problem for young adults as they attempt to fit in their new workplace (Bray et al 2011).

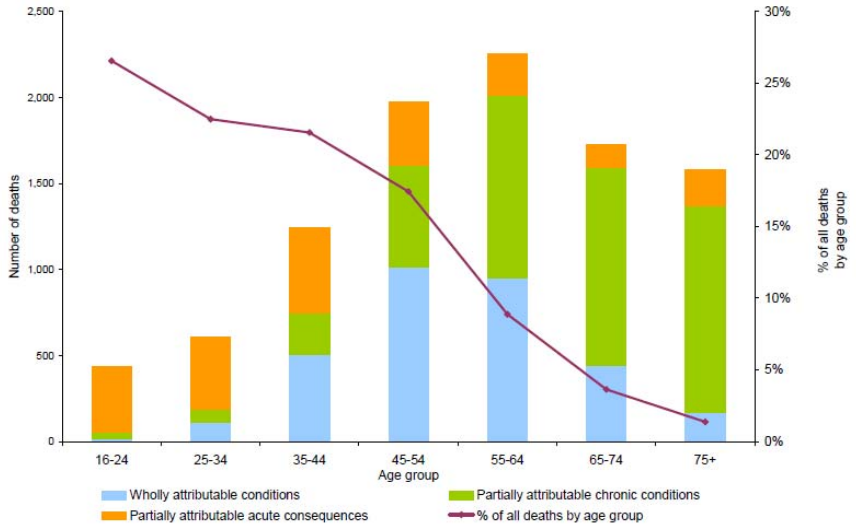

Figure 2 Estimated absolute number of deaths (columns) and % of all deaths in each age group due to alcohol (line) for UK male deaths attributable to alcohol consumption by age and type of condition for the year 2005. The columns divide attribution into wholly attributable conditions, partially attributable chronic conditions, and partially attributable acute conditions. The full definitions are given in Jones et al (2008).

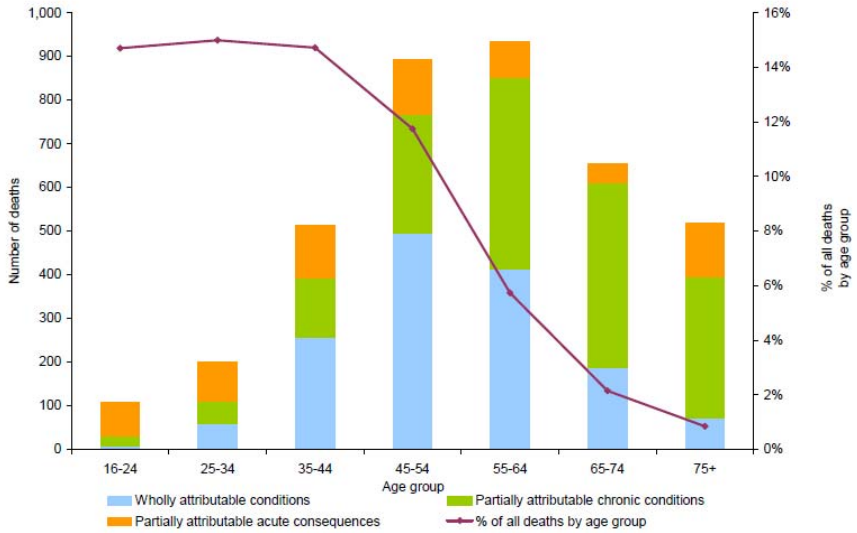

Figure 3 Estimated absolute number of deaths (columns) and % of all deaths in each age group due to alcohol (line) for UK female deaths attributable to alcohol consumption by age and type of condition for the year 2005. The columns divide attribution into wholly attributable conditions, partially attributable chronic conditions, and partially attributable acute conditions. The full definitions are given in Jones et al (2008).

Alcohol's relative importance in leading to impaired health and premature death
The World Health Organization uses a summary measure of health status, the disability adjusted life year (DALY), which includes potential years of life lost due to premature death and equivalent years of "healthy" life lost by virtue of being in states of poor health or disability (Murray & Lopez 1996). DALYs for a disease or injury cause are calculated as the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD) from the disease or injury, weighted for the severity of the disability. One DALY can be thought of as one lost year of "healthy" life, and the burden of disease can be thought of as a measurement of the gap between current health status and an ideal situation where everyone lives into old age, free of disease and disability.

Looking globally, and at the age range 25-59 years, the age group in the European Union with the highest employment rates (OECD 2010), alcohol use is the world's number one risk factor for ill-health and premature death (expressed as disability adjusted life years) (World Health Organization 2011), Figure 4. Given that ill-health and premature death can impair productivity, then, amongst the working age population, alcohol is an important contributory factor.

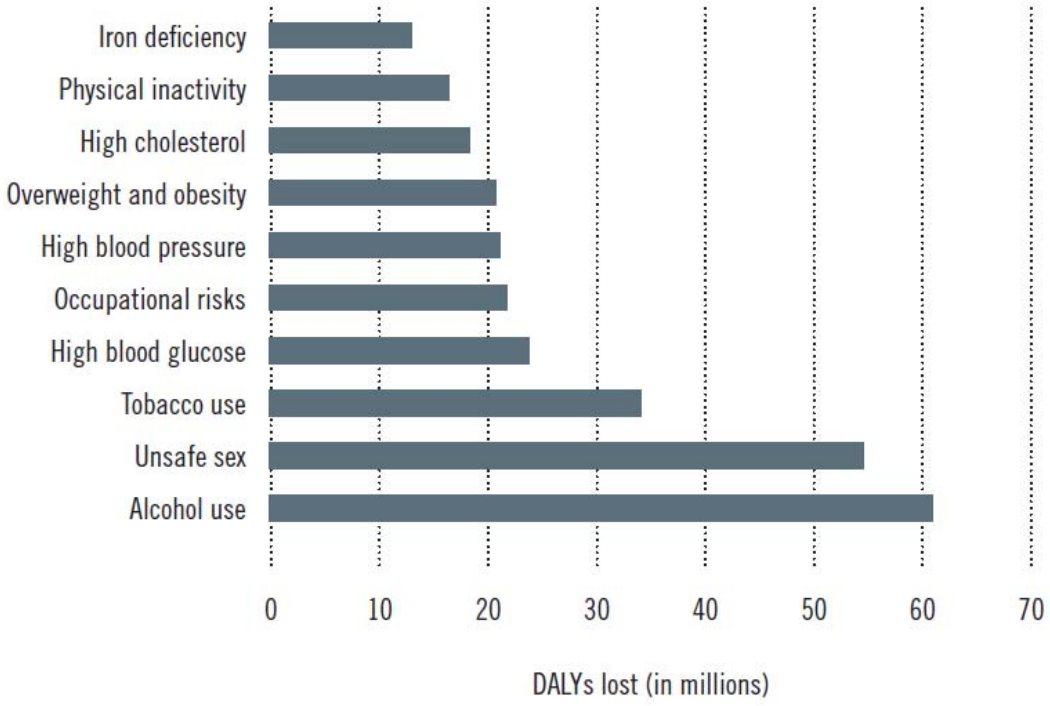

Figure 4 World's top ten risk factors for ill-health and premature death (disability adjusted life years, DALYs) for the age group 25-59 years. Source: World Health Organization, 2011.

2.2 Where does lost productivity feature in social cost studies?

Lost productivity costs feature as the dominant element in social costs studies arising from the harm done by alcohol (Rehm et al 2006; Collins & Lapsley 2008; Saar 2009). This is illustrated in Figure 5, with data from six separate studies taken from various countries from different parts of the world, in which such costs have been calculated (Rehm et al 2009).

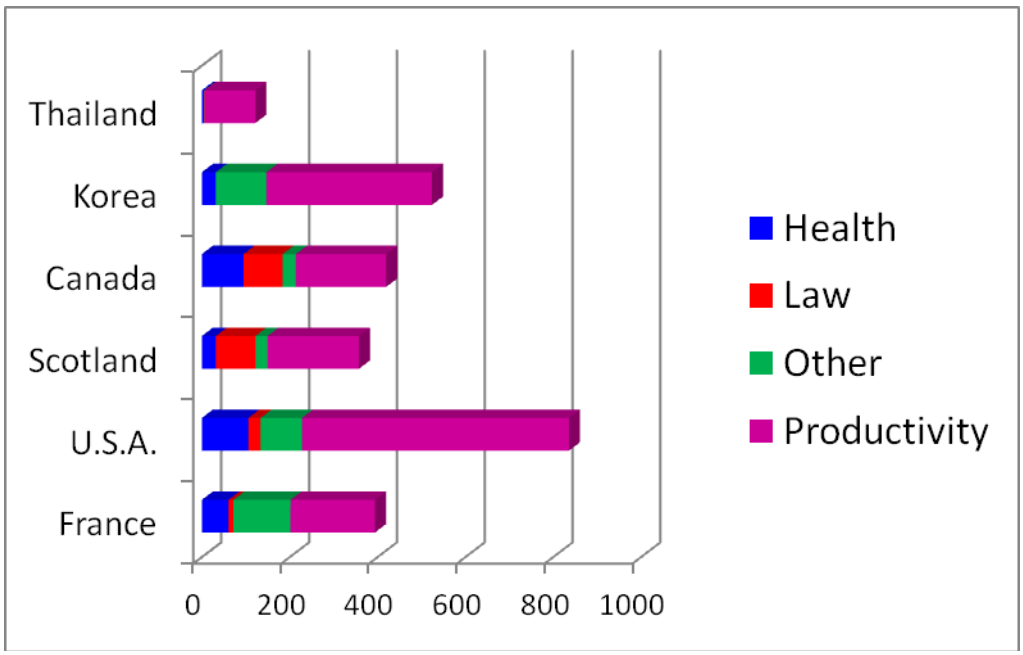

Figure 5 Economic costs per head (2007 $US PPP) attributable to alcohol by cost category in selected countries. Source: Rehm et al (2009).

Based on 21 separate European studies, Anderson & Baumberg (2006) estimated the social cost of alcohol to the European Union in 2003, and found that at €59bn (range €39bn-€102bn), productivity losses contributed 47% of the total social cost of alcohol to Europe (Table 1).

Table 1 The social cost of alcohol in Europe, 2003. Source: Anderson & Baumberg (2006).

	Cost (€ billion)	*Minimum (€ billion)*	*Maximum (€ billion)*
Tangible costs – direct			
Healthcare	17	*11*	*28* [A]
Treatment & prevention [C]	5	*1*	*18*
Crime – police, courts, prisons	15	*13*	*24* [B]
Crime – defensive and insurance [D]	12	*7*	*17* [B]
Crime – property damage	6	*3*	*16* [B]
Traffic accidents – damage	10	*6*	*16*
SUBTOTAL	**66**	***40***	***118*** [1]
Tangible costs – productivity losses			
Absenteeism [C]	9	*9*	*19*
Unemployment [C]	14	*6*	*23*
Premature mortality	36	*24*	*60*
SUBTOTAL	**59**	***39***	***102***
TOTAL TANGIBLE COSTS	**125**	***79***	***220*** [1]
Intangible costs			
Psychosocial & behavioural effects [D]	68	*37*	*68*
Crime – victims' suffering [D]	12 [F]	*9* [F]	*52* [B, F]
Loss of healthy life [E]	258 [F]	*145* [F]	*712* [F]
TOTAL INTANGIBLE COSTS [F]	**270** [G]	***154*** [G]	***764*** [G]

[1]Totals do not add due to rounding. **Notes:** **(A)** This excludes health benefits, while minimum and headline figures are for the net effect compared to the lowest-risk level of drinking; **(B)** Cost of crime related to rather than caused by alcohol, and is therefore a maximum figure for the cost of alcohol; **(C)** Cost areas with higher levels of uncertainty; **(D)** Costs based on a single study; **(E)** Excludes loss of life due to homicide to avoid potential double-counting with intangible costs of crime; **(F)** The main estimate is based on a QALY (quality-adjusted life year) valuation of 3-times each country's GDP per capita (EU25 average of €64,000); the minimum value is based on €32,000 per QALY; and the maximum value is based on €158,000 per QALY; **(G)** Psychosocial & behavioural effects excluded from the intangible subtotal to avoid potential double-counting with loss of healthy life.

2.3 Does becoming unemployed impact on alcohol-related harm?

Many commentators have expressed concern that the present economic downturn is adversely affecting public health as a result of job losses, contributing to mental health or addiction problems and the adoption of less healthy lifestyles. If this is the case, it is important to know how to better mitigate the impact of the economic downturn and how to better reintegrate the unemployed with mental health or addiction problems into the labour market (Litchfield 2011).

Becoming unemployed does seem to worsen alcohol-related harm. An analysis of the effect of economic downturns in the European Union was undertaken by Stuckler et al (2009) who used multivariate regression, correcting for population ageing, past mortality and employment trends, and country-specific differences in health-care infrastructure, to examine associations between changes in employment and mortality, and how associations were modified by different types of government expenditure for 26 European Union (EU) countries between 1970 and 2007.

Age-standardised and age-specific mortality data were taken from the WHO European Health for All database. Mortality rates were age-standardised by the direct method, according to the European Standard Population. Official unemployment data were taken from the International Labour Organisation (ILO) Key Indicators of the Labour Market, which defines unemployment as all people who were without work yet available for or seeking employment. GDP data in current US$ were taken from the World Bank World Development Indicators 2008 edition.

The analysis found that a more than 3% increase in unemployment was associated with an increase in suicide rates at ages younger than 65 years (4·45% increase, 95% CI 0·65–8·24; 250–3220 potential excess deaths [mean 1740] EU-wide) and an increase in deaths from 'alcohol abuse' (28·0% increase, 95% CI 12·30–43·70; 1550–5490 potential excess deaths [mean 3500] EU-wide), Figure 6. The analysis found that younger populations were more sensitive to the negative health effects of rising unemployment than were those older than 60 years. For men, death rates from suicide and ischaemic heart disease at ages 30–44 years were positively related to unemployment. For women, there were significant associations with suicides at ages 15–29 years. The analysis found no significant effects of rises in unemployment rates on all-cause mortality rates for any age group, including infant mortality apart from a protective association in men aged 15–29 years, which seemed to accrue from reductions in traffic fatalities that accounted for roughly a third of all deaths in this age group.

A study in Sweden found that unemployment significantly increased the risk of hospitalization due to alcohol-related conditions, among both men and women (Eliason & Storrie 2009). Longer durations of unemployment significantly predicted being a heavy drinker and more frequent heavy drinking at ages 27–35 years. These effects were observed independent of gender, age, race/ethnicity, marital status, prior heavy drinking, and present socioeconomic status (Mossakowski 2008).

The way through which job loss may affect health includes stress associated with financial problems (i.e. lack of unemployment benefits) and the loss of psychosocial structures linked to time schedules, personal status, and work relationships. As a consequence, this may trigger, or increase vulnerability to subsequent adverse life events. Both financial and psychological stress may undermine the resources needed to cope with other subsequent adverse life events, increasing harmful behaviours such as smoking, risky alcohol consumption (Bolton & Rodriguez 2009; French et al 2010) and, sometimes also, suicidal behaviour (Caan 2009).

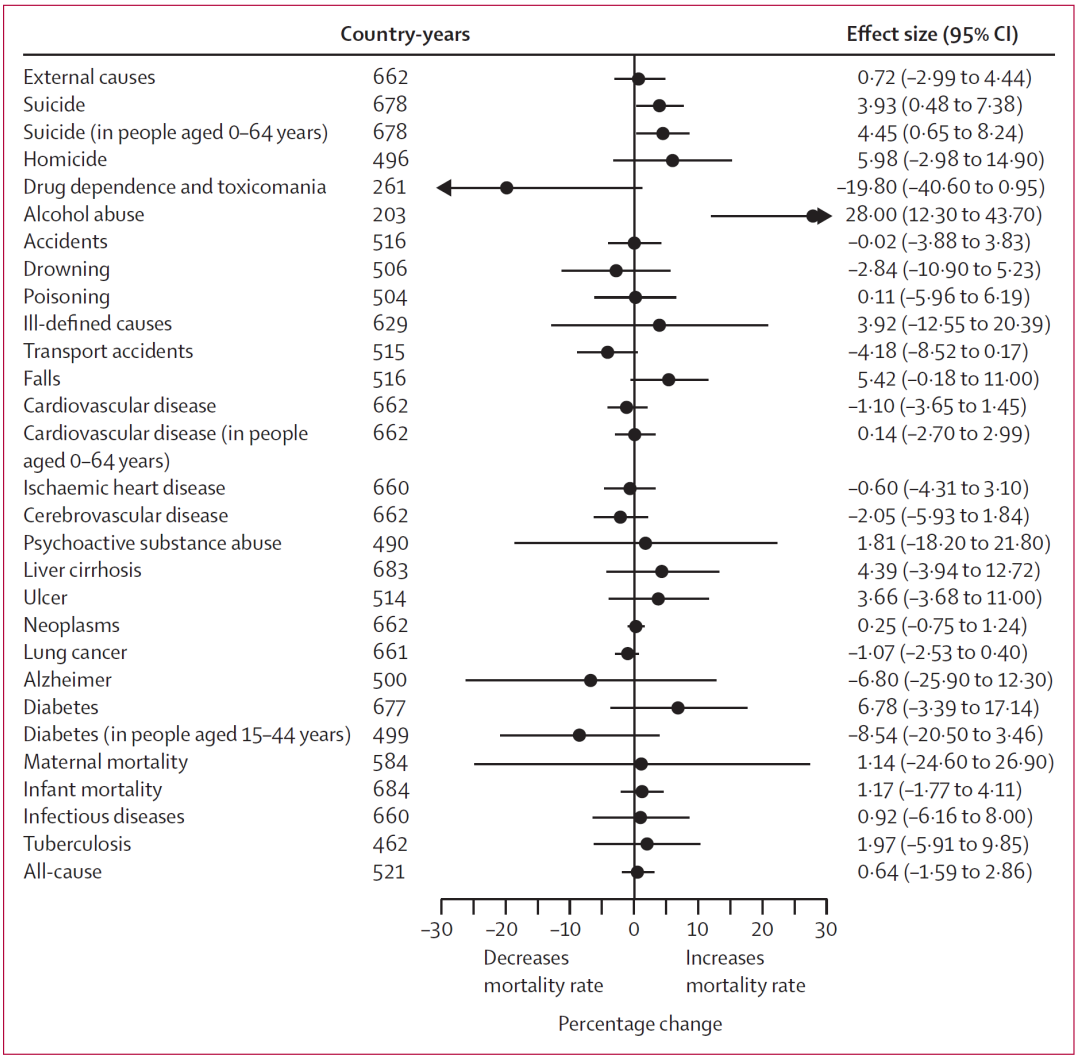

Figure 6 Associations of a more than 3% rise in unemployment with age-standardized mortality rates by cause of death in European countries 1970-2007. Source: Stuckler et al (2009).

Unemployment seems to lead to less alcohol consumed, but to more risky patterns of drinking. For example, in the United States, Dee (2001) examined consumption data from the more than 700,000 respondents who participated in the Center for Disease Control and Preventions Behavioral Risk Factor Surveillance System (BRFSS) surveys over the years 1984–1995. Analysis of the data found that an increase in the unemployment rate of 5% was associated with a reduction in the number of drinks per month by roughly 3.5%, and regular drinking participation by roughly 19%. In contrast, though, a 5% increase in the unemployment rate was associated with an increase in the mean prevalence of binge drinking by roughly 8%. Similar evidence has been presented for Finland (Johansson et al 2006). A pattern of binge drinking is associated with a higher risk of harm at any given overall level of alcohol consumption (Rehm et al 2004).

2.4 Is heavy drinking related to unemployment?

Only a limited number of studies have tried to estimate the role of alcohol in unemployment, but they do suggest that heavy drinking increases the risk of unemployment.

In general, problem drinking has been found to reduce the probability of employment (Mullahy and Sindelar, 1993; 1996), although not all studies have found such a relationship (e.g. Feng et al, 2001). In England, MacDonald and Shields (2004) showed that "problem drinking", measured by a combination of psychological and physical symptoms, or in terms of quantity and frequency of alcohol consumption, was negatively associated with the probability of being in work. This study analysed data from the Health Survey for England (1997-98) and focused on males aged 22 to 64 years. Being a problem drinker led to a reduction in the probability of working of between 7% and 31%.

In Sweden, hospitalization for alcohol use disorders increased the risk for mobility out of the workforce for all grades of employees by some 7-10 fold for men and 2 to 7 fold for women (Romelsjö et al 2004).

Some studies have found that abstainers are more likely to be unemployed than lighter drinkers (Johansson et al 2008). Given the lack of any plausible causal mechanism this is likely to be due to the sick quitter effect, with those abstainers having an illness that reduces employability (Johansson et al, 2006). The excess unemployment among those with alcohol use disorders is also not likely to be solely due to the causal effect of alcohol; those with alcohol use disorders are likely to be different to other people in many ways, some of which also have an effect on unemployment (e.g. low education). This is often called a 'selection bias', which refers to the particular types of people that are 'selected' into suffering from an alcohol use disorder.

A meta-analysis of papers that studied the relationship between alcohol consumption and earnings suggested a lack of labour force participation by those individuals who consume large amounts of alcohol (Lye & Hirschberg 2010).

2.5 Does heavy drinking lead to absenteeism?

A Swedish study investigated the relationship between per capita alcohol consumption and sickness absence for the period 1935-2002 (Norström 2006). Two indicators of sickness absence were used, one based on sickness insurance data, the other on data from the labour force surveys. Alcohol consumption was gauged by sales of pure alcohol (100%) per inhabitant 15 years of age and older. Because changes in the economy may affect alcohol consumption as well as sickness absence, two macroeconomic indicators were included as control variables: unemployment and real wages. A 1-litre increase in total consumption was found to be associated with a 13% increase in sickness absence among men ($P < 0.05$). The relationship was not statistically significant for women. In Norway, a similar study using time-series analysis (1957-2001) among manual employees found that a one litre increase in the total alcohol consumption was associated with 13% increase in sickness absence among men, but the alcohol effect was not significant to women (Norstrom & Moan 2009).

Many individual level studies, but not all (e.g., Christensen et al. 2007 in Denmark) have found a relationship between alcohol intake and absenteeism (Vahtera et al. 2002; Leggat & Smith 2009; McFarlin & Fals-Stewart 2002; Hermansson et al 2002; Reynolds 2008), particularly episodic heavy drinking (Bacharach et al 2010).

Micro-level data from Finland and Sweden has shown that alcohol consumption and alcohol-related problems are positively associated with the number of sickness absence days and disability pensions for both men and women (Upmark et al 1997; Upmark et al 1999; Johansson et al 2008; Laaksonen et al 2009; Salonsalmi et al 2009). In Sweden, it has been estimated that the cost of alcohol-related absence was SEK4.3 billion for the year 2002, after subtracting reductions from beneficial health effects (Jarl et al 2008). This figure constituted

over 21% of the total cost to the Swedish society from alcohol. Three quarters of the burden was due to absence longer than 14 days.

A large study of 13,582 Australian workers found clear evidence for the impact of drinking patterns on absenteeism (Roche et al 2008). Workers' alcohol consumption was classified according to short- and long-term risk levels. After adjusting for age, gender and marital status, the likelihood of alcohol-related absenteeism was larger for workers who drank at risky or high-risk levels compared to workers who were low-risk drinkers. For both short- and long-term risk levels, as consumption increased so did the likelihood of alcohol-related absenteeism. Compared to low-risk drinkers, workers drinking at short-term high-risk levels (110g alcohol or more on any one day for a man and 70g alcohol or more on any one day for a woman) at least yearly, at least monthly or at least weekly were 3.1, 8.7 and 21.9 times (respectively) more likely to report alcohol-related absenteeism, Figure 7.

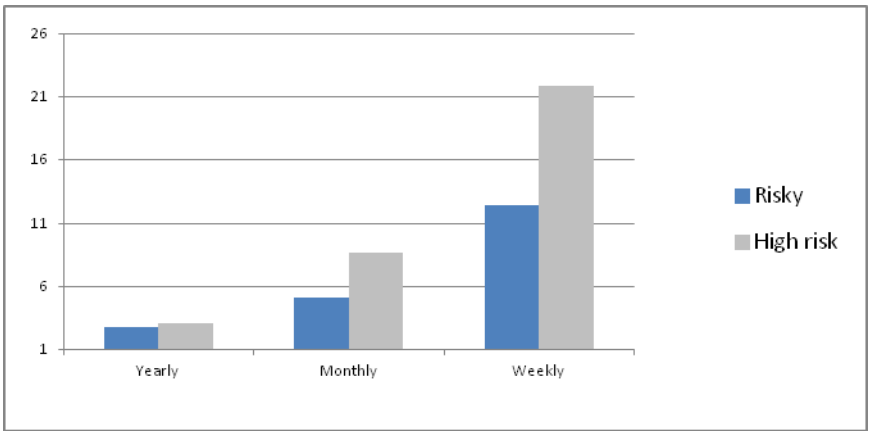

Figure 7 Adjusted ORs for absenteeism in previous 3 months by drinking category (short term risk levels). For definitions of risky and high risk, see text. Source: Roche et al (2008).

Workers drinking at long-term risky (290g-420g per week for a man and 150g-280g per week for a woman) or high-risk levels (430g or more per week for a man and 290g or more per week for a woman) were 4.3 and 7.3 times (respectively) more likely to report alcohol-related absenteeism, compared to low-risk drinkers, Figure 8.

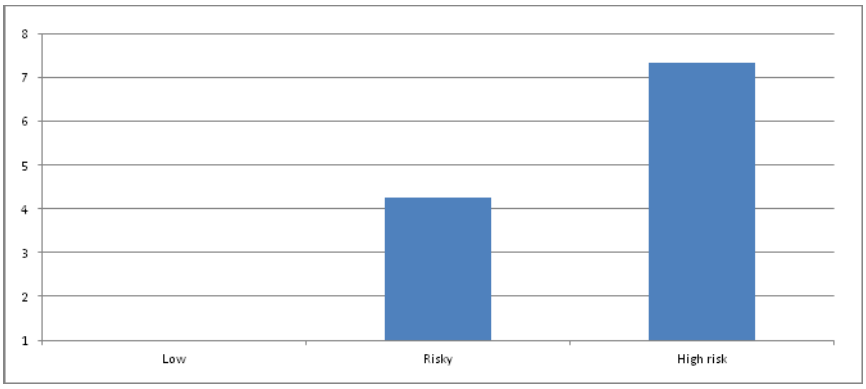

Figure 8 Adjusted ORs for absenteeism in previous 3 months by drinking category (long term risk levels). For definitions of risky and high risk, see text. Source: Roche et al (2008).

Given that abstainers have a reduced probability of employment, which is almost entirely due to abstainers being diagnosed as alcohol dependent (Johansson et al 2006), controlling for the selection effect into employment is important and, not doing so understates the effects of alcohol on absenteeism. For example, a Swedish study found that amongst women, when not controlling for the effect of employment, compared with long-term light alcohol consumption, being a long term abstainer and a long term heavy drinker was not related to long-term absenteeism, although being a former drinker and a former abstainer was (Jarl & Gerdtham 2012). However, when controlling for the selection effect into employment, being a long term abstainer and a long term heavy drinker became strongly related to long-term absenteeism, and the impact of being a former drinker and a former abstainer became much greater. In addition, although abstention and heavy drinking increased absenteeism, when controlling for the selection effect into employment, the detrimental effect was considerably higher for women who had changed their consumption to and from abstention. Hence, controlling for drinking history (and thereby avoiding the former drinking error, in which lifelong abstainers and former drinkers are pooled in studies as abstainers, and the former abstainer error, in which former abstainers and lifelong light drinkers are pooled in studies as light drinkers, Jarl & Gerdtham 2010) is important. Being a former drinker increased the probability of long-term absence by 18% compared to long-term light drinkers, and, being a former abstainer by 15%. Long-term abstainers and long-term heavy drinkers had about the same probability of absenteeism (10%) given employment. Based on the data, it was estimated for the Swedish population that if all female heavy drinkers consuming 20g or more alcohol a day drank less than this, 1.4 million absent days would be saved annually, with a value of gained production of SEK1.4 billion a year.

2.6 Does heavy drinking lead to presenteeism?

Currently, there is no universal agreement on the most appropriate method for measuring or monetizing presenteeism (Schultz et al 2009; Chen et al 2008). It is typically measured as the costs associated with reduced work output, errors on the job, or failure to meet company production standards. It is difficult to value presenteeism economically because past studies use different measures of presenteeism, include different populations of workers and use various methods to assign monetary values to their losses. Nevertheless, it appears that economic costs are considerable (Goetzel et al 2004). Several self-report instruments have been developed to measure presenteeism across various types of jobs and organizations (Koopman et al 2002; Lofland et al 2004; Prasad et al 2004; Chen et al 2008; Kessler et al 2004). These instruments assess presenteeism with the assessment of perceived impairment approach, where employees are asked how much their illnesses hinder them in performing common mental, physical, and interpersonal tasks and in meeting job demands.

Despite the measurement difficulties, a range of studies have stressed the importance of health risk factors, including alcohol, in increasing presenteeism (when employees come to work ill and perform below par due to illness (Cooper & Dewe 2008; Schultz et al 2009; Goetzel et al 2004).

A study conducted at 114 work sites of seven corporations (Mangione et al 1999) showed an almost linear relationship between increasing average consumption and a summary measure of job performance, finding the strongest associations between consumption and getting to work late, leaving early, and doing less work, and only a weak association with missing days of work.

A study of employees in the pharmaceutical sector found that cigarette and alcohol use increased both the occurrence and magnitude of presenteeism (Goetzel et al 2009). Women with alcohol-tobacco use reported on average 2.34 annual unproductive days, 3.4 times more than without the risk, and men, an average of 1.93, days, a 3.3 fold increase. Alcohol

and tobacco use were more important for increased presenteeism than impaired emotional health and a combined factor of overweight, raised blood pressure and abnormal blood lipids and glucose levels.

An Australian study of 78,000 workers found that drug and alcohol use disorders increased the risk of presenteeism 2.6 fold, and 8.6 fold, when compounded with psychological distress (Holden et al 2011).

2.7 Isn't there some evidence that low amounts of alcohol are good for productivity, at least as measured by wages?

When compared with abstainers, a number of studies have found a positive effect of alcohol on wages, a wage premium from light drinking (Peters 2004; van Ours 2004; Lee 2003; Barrett 2002). However, it seems that part of this effect is due to misclassification and the specific problem of combining former drinkers, who might have increased health problems and thus lower wages, and long term abstainers into one pooled group of abstainers, called the 'former drinker error' (Heien 1996; French & Zarkin 1995; Zarkin et al. 1998; Renna 2007; Asgeirsdottir and McGeary 2009; Jarl et al 2009).

For example, Johansson et al. (2006) found that although a pooled group of abstainers had a 9.5% lower probability of employment than drinkers, lifelong abstainers showed no difference in employment probability compared with drinkers, leaving almost all the "abstinence penalty" as an effect of former drinkers diagnosed as alcohol-dependent.

In addition to the former drinker error, it has also been suggested that most people do not stop consuming alcohol completely when faced with, for example, bad health, but rather reduce their consumption to low levels (Rodgers et al. 2007). This would mean that the same arguments that have been made regarding the influence of former drinkers in the abstainer group might also be valid regarding light alcohol consumption. That is, there may be former heavy drinkers in the light consumption group that can be expected to differ from lifelong light drinkers in health and other characteristics which might bias estimations. This would thus constitute a 'former heavy drinker error'.

There is yet an additional error to consider in order to be consistent with the former drinker error; former abstainers who have become current drinkers. This is based on the rather consistent, although debated, finding that abstention has an effect on income and health. It is therefore reasonable to theorise that past abstention is important for the effects of current consumption, much in the same manner as former drinking is considered to be an important issue for the effect of current abstention. This would then be a 'former abstainer error'.

In an analysis of Swedish data Jarl & Gerdtham (2010) found that the former drinker error did not explain the wage premium of light dinking, but the former abstainer error (former abstainers included in the group lifelong light drinkers) and the former heavy drinker error (former heavy drinkers being included in the group lifelong light drinkers) did.

A meta-analysis of eleven studies that have reported a positive impact of alcohol consumption on earnings (Peters 2004; Peters and Stringham 2006; Tekin 2004; van Ours 2004; Zarkin et al. 1998; Auld 2005; Barrett 2002; Hamilton and Hamilton 1997; Lee 2003; MacDonald and Shields 2001; Soydemir and Bastida 2006), a proxy measure of productivity, suggested that the relationship was an artefact, with alcohol consumption proving to be an imperfect proxy for all personality traits that have a positive influence on human capital (Lye & Hirschberg 2010).

The meta-analysis reported the 95% confidence intervals of the lower and upper bounds of the turning points reported in the individual studies, where the lower turning point can be interpreted as that level of alcohol consumption past which further consumption leads to a negative impact on wages. Thus, when the lower bound is less than zero, the relationship between wages and alcohol becomes insignificant. In one third of cases, the lower bound was negative, suggesting that it could well be that there was no level of alcohol consumption for which there was a positive relationship. Further, it was suggested that the abstainers in the study samples included two types, those that have never had a drink and those that were ex-drinkers. The higher proportion of abstainers in a sample could indicate a higher proportion of ex-drinkers that are counted as abstainers. Possibly these individuals have stopped drinking due to negative impacts on their productivity and their potential for job mobility. Thus, the greater the number of ex-drinkers, the greater the difference between the human capital of those in the still-drinking group and those that have had to stop drinking. The meta-analysis confirmed this conclusion. When the proportion of the abstainers in the sample was less than 28%, there was no beneficial impact of alcohol on wages; this only became apparent when the proportion of abstainers was greater than 28%.

2.8 How important is alcohol's impact on the productivity of people other than the drinker?

Almost all studies that have estimated the social costs of alcohol have not estimated the costs of alcohol borne by people other than the drinker. Given alcohol's impact on people other than the drinker, this seems rather an important omission. One study has estimated the social costs of alcohol borne by people other than the drinker - an Australian study which reviewed the magnitude and range of alcohol's harm to others (Laslett et al 2010) and found its impact on productivity to be important.

The total cost of harm from people other than the drinker was Australian$14.2 billion. Of this, $9.3 billion resulted from lost productivity costs due to lost and spent time as a result of a heavy drinker. $801 million was due to direct work related costs, split between extra hours worked ($453 million) and absenteeism ($348 million). The annual cost of extra hours worked by workers because of a co-worker's drinking ($453 million) is comparable with estimates of absenteeism due to one's own drinking, $368 million (Collins & Lapsley 2008). And, the cost of absenteeism due to someone else's drinking ($348 million) is almost as large as that due to one's own drinking ($368 million). Overall, it was found that including the harm done by alcohol to others than the drinker, after deducting any double-counting doubled the social costs from $12.2 billion to $23.5 billion.

2.9 Are there any particular occupations that seem to be worse for alcohol-related harm?

Alcohol-related mortality for different occupations in England and Wales has long been monitored by the Office for National Statistics and its predecessor organizations. Staff at the General Register Office in the early 1890s sorted half a million paper death records into separate occupational groups, which were in turn classified by cause of death. The results of the consequent analyses, published in 1895, were the first comprehensive assessment of mortality from a range of causes for men in particular occupations (General Register Office, 1895). The results found that mortality in publicans from alcoholism was seven times that of all working men, while deaths from liver disease were six and a half times higher. Mortality from alcoholism for workers in agriculture was, conversely, less than a third of that for men in all occupations. Examining deaths in England and Wales for 2001-2005 finds a very similar pattern (Romeri et al 2007; Baker 2008). Table 2 summarizes Standardized Mortality Ratios

(SMRs) and the Proportional Mortality Ratio (PMR) for occupations with highest alcohol-related mortality.

The SMR is the ratio between the observed number of alcohol-related deaths in each occupation and this expected number. This allows comparison with the level of alcohol-related mortality with the general population of England and Wales (SMR = 100). As there remains a risk of numerator/denominator bias with SMRs, a second mortality indicator, the PMR was also calculated, as this is not dependent on knowing the population at risk for each occupation. The PMR compares the proportion of deaths in a particular occupation that are alcohol-related, to the proportion in England and Wales. PMRs are themselves not free from bias, however, as the proportion of deaths which are alcohol-related may be affected by the relative frequency of other causes of death.

Table 2 Occupations with highest alcohol-related mortality, 2001–05. Source: Romeri et al 2007

SOC2000 code	Occupation unit	PMR	Lower 95 per cent confidence limit	Upper 95 per cent confidence limit	SMR	Lower 95 per cent confidence limit	Upper 95 per cent confidence limit	Number of alcohol-related deaths
Men aged 20–64								
9225	Bar staff	223	180	274	401	323	491	92
1224	Publicans and managers of licensed premises	202	179	228	297	263	335	275
8217	Seafarers (merchant navy); barge, lighter and boat operatives	216	174	265	798	642	981	90
5431	Butchers, meat cutters	162	132	196	287	234	347	106
9121	Labourers in building and woodworking trades	136	126	146	352	327	379	736
3415	Musicians	156	122	196	361	283	455	72
5322	Floorers and wall tilers	159	121	204	177	135	227	61
5434	Chefs, cooks	138	121	156	226	198	257	242
4111	Civil Service executive officers	189	115	291	164	100	253	20
6221	Hairdressers, barbers	155	114	206	200	147	265	48
3311	NCOs and other ranks	136	111	164	376	308	455	109
3542	Sales representatives	128	109	148	103	88	119	179
5312	Bricklayers, masons	129	109	152	159	134	187	148
9249	Elementary security occupations n.e.c.	167	109	245	140	91	205	26
9231	Window cleaners	140	107	180	235	179	302	60
1221	Hotel and accommodation managers	146	106	196	108	79	145	44
5491	Glass and ceramics makers, decorators and finishers	151	103	215	170	115	241	31
5323	Painters and decorators	114	101	127	171	153	192	308
8122	Coal mine operatives	121	101	144	852	710	1014	128
9223	Kitchen and catering assistants	132	101	177	135	103	181	59
Women aged 20–64								
9225	Bar staff	203	155	273	152	116	204	59
1224	Publicans and managers of licensed premises	193	152	242	228	179	286	75
6221	Hairdressers, barbers	146	116	180	182	145	225	85
9219	Elementary office occupations n.e.c.	192	112	308	47	28	76	17
9224	Waiters, waitresses	159	109	223	121	84	170	33
5434	Chefs, cooks	124	102	151	119	97	144	106
3413	Actors, entertainers	185	101	310	202	110	338	14

For men, the occupations with the highest alcohol-related PMRs were bar staff, seafarers, and publicans. All had results which showed that their proportion of alcohol-related deaths was more than double that expected from the general male population. Among the other occupations which had PMRs which were significantly higher than for England and Wales, there were a number in the catering, entertainment, and hospitality industries (chefs/cooks, kitchen assistants, musicians, hotel managers) as well as occupations classified as skilled trades (floorers, bricklayers, painters, and decorators) and elementary occupations (labourers, window cleaners). Although the SMRs for men were generally consistent with these results, there were some differences. The two occupations with the highest results were coal miners and seafarers, with alcohol-related-mortality eight times higher than in the general male population. As for men, bar staff and publicans were the occupations for women which had the highest PMRs. Other high PMRs were also found in the catering industry for waitresses and chefs/cooks.

The lowest PMR for men was for farmers, with the proportion of deaths from alcohol-related causes less than two-fifths of what would be expected for men in England and Wales as a whole, Table 3. Low PMRs and SMRs were also found, encouragingly, for a number of driving-related occupations, including driving instructors and drivers of heavy goods vehicles, vans, buses/coaches, and taxis. For women, the lowest PMR and SMR results were for educational assistants. Several other jobs which also involve education and working with children also had low levels of alcohol-related deaths (school mid-day assistants, primary and nursery education teachers, nursery nurses, and childminders).

Table 3 Occupations with lowest alcohol-related mortality, 2001–05. Source: Romeri et al 2007.

SOC2000 code	Occupation unit	PMR	Lower 95 per cent confidence limit	Upper 95 per cent confidence limit	SMR	Lower 95 per cent confidence limit	Upper 95 per cent confidence limit	Number of alcohol-related deaths
Men aged 20–64								
5111	Farmers	39	27	54	27	19	38	33
8211	Heavy goods vehicle drivers	58	51	65	67	59	76	247
1136	Information and communication technology managers	49	34	69	22	15	31	33
1121	Production, works and maintenance managers	62	52	74	25	21	30	123
1122	Managers in construction	54	38	74	21	15	29	39
8214	Taxi, cab drivers and chauffeurs	62	51	74	69	57	83	121
1239	Managers and proprietors in other services n.e.c.	66	54	80	61	50	74	109
8212	Van drivers	69	59	80	54	46	63	169
8213	Bus and coach drivers	68	55	83	70	57	86	92
2211	Medical practitioners	58	37	85	27	18	40	25
8133	Routine inspectors and testers	60	41	85	39	27	56	31
1132	Marketing and sales managers	72	59	87	37	30	45	102
1162	Storage and warehouse managers	61	42	87	57	39	80	32
3119	Science and engineering technicians n.e.c.	63	44	88	25	17	35	34
2444	Clergy	50	25	89	25	13	45	11
8215	Driving instructors	53	29	89	48	26	80	14
9134	Packers, bottlers, canners, fillers	59	37	89	39	25	59	22
8229	Mobile machine drivers and operatives n.e.c.	64	44	90	55	38	77	33
3563	Vocational and industrial trainers and instructors	57	32	94	27	15	44	15
1151	Financial institution managers	70	50	96	27	19	37	38
1163	Retail and wholesale managers	76	58	96	21	16	26	65
1161	Transport and distribution managers	74	55	97	64	47	84	51
9241	Security guards and related occupations	84	72	97	102	87	118	183
3314	Prison service officers (below principal officer)	61	36	98	50	29	81	17
5223	Metal working production and maintenance fitters	87	77	98	76	67	86	265
5113	Gardeners and groundsmen/groundswomen	84	71	99	106	89	125	144
Women aged 20–64								
6124	Educational assistants	35	21	56	14	8	22	18
9244	School mid-day assistants	40	22	66	18	10	30	14
2315	Primary and nursery education teaching professionals	64	52	77	58	47	70	107
1239	Managers and proprietors in other services n.e.c.	52	31	82	46	28	73	18
4150	General office assistants/clerks	71	59	83	39	33	46	139
6111	Nursing auxiliaries and assistants	63	44	86	46	32	63	37
6121	Nursery nurses	52	29	86	30	17	50	15
6122	Childminders and related occupations	51	27	87	35	18	59	13
1163	Retail and wholesale managers	60	39	88	27	18	40	26
4122	Accounts and wages clerks, book-keepers, other financial clerks	78	63	95	49	39	59	100
7111	Sales and retail assistants	84	73	96	42	36	48	214
1152	Office managers	67	44	97	39	26	57	27
4113	Local government clerical officers and assistants	69	47	97	101	69	142	33
4123	Counter clerks	73	52	99	39	28	54	40

Interestingly, whilst male medical practitioners were among the occupations with the highest alcohol-related mortality in the 1960s, to 1980s, in 2001–2005, they had a PMR of 58 and an SMR of 27 (both results significantly lower than England and Wales). The behaviour of doctors has been taken as a marker of how harmful lifestyle behaviours are perceived in a country (Sebo et al 2007) and there is evidence that once the hazards of smoking were recognized in Britain, doctors gave up earlier than the general population (Davis, 1993). It is possible that a similar situation may have been occurring with alcohol consumption.

Another study, also in England and Wales (Coggon et al 2009, 2010) used data on all deaths among men and women aged 16–74 years during 1991– 2000. Reinforcing the previews findings, the highest mortality from alcohol-related diseases and injuries was observed in publicans and bar staff (both sexes) and in male caterers, cooks and kitchen porters and seafarers. A Swedish study found similar results, with, amongst men, the occupations with the greatest risk of alcohol-related hospital discharges being amongst cleaners, sailors, dockers and waiters (Hemmingsson et al 1997). Data from the United States also showed that the highest PMRs among white men and women for alcohol-associated diseases in the 1980s were for those working as bartenders and waitresses respectively (Burnett et al 1997).

2.10 Can the workplace, itself, lead to alcohol-related harm?

There has been some research on the role of an adverse work environment in increasing the risk of alcohol use disorders, which suggests that the workplace itself can lead to alcohol-related harm.

There is some evidence of an association of shift work (Tasto et al 1978), low level of technical responsibility at work (Plant 1979), and job insecurity (Cooper et al 1990) with alcohol consumption. However, associations of an adverse work environment with alcohol use are often moderated by distinct coping characteristics of working people (Cooper et al 1990; Mensch & Kandel 1988). Moreover, studies in this area are rarely based on an explicit stress-theoretical model that identifies ‘‘toxic’’ components of an adverse work environment, with special emphasis on its psychosocial dimensions, such as the demand-support control model of job strain (Karasek & Theorell 1990), and the effort-reward imbalance model (Siegrist 1996).

Analysis of the Whitehall II occupational cohort of London based civil servants study found, for women a clear grade gradient with those in the highest two grades having the highest proportion of problem drinkers, which was not the case for men (Head et al 2004). In men, effort-reward imbalance was associated with alcohol dependence after taking account of age and employment grade, with those classified as putting in high efforts but receiving low rewards having the highest risk of being alcohol dependent. This association was also seen for women, although it was not as marked. In addition, low decision latitude in women was associated with increased risk of alcohol dependence. Neither high job demands nor low work support were associated with alcohol dependence. These associations between work characteristics and alcohol dependence did not appear to be mediated through physical illness, poor mental health, or adverse changes in social supports or network size.

Most other studies of psychosocial work characteristics and alcohol have used measures of alcohol consumption rather than alcohol problems or alcohol dependence and most have found no or little association between work characteristics and amount consumed (Van Loon et al 2000). A cross-sectional study of a French occupational cohort showed that, in men, low decision latitude was associated with alcohol consumption and, in women, low work social supports was associated with alcohol consumption (Niedhammer et al 1998). Effort-reward imbalance at work was found to be associated with a high level of alcohol consumption in a cross-sectional study (Puls et al 1998). Interestingly, experience of social reward deficiency has been hypothesised to act as one of several triggers activating the brain’s dopaminergic reward system involved in addictive behaviour (Siegrist 2000).

A Finnish study found a relationship between burnout and the risk of alcohol dependence in both men and women (Ahola et al 2006). Burnout is a consequence of chronic work stress (Maslach et al 2001). According to the most used operationalization in scientific research, burnout is a state of exhaustion in which one becomes doubtful about the value of one’s work and one’s competence (Maslach et al 1996). Burnout has been related most consistently to psychosocial work characteristics, mainly high demands and low resources at

work (Schaufeli et al 2004), but also to individual, interpersonal, other organizational and societal factors (Schaufeli & Enzmann 1998). In the Finnish study, each one-point increase in burnout score was associated with an 80% increase in the incidence of alcohol dependence among women and a 51% increase among men. After adjustment for socio-demographic factors, the odds ratio of burnout for alcohol dependence was 2.06 (95% CI 1.52–2.81) in a logistic regression analysis for women and 1.51 (95% CI 1.28–1.79) for men. Again, the association between burnout and alcohol dependence can also derive from a connection between stress and alcohol use on a neurobiological level (Brady & Sonne 1999). Both intracellular and dopaminergic extracellular mechanisms may be involved in the interaction between stress, craving for stress relief and addictive behaviour; for example, alcohol use (Siegrist 2000; Hyman 2005).

Working conditions such as workplace safety (Frone 2009), number or hours worked (Butler et al 2010) and job dissatisfactions seems also to be part of the equation of alcohol and productivity. French manual workers and clerks who reported strong dissatisfaction toward unhealthy working conditions also reported more frequently current smoking, tobacco dependence, potential alcohol dependence (analysis not adjusted for socio-demographic confounders) and perceived stress (Peretti-Watel et al 2009). In spite of that, poor team climate was not associated with alcohol use disorders in a sample of workers from Finland (Sinokki et al 2009). In Canada, a study found that workplace harassment is an important determinant of both low risk and high-risk drinking, but it is modestly moderated by occupation (Marchand 2008). Interesting, family situation, social support outside work, and personal characteristics of individuals may be associated with alcohol use and heavy use and are factors that may mediate or suppress the role of occupation and work organization conditions.

The workplace could influence workers, and those who do not drink in three other ways: the perceived physical availability of alcohol at work including the ease of obtaining alcohol at work and the ease of using alcohol during work hours and during breaks; through descriptive norms or the extent to which members of an individual's workplace social network use alcohol or work while impaired by alcohol at work; and, third through injunctive norms or the extent to which members of an individual's workplace social network approve of using or working under the influence of alcohol at work. A study of US employees found that injunctive norms predicted alcohol use and impairment, and descriptive norms predicted alcohol use before and during work, as well as workplace impairment (Frone & Brown 2010). Another study of abstinent US employees found that all three dimensions of workplace substance use climate were negatively related to workplace safety, positively related to work strain, and negatively related to employee morale (Frone 2009).

A study in the United States revealed that employee problem drinkers were more likely than non problem drinkers to perceive lower levels of certain workplace alcohol social controls against drinking. Employee problem drinkers also were found more likely than abstainers and non problem drinkers to report higher levels of certain forms of workplace alcohol social availability (Berger 2009). In Canada, workplace alcohol availability predicted general alcohol problems (Hodgins et al 2009).

In another set of studies of the impact of co-worker alcohol use amongst municipal employees, Bennett et al (2004) found that the presence of a drinking climate correlated with job stress and job withdrawal more so than did reports of individual co-worker drinking. Drinking climate and individual job stress were negatively associated with work group cohesion. A drinking climate combined with low cohesion resulted in increased vulnerability for job stress, job withdrawal, health problems, and performance (work accidents and absences). Moreover, work group cohesion appeared to attenuate the negative impact of exposure to drinking norms. Increased vulnerability was exacerbated in employees with higher proportions of jobs involving risk, for example, machine work.

3. REDUCING THE NEGATIVE IMPACT OF ALCOHOL ON THE WORKPLACE

The answers to ten questions summarize the evidence of how the negative impact of alcohol on the workplace and productivity could be reduced.

1. Despite the structural relationships between the work environment and the risk of alcohol use disorders, it is not known if changing work structures reduces alcohol-related harm; on the other hand, social network theory and evidence would suggest that workplace drinking culture, be it high or low, would influence the drinking practices of families and friends.

2. A systematic review of work-place counselling-type interventions for alcohol-related problems does not find convincing evidence of effect.

3. One peer support programme in the transport sector suggested an impact in reducing alcohol-related injuries, although it was difficult to separate the effect from the implementation of mandated random drug and alcohol testing which happened at the same time.

4. In general, computer-delivered health promotion interventions can improve health behaviours; one study of an alcohol web-based personalized feedback program delivered in the workplace to young adults suggested a positive effect at 30 day follow-up.

5. Two studies of mandatory alcohol and drug screening of occupational drivers found long term beneficial impact in reducing injuries and accidents; one study of drug-free workplaces, which included alcohol, found an impact in reducing injuries across a range of industries.

6. Although inclusion of alcohol-focussed interventions in broader health promotion work-placed interventions might improve participation, overall, work place based health promotion programmes show little evidence of impact, except perhaps programmes to improve physical activity; on the other hand, systematic evaluation of returns on investment for US-based workplace wellness programs suggest that medical costs fall $3.27 for every dollar spent on wellness programs, and absentee day costs fall by $2.73 for every dollar spent.

7. An overall assessment of the scientific evidence suggests that alcohol and health promotion based counselling type interventions at the workplace yield little consistent evidence of impact; the contrast to this are mandatory (e.g., mandatory drug and alcohol testing), structural (e.g., providing facilities or supportive environments) or incentives-based programmes (e.g. financial savings), which do seem to have an impact.

8. In terms of bettering the evidence, there is a great need to standardize methods used for conducting and evaluating alcohol interventions in the work-place.

9. Looking more broadly to the labour market as a whole, investments in social welfare programmes and active labour market programmes can mitigate the consequences of unemployment and economic recessions on increased alcohol-related harm.

10. Looking more broadly to averting the lost productivity costs which feature as the dominant element in social cost studies arising form the harm done by alcohol in the European Union, evidence-based population based interventions such as price increases and minimum legal drinking age restrictions can increase employment overall, reduce absenteeism and lower productivity losses.

3.1 Can changing the work environment lead to less alcohol-related harm?

The core factors that promote well-being at work include structural factors (Podsakoff et al 2007) and management and leadership styles (Yarker et al 2008), both of which could impact alcohol-related harm.

Pressures at work can be categorized as challenge pressures and hindrance pressures. Challenge pressures are generally seen as positive and, although they may create a degree of strain, they are psychologically healthy. They include: the level of attention required by job or role demands, pressure to complete tasks, time urgency, and quantitative and subjective workloads. Hindrance pressures create barriers to achievement, growth and accomplishment at work. They include: situational constraints, hassles, organizational politics, resource inadequacies, role ambiguity, role conflict, and role overload.

A meta-analysis of 183 studies showed that hindrance pressures reduce job satisfaction and commitment, and increase job strain, presenteeism, and job turnover (Podsakoff et al 2007). Challenge pressures, on the other hand, whilst also increasing job strain, increase job satisfaction and commitment, and reduce presenteeism, and job turnover.

Effective management defines the characteristics, or culture, of an organisation where the risks from work related stress are being effectively managed and controlled (Robertson & Cooper 2011). There are six key areas of work design that, if not properly managed, are associated with poor health and well-being, lower productivity and increased sickness absence. In other words, the six areas of work design cover the primary sources of stress at work:

1. Demands – this includes issues such as workload, work patterns and the work environment.
2. Control – how much say the person has in the way they do their work.
3. Support – this includes the encouragement, sponsorship and resources provided by the organisation, line management and colleagues.
4. Relationships – this includes promoting positive working to avoid conflict and dealing with unacceptable behaviour.
5. Role – whether people understand their role within the organisation and whether the organisation ensures that they do not have conflicting roles.
6. Change – how organisational change (large or small) is managed and communicated in the organisation.

Despite the structural relationships between the work environment and the risk of alcohol use disorders described in section 2.10, few intervention studies have investigated the impact of changing work structures on reducing workplace alcohol-related harm (Roman & Blum 1996; Roman & Blum 2002). An exception to this is a study that compared two work settings with distinctly different managerial cultures (Ames et al 2000). One setting had a traditional hierarchical U.S. management design and the other was based on a Japanese management model transplanted to the United States. Although overall alcohol consumption rates in both populations were similar, the traditional management design was associated with more permissive norms regarding drinking before or during work shifts (including breaks) and higher workplace drinking rates. By contrast, the transplant management design was associated with greater enforcement of alcohol policies, which, in turn, predicted more conservative drinking norms and lower alcohol availability at work. Qualitative research clearly indicated that the transplant design facilitated the social control of alcohol problems, whereas the traditional design appeared to undermine such control.

The workplace can also act as a role model for families and communities. The vast majority of European adults in the European Union are in full time employment. They are also parents and members of social networks. The work place is also a site for young people for job experience and internships. Thus, what goes on in the work place (for example workplace alcohol free environments) can, through social networks of families and friends, have an impact outside the work place. For example, data from the Framingham heart study shows that alcohol consumption behaviour spreads in social networks up to three degrees of separation (Rosenquist et al 2010), with a dose-response relationship between the fraction of a principal's friends and family who drank heavily or abstained at one examination and the average number of drinks per day that principal reported at the next examination. Being surrounded by heavy drinkers increased the reported alcohol consumption by about 70% (CI, 35% to 142%) compared with those who were not connected to any heavy drinkers. Conversely, being surrounded by abstainers decreased reported alcohol consumption by half. Each additional heavy drinker increased the likelihood that a principal drank heavily by 18% (CI, 11% to 25%) and decreased the likelihood that a principal abstained by 7% (CI, 2% to 12%). Conversely, each additional abstainer significantly reduced the likelihood that a principal drank heavily by 10% (CI, 4% to 15%), and increased the likelihood that a principal abstained by 22% (CI, 17% to 28%).

3.2 Do counselling-based interventions at work have an impact?

A systematic review of work-place interventions for alcohol-related problems (Webb et al 2009) identified only ten intervention studies, of which five were counselling based interventions, and four mail out/feedback/brief intervention studies. The tenth study was a peer support programme and is described in sections 3.3 and 3.5 below. Counselling and related interventions comprised two broad types of strategies: psychosocial skills training; brief intervention, including feedback of results of self-reported drinking, life-style factors and general health checks; and alcohol education delivered via an internet website. The psychosocial interventions included peer referral, team building and stress management and skills derived from the social learning model. For health checks, topics covered in addition to alcohol were smoking, exercise, diet, weight, stress, depression, blood pressure, cholesterol, diabetes, cancer, safety and preventive health-care risks.

The counselling-based interventions either reported no effect (Hermansson et al 1998), or the effect was small, self-reported only, or measured desire to change rather than actual behaviour (Bennett et al 2004; Heirich & Sieck 2000; Cook et al 1996; Lapham et al 2003). The four mail-out/feedback/brief intervention studies (Anderson & Larimer 2002; Richmond et al 2000; Matano et al 2007; Walters & Woodall 2003) were practical and possibly sustainable interventions that achieved outcomes somewhat comparable to the more intensive counselling interventions. However, the outcomes were self report.

An additional study published since the systematic review of Webb et al (2009) of screening and brief intervention for risky alcohol consumption at the workplace in the transport sector failed to find evidence of effect (Hermansson et al 2010).

Employee assistance programs (EAPs) offer short-term counselling and longer-term referrals for a variety of behavioural health concerns such as depression and alcohol problems (Roman & Blum, 2002; Levy et al 2007), although they tend to be an underutilized resource for addressing alcohol problems (Chan et al 2004). An EAP office based programme compared the impact of a brief intervention for at risk drinking, compared with usual care. At three month follow-up, employees who received the brief intervention had significantly reduced presenteeism, but not absenteeism, with costs saved from improved productivity over the four week period prior to the three month assessment of US$1200 per employee over the usual care group (Osilla et al 2010). Consistent with other experience, the increase

in productivity came primarily from increases in presenteeism and not decreases in absenteeism (Goetzel et al 2004).

3.3 Do peer support programmes have an impact?

One of the ten studies identified by Webb et al (2009) used objective outcome measures describing the impact of a workplace peer-focused substance abuse programme in the transportation industry implemented in phases from 1988 to 1990 (Spicer & Miller 2005; Miller et al 2007). The program focused on changing workplace attitudes toward on-the-job substance use in addition to training workers to recognize and intervene with co-workers who have a problem. The program was strengthened by federally mandated random drug and alcohol testing (implemented, respectively, in 1990 and 1994). With time-series analysis, the association of monthly injury rates and costs with phased program implementation were analyzed, controlling for same industry injury trend. The combination of the peer-based program and testing was associated with an approximate one-third reduction in injury rate, avoiding an estimated $48 million in employer costs in 1999. That year, the peer-based program cost the company $35 and testing cost another $35 per employee. The program avoided an estimated $1850 in employer injury costs per employee in 1999, corresponding to a benefit-cost ratio of 26:1. In another study of urban transit workers, perceived co-worker support was found to attenuate the link between frequency of heavy episodic drinking and absenteeism (Bacharach et al 2010).

3.4 Do web-based feedback programmes prevent alcohol-related harm?

A meta-analysis of 75 randomized clinical trials that have included more than 35,000 participants and evaluated 82 separate computer-delivered, health promotion interventions concluded that computer-delivered interventions can help individuals to make improvements in a variety of health behaviours including substance and alcohol use (eleven studies) (Portnoy ey al 2008). Greater intervention dose strengthened the impact on substance use reduction.

One study has evaluated the efficacy of an alcohol web-based personalized feedback program delivered in the workplace to young adults (Doumas & Hannah 2008). Results indicated that participants in the intervention group reported significantly lower levels of drinking than those in the control group at a 30-day follow-up. This was particularly true for participants classified as high-risk drinkers at the baseline assessment. Adding a 15-minute motivational interviewing session did not increase the efficacy of the web-based feedback program.

3.5 Does mandatory screening or testing reduce harm?

A Cochrane systematic review to assess the effect of alcohol and drug mandatory screening of occupational drivers in preventing injury or work-related effects such as sickness absence related to injury (Cashman et al 2009) identified only two interrupted time series studies (Swena 1999 and Spicer 2005). Spicer (2005) reported the evaluation of the workplace peer-focused substance abuse prevention and early intervention program (titled PeerCare) implemented against the background of federally mandated random drug and alcohol testing in an interrupted time-series design from 1983 to 1996 already mentioned in section 3.3. Swena (1999) reported the evaluation of federally mandated random drug testing on country-wide fatal truck accidents in an interrupted time-series design from 1983 to 1997.

The work place based study in the transportation company found that whilst alcohol testing was associated with a decrease in the level of injuries immediately following the intervention

(-1.25 injuries/100 person years, 95% CI -2.29 to -0.21), there was no significant change in the already long-term downward trend (-0.28 injuries/100 person years/year, 95% CI -0.78 to 0.21). For federally mandated random drug testing, both studies found no immediate beneficial effect, but did find significant declines of the yearly injury rate additional to the already downward trend over time, -0.19 injuries/100 person years/year, 95% CI -0.30 to -0.07 for the transportation company (Spicer 2005), and -0.83 fatal accidents/100 million vehicle miles/year, 95% CI -1.08 to -0.58 for country-wide study (Swena 1999).

Another United States based study found that mandatory alcohol testing was associated with a 23% reduced risk of alcohol involvement in fatal crashes by motor carrier drivers (Brady et al 2009).

A systematic review of interventions for preventing injuries in the construction industry only identified five studies (van der Molen et al 2007), one of which evaluated whether or not drug-free workplace programs, which included alcohol, prevented occupational injuries (Wickizer et al 2004). Overall, in the construction, manufacturing and service industries, those companies with drug-free workplace programmes had a net reduction of 3.33 injuries per 100 person years, compared with companies without drug-free workplace programmes, with the reduction being greater for service than construction and manufacturing industries.

3.6 Are alcohol programmes better implemented as part of overall health promotion programmes?

Interventions that focus on health promotion and on different lifestyles rather than on the disease have shown higher participation as well as greater improvement in drinking risk than those focusing on punitive sanctions (Sieck & Heirich 2010). An inclusive model of prevention minimizes the likelihood that employees will feel singled out for their alcohol use or their participation in an intervention program in a punitive context.

However, the evidence for the impact of health promotion programmes at the workplace is limited. In a systematic review, Kuoppala et al (2008) identified 46 studies which suggested that work place health promotion could improve work ability (risk ratio (RR), 1.4; range, 1.2 to 1.7), although not decrease sickness absence. Overall, there was no impact on mental well-being and physical well-being. Exercise programmes were effective in increasing overall well-being (RR, 1.25; range, 1.05 to 1.47) and work ability (RR, 1.38; range, 1.15 to 1.66), but education and psychological methods were not. In another systematic review of 27 identified papers, Kuoppala et al (2008) found evidence that leadership at work can improve job well-being (RR, 1.40, range 1.36 to 1.57), and decrease sick leave (RR 0.73, range 0.70 to 0.89), and disability pensions (RR 0.46, range 0.42 to 0.59).

A systematic review of the effects of workplace health promotion programmes on presenteeism identified 14 studies, of which ten were described as presenting preliminary evidence of promising effects on presenteeism in their respective employee populations and work settings (Cancelliere et al 2011). Two studies were described as showing the strongest evidence, one of which involved worksite exercise (Nurminen et al 2002), and the second, the impact of a supervisor education program regarding mental health promotion (Takao et al 2006). However, even in these two studies, the evidence is either not present or very weak.

In the study by Nurminen et al (2002), women engaged in physically demanding laundry work were individually randomized into an intervention or control group, with the intervention subjects participating in worksite exercise training guided by a physiotherapist. The women were followed- up at 3, 8, 12 and 15 months. Although at 12 months, workers with perceived good work ability increased more in the intervention group than in the control group (11.0%,

95% CI 0.2–21.9), as did the health-related prognosis of work ability at 8 months (8.1%, 95% CI 0.5–16.3), there were no statistically significant differences between the two groups as regards job satisfaction, work ability index, or sick leaves.

In a programme to reduce work related stress in a sake brewery, Nishiuchi et al (2007) found that an education program for stress reduction could improve supervisors' knowledge on stress reduction in the work place, but did not impact on their attitudes or behaviour. Not surprisingly then, the job stress education programme for supervisors on psychological distress and job performance among their immediate subordinates made no difference to psychological distress or job performance among male and female subordinates (Takao et al 2006, the study referred to above as showing an impact). The only exception to this was amongst the 27 young male subordinates in white collar occupations, for which there was some evidence for improvement in stress reduction and job performance. Nevertheless, independent of the programme, subordinates working under supervisors with good listening attitudes and skills reported slightly (but statistically significant) better job control and less stress than those subordinates working under supervisors with poor listening attitudes and skills (Mineyama et al 2007).

Despite the limited evidence for effective work place health promotion programmes, a number of meta-analyses have reported positive returns on investment for workplace wellness programs (Chapman 2003; 2005; Baicker et al 2010). In their systematic review of US-based studies, Baicker et al (2010) identified 22 studies reporting on employee health care costs and 22 on absenteeism costs. It should be remembered that in the US, more than 60% of Americans get their health care insurance through an employment based plan. By far the most frequently used method of workplace intervention delivery was the health risk assessment, a survey that gathers baseline self-reported health data from the employee, which are in turn used by the employer to tailor the subsequent intervention. The second most common wellness intervention mechanism was the provision of self-help education materials, individual counselling with health care professionals, or on-site group activities led by trained personnel. The use of incentives to motivate participation was seen in 30 percent of programs. The most common foci of the programs were obesity and smoking. Seventy-five percent of programs focused on more than one risk factor, including stress management, back care, nutrition, alcohol consumption, blood pressure, and preventive care, in addition to smoking and obesity. Medical costs were found to fall $3.27 for every dollar spent on wellness programs, and absentee day costs fall by $2.73 for every dollar spent. Of course, there are a number of caveats to the validity of the findings: first, the firms implementing wellness programs are likely to be those with the highest expected returns; second, it is difficult to gauge the extent of publication bias, with programs seeing high return on investment most likely to be published; and, third, almost all of the studies were implemented by large employers, which are more likely than others to have the resources and economies of scale necessary both to implement and to achieve broad savings through employee wellness programs.

3.7 What is the overall assessment of the evidence for workplace based interventions?

Although there are one or two exceptions (for example Osilla et al 2010, but even here the follow-up period was only at three months), the evidence identified and presented in sections 3.1 to 3.6 do not, in any convincing, consistent or robust way conclude that workplace based interventions reduce the harm done by alcohol at work. Likewise, systematic reviews find only limited evidence for an impact of health promotion programmes, with physical activity programmes appearing to be the most effective.

Despite the apparent lack of evidence for the impact of alcohol-based and health promotion-based interventions at the workplace, systematic reviews of returns of investment for US based workplace wellness programmes appear to find positive returns on investment for medical costs and absentee day costs, the driving force being reductions in health care insurance costs. A growing literature suggests that building incentives into insurance-based wellness programs may help to raise participation among employees. One example of an insurance based programme is the Vitality Health Promotion programme offered to members of the Discovery Health medical plan in South Africa (Patel et al 2010). Membership in the health promotion program is voluntary and offered separately from the health plan because legislation in South Africa precludes differential insurance premiums based on health status or engagement with health promotion programs. The program is offered to plan members for a nominal monthly fee of approximately $10 per family. The activities of the Vitality program are divided into four categories: fitness related activity, assessment and screening, healthy choices, and health knowledge; the activities include subsidized gym memberships, visits to dieticians and exercise specialists, smoking cessation and weight reduction programs, access to online or in-person risk assessments, as well as online and print media material for health and wellness. Participation in the various wellness services and programs permit members to accumulate points, which determine tier ‘‘status’’ and provide a proxy measure for the level of participation or engagement in the health promotion program. Points are redeemable as discounts (ranging from 15% to 45%) on a range of store purchases and services. The 10% of the nearly one million sampled adults of the Discovery Health medical plan who were highly engaged in the Vitality programme had meaningful and significantly reduced hospital costs per patient compared to those not registered or lowly engaged in the programme. Costs were lower in the highly engaged group, compared with the other groups by 15% for cancers and 7% for cardiovascular diseases. Over a five year period, an increase in physical activity during years one to three was associated with lower hospital costs in the subsequent two years, with a dose response relationship between the number of additional gym visits per week and the odds ratios for hospital admissions.

The workplace wellness and incentives literature would suggest that workplace interventions can have an impact, and might lead to a reframing of workplace alcohol programmes away from a traditional counselling based approach to a more holistic wellness based structural, environmental, and incentives based approach.

3.8 How could the existing evidence-base be bettered?

The systematic reviews of the alcohol and health promotion-based interventions found a considerable variability across identified individual studies in terms of their aims and study methods regarding such matters as settings, study design, sampling methods, type of outcome measured and measurement tools. This variability makes comparison of results across studies very difficult, if not impossible. Thus, there is a great need to standardize methods used for conducting and evaluating the effectiveness and cost-effectiveness alcohol interventions in the work-place (Webb et al 2009).

There is a need to agree the appropriate choice of target group for work-place alcohol interventions where the distinctions between primary, secondary or tertiary prevention are often blurred. Prevention strategies often mix primary and secondary methods of prevention, as they address both problematic drinking and the promotion of healthy drinking practices for all employees. Employee Assistant Programmes (EAPs), for example, were developed on the basis of identifying and assisting workers already exhibiting alcohol-related problems, on the assumption that this group caused the greatest impact on productivity at work (Roman & Blum 2002). A more preventive approach aims to identify workers at an early stage, with the aim of intervening before irreversible damage occurs. However, as EAPs generally provide brief interventions for low-risk consumption workers, with high-risk consumers referred out of

the EAP programmes, EAP results may not produce results which are as dramatic as those produced by successful interventions with high-risk drinkers. A third approach is to target all workers at the workplace. A broad-based approach may succeed in changing the work-place structure and drinking climate to make it less amenable to workplace alcohol problems, and thus also reduce alcohol consumption by lighter drinkers. A fourth approach is to target drinkers with potentially the highest risk of negative work outcomes, e.g. workers in high-safety-risk occupations, such as the construction industry or young workers.

There are also considerable research challenges posed by the organizational structures of work-places, leading to difficulties in undertaking work-place interventions (Webb et al 2009). First, there may be times when the demands of the work-place take precedence over research requirements, with adverse effects on subject recruitment and retention, consistency of intervention strategies and possibility of contamination. If managerial and organizational support for the programme is lacking even greater difficulties will be experienced, leading to resistance by both individuals and organizations. Secondly, while work-place populations may be seen as relatively captive and stable, in effect they are susceptible to change over time, through retirement, redundancy, normal staff turnover and secondment or transfer to other work-sites. Thirdly, organizational and structural changes at the work-place can occur during the course of a study, necessitating changes in study design, with possible contamination of study results.

Perhaps most striking, though, is that it seems that there are an enormous number of work placed based initiatives based on principles of good practice that are simply not evaluated (http://www.stap.nl/content/bestanden/2010_07_28_alcohol-at-the-workplace---case-studies.pdf). Perhaps this gap might be addressed through partnerships between academia, public or private employers and organizations representing employees. Additional sources of evidence could include analyses of case studies, expert opinions, social values and managers and workers preferences.

3.9 What about social welfare policies - can they help?

In section 2.3, it was noted that unemployment, consequent to economic recession, was associated with increases in deaths from suicide and alcohol use disorders in EU countries between 1970 and 2007 (Stuckler et al 2009). One question is, to what extent can social welfare programmes, or active labour market programmes mitigate the consequences of economic recessions?

The OECD defines social welfare expenditure as the provision by public (and private) institutions of benefits to, and financial contributions targeted at, households and individuals in order to provide support during circumstances which adversely affect their welfare (OECD 2010). This includes spending related to family support programmes (such as preschool education, child care, and maternity or paternity leave), old age pensions and survivors benefits, health care, housing (such as rent subsidies), unemployment benefits, active labour market programmes (to maintain employment or help the unemployed obtain jobs), and support for people with disabilities. Stuckler et al (2009) found that for every US$10 higher investment in active labour market programmes, there was a 0.04% lower effect of a 1% rise in unemployment on suicide rates in people younger than 65 years. When the spending was greater than US$190 per head per year (adjusted for purchasing power parity), rises in unemployment would have no adverse effect on suicide rates.

The associations between $100 rises in income, social welfare spending, and healthcare spending per capita (purchasing power parity in $ for 2000) on cause specific mortality in 15 EU countries, for the period 1980-2005 is shown in Table 4 (Stuckler et al. 2010). Increases in social spending in areas other than health care were significantly associated with

reductions in alcohol-related mortality. For every $100 rise in social welfare spending excluding health care, alcohol-related mortality fell by 2.8%.

Table 4 Effect of $100 of income, social welfare spending, and healthcare spending on cause specific mortality in 15 EU countries, 1980-2005 (purchasing power parity in $ for 2000). Source: Stuckler et al. 2010.

Covariate	All cause	Alcohol related	Malignant neoplasms	Cardiovascular disease	Suicide	Tuberculosis
$100 in income per capita	−0.14%** (0.035)	−0.21% (0.12)	−0.034% (0.034)	−0.31%** (0.084)	0.19% (0.20)	−0.59%*** (0.14)
$100 rise in social welfare spending (excluding health care)	−0.99%*** (0.11)	−2.80%*** (0.46)	−0.065% (0.18)	−1.23%** (0.31)	−0.62% (0.49)	−4.34%** (1.77)
$100 rise in healthcare spending	−0.01% (0.43)	0.97% (0.90)	−0.82% (0.47)	−0.28% (0.95)	−3.15% (1.50)	2.11% (2.32)
No of country-years	320	319	319	319	319	318
R^2	0.906	0.773	0.535	0.901	0.239	0.716

Countries were Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom. Robust standard errors in parentheses clustered by countries to reflect non-independence of sampling.

3.10 And, finally, what about alcohol policies in general?

In section 2.2, it was noted that lost productivity costs featured as the dominant element in social cost studies arising from the harm done by alcohol, in the European Union, being about half the total social costs (Anderson & Baumberg 2006) (the other main cost elements related to health and criminal justice systems). The question for the productivity of the EU workplace as a whole is the extent to which this burden could be avoided.

In terms of population based interventions (Anderson et al 2009; Babor et al 2010), a number of studies have estimated the avoidable costs of alcohol use disorders and the potential benefits of effective policies to reduce the social costs of alcohol (Collins et al 2006; Collins & Lapsley 2008).

A Canadian study modelled the impact of six alcohol policy interventions relative to baseline costs of $CAN14.5bn, obtained from the Second Canadian Cost Study (Rehm et al 2006; Rehm et al 2008): taxation increases, lowering the blood alcohol concentration (BAC) legal limit from 0.8g/L to 0.5g/L, zero BAC restriction for all drivers under the age of 21, increasing the minimum legal drinking age (MLDA) from 19 to 21 years, a Safer Bars intervention, and brief interventions. Under conservative assumptions, it was estimated that a combination of the six interventions related to alcohol policy would result in cost savings of about $1 billion in Canada per year. By implementing all six interventions, the greatest saving would be achieved by lowering productivity losses, i.e. more than $561 million or 58%, followed by health care, almost $230 million or 24%, and criminality, almost $178 million or 18% of the total avoidable cost. The potential gains to Canadian society may be even much higher, as sensitivity analyses on three of the six selected interventions resulted in a doubling of the avoidable alcohol-attributable burden and cost.

In the Sheffield Alcohol Policy Model (an approach similar to a cost-benefit analysis that can supply data on productivity losses), absence from work, as well as unemployment due to alcohol problems, is estimated to reduce in a scenario where, for example, alcohol prices are increased in England (Purshouse et al 2009, 2010). A 10% price increase of alcoholic beverages was estimated to reduce workplace harms by 12,800 fewer unemployed people and 310,000 fewer sick days each year over the 10-year period modelled.

4. CONCLUSIONS

The evidence in section 2, the impact of alcohol on the workplace and on productivity found little doubt that alcohol and heavy drinking can negatively impact on the workplace and the productivity of the European Union as a whole. Alcohol is the top most important risk factor for ill-health and premature mortality amongst the working age population and most alcohol-related deaths occur in later middle age before retirement. Heavy drinkers are less likely to be employed (and unemployment increases the harm from heavy drinking) and alcohol increases the likelihood of absenteeism and presenteeism, with increasing risk from increasing consumption. Aspects of the workplace itself can determine the risk of alcohol-related harm, and certain occupations, particularly those working in the catering and bar trade as well as sea workers and dockers have increased risk.

Unfortunately, the evidence in section 3, reducing the negative impact of alcohol on the workplace and on productivity found little to say convincingly on what works best at the workplace to reduce alcohol-related harm, although there are certain pointers. Brief interventions delivered by occupational health services, web based interventions and peer support programmes may have an impact. Mandatory substance screening and substance-free workplaces reduce accidents and injuries. The experience of workplace well-being initiatives does suggest positive returns on investment, and lessons could be learnt from structural and incentive based well-being programmes. Further, whatever happens in the workplace can be strengthened by external policies, for which the evidence base seems clearer. These include active labour programmes to keep people in work, and alcohol policies which can impact on a wide range of harms, including those that affect employment and productivity.

Finally, coming back to the task request introduced in section 1, are there any pointers towards:

a) High value options for additional research or collection of additional data and indicators;
b) Effective approaches to consider for wider deployment in more workplace settings, including any guidance as to the need for prioritisation of action targeting particular sectoral, professional or age specific groups.

Additional research

It is clear that better and more research could be done (see Section 3.8). There is a wealth of breadth and depth of work place based programmes that are being implemented, but that have not been evaluated. Partnerships between academia, employers and employees could help close this gap.

Research could focus on a range of work place and productivity-related interventions including the impact of:

1. Well-being based programmes that reduce stress at work and restructure effort-reward imbalances;
2. Programmes that alter the use and availability of alcohol at work, and attempt to modify the descriptive and injunctive norms around alcohol at work;
3. Workplace based programmes on family and friends outside of work;
4. Heavy drinking on the productivity of people other than the drinker; and
5. Incentives-based programmes.

Data and indicators
In terms of additional data and indicators, greater investment needs to be made in measuring and costing presenteeism (it is much easier to measure and cost absenteeism), also bearing in mind that presenteeism leads to greater lost productivity than absenteeism (see Section 2.6).

Focus activities under the umbrella of well-being at work initiatives
Given the lack of a robust evidence base for workplace based approaches that focus on individual counselling (see Section 3.2), it may be better to focus activities under the umbrella of well-being at work initiatives (Robertson & Cooper 2011) (see Section 3.6), particularly those that focus on presenteeism (Cancelliere et al 2011), and those that bring a good return on investment (Baicker et al 2010). The core factors that promote well-being at work include structural factors (Podsakoff et al 2007) and management and leadership styles (Yarker et al 2008), all of which, as indicated in section 2.10 could impact alcohol-related harm.

Promote alcohol-free workplaces
Many work places are already alcohol free. Increasing the extent of alcohol free workplaces will result in reductions of alcohol-related work place accidents and injuries, as well as creating a culture for a more healthy relationship with alcohol that impact on families and friends through social networks (see Section 3.1).

Occupational target groups
Based on the rates of alcohol-related mortality, three target groups stand out for action: those working in the retail alcohol trade, labourers in the construction industry, and seafarers and dockers (see Section 2.9). The example of English doctors, who, over the course of 20-30 years shifted their place in the occupational league table of alcohol-related mortality from near the top to near the bottom demonstrate that change can be made. The behaviour of doctors has been taken as a marker of how harmful lifestyle behaviours are perceived in a country.

Population target groups
Although this might be interpreted as covering everyone, there are two target groups, the young and the older middle age. The young, because they suffer from both differential high rates of unemployment and risky drinking, compounded by the stresses when joining the labour market, and, the middle age, because they have the absolute highest rates of alcohol-related disability and premature death (see Sections 2.1 and 2.3). The US-based multisite initiative of substance use prevention programs for young adults in the workplace provides, for example, a frame for action for young people, which has been commonly neglected in the past (Bray et al 2011).

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PART II

5. APPROACHES TO REDUCING ALCOHOL-RELATED HARM IN THE WORKPLACE

Over recent decades, the need for greater professional skill levels in an increasingly complex working environment has led to growing recognition that drinking and the workplace may not be a suitable mix. Alcohol misuse and, at times, even moderate drinking may have a detrimental impact on workplace performance and safety.

It is widely recognized that the workplace offers a convenient access point for health promotion, contributing to the improvement of working conditions, while at the same time addressing health and safety concerns. Issues that can be addressed through workplace interventions also include problem drinking (including alcohol dependence) and its wider social and economic impact.

There is less consensus regarding where the responsibility for addressing these issues lies. An argument can be made in favour of government intervention through laws and regulations that apply to the workplace in an effort to protect citizens; equally, a compelling case can be made that workplace safety and health are the responsibility of employers and workers' unions; and there is always the question as to where individual responsibility ends and collective responsibility begins. What is clear, however, is that a broad-based strategy is needed to address harmful drinking and its impact on the workplace, which involves each of these stakeholders.

Part II of this report examines approaches that can be implemented in the workplace and addresses, in particular, what employers can do. Initiatives that have been put into place by four companies that produce alcohol beverages – Anheuser Busch InBev, Diageo, Heineken, and Pernod Ricard – are used to illustrate what can be done by the employer. While similar approaches exist across many industries, in government and civil society organizations, these companies have been chosen because they are members of the European Alcohol and Health Forum and information on their practices was available to the Science Group. It should be noted that these approaches are by no means unique to this sector, and have been applied elsewhere. They do, however, offer useful examples of interventions that are transferable across different industries and work settings.

While this report argues in favour of the workplace as a convenient point for intervention, implementation often faces considerable challenges. These challenges are also addressed and areas identified where action around preventing alcohol-related harm can be strengthened.

5.1 The impact of alcohol misuse on the workplace

The impact of drinking on the workplace, particularly heavy or problematic drinking, is significant. It has been examined extensively from different perspectives and in different countries (Jarl et al 2008; Mohapatra et al 2010; Rehm et al 2007; Thavorncharoensap et al 2010) and features prominently in social cost studies. Part I of this report provides an extensive review of the available literature and evidence.

The most significant direct costs to the workplace from alcohol misuse are from lost productivity through absenteeism, poor performance on the job, accidents and injuries, and

death and disability. It has been estimated, for example, that the cost of productivity lost related to alcohol misuse in the European Union in 2003 was on the order of €59 bn (Anderson & Baumberg 2006).

When addressing drinking and the workplace and potential harms associated with it, two aspects should be considered. The first is drinking on the job itself, which is usually addressed through alcohol-free environments and zero-tolerance policies. However, even where drinking is not allowed, additional interventions are needed to address those employees who have alcohol problems or can be diagnosed as alcohol dependent. The second and perhaps less obvious area requiring attention relates to drinking outside of working hours and the workplace, but which has an impact on workplace performance. This includes, for example, drinking at lunchtime or heavy drinking after work. Research suggests that drinking during leisure hours accounts for much of the harm and cost for the workplace.

It has been estimated that problems drinkers – those whose drinking either on or off the job is problematic – account for around 10% of all employees (Henderson et al 1996). Most of them are full-time workers whose drinking both in and outside the workplace results in reduced productivity, absenteeism, and resources lost from decreased efficiency, wastage and errors, long-term disability and loss of life from workplace accidents. However, the impact on the workplace is not always attributable to problem drinkers. Rather, much of it is attributable to those who usually drink moderately but may occasionally drink to excess (Frone 2006). It has been shown that after a heavy drinking episode, performance of certain tasks may continue to be impaired even well after blood alcohol content (BAC) has returned to zero (Cook 1997a, b). Heavy drinking episodes can also result in hangovers and sick days, which, in turn, contribute to lost efficiency, as well as to workplace injuries (Bacharach et al 2010; Pidd et al 2006a).

Mortality and morbidity

Illness and death are associated with significant cost to employers in terms of investment needed to replace individuals (and skills) lost, and with expenditure on training and recruitment of new employees. Alcohol-related problems also have an impact on the cost of healthcare, sick leave, rehabilitation, and productivity lost. Costs from alcohol problems among employees also include redundancy payments where lay-offs are required, health costs, or legal costs. Where accidents and injuries extend to third parties, insurance and legal costs, and compensation for injury may be involved, particularly where employers are held legally liable (Sloan et al 2000).

While employers incur costs relating to the development and implementation of workplace policies and programs, this expenditure is relatively small compared with the costs resulting from abuse of alcohol and drinking problems among employees, and more than offset by reductions in these costs (Collins & Lapsley 2008). Returns on investment for the implementation of workplace interventions have been described (Hantula et al 2001; Oxenburgh & Marlow 2005).

Absenteeism and job performance

Absenteeism represents a significant cost to employers. Included in this calculation is reduced output from sick days taken, reporting late to work, leaving early, or taking unscheduled breaks. Entire working days may be lost due to poor performance or absenteeism (Blum et al 1993) and the number of sick days taken has been shown to increase with risky levels of consumption (Hermansson et al 2002). The absolute contribution of absenteeism to employer costs is difficult to quantify, although some estimates have been made (Gjerde et al 2010; Pidd et al 2006a; reviewed in the report in Part I). Absenteeism is seen among problem drinkers in the workforce. However, it is most common among usually moderate drinkers who drink heavily on occasion (Bachrach et al 2010; Salonsalmi et al 2009).

One often neglected aspect of employee absenteeism is its direct impact on others in the workplace. Other workers may be required to put in longer hours or to take on additional tasks to make up or cover for absent colleagues (Dale & Livingston 2010). Absenteeism may also be associated with additional cost to employers where overtime wages are required for those putting in the additional work.

Even where employees do not absent themselves from work but are present after heavy drinking episodes, their work performance may be impaired (also known as 'presenteeism'). Heavy drinking outside of work, drinking before or after work, and coming to work with a hangover have all been related to problems, including conflicts with supervisors and co-workers, poor work quality, falling asleep at work, lower output, and injuries (Ames et al 2000; Mangione et al 1999). Self-reports by employees bear this out – many are aware of the negative impact that heavy drinking outside of work has on job performance (Jones et al 1995).

Accidents and workplace safety

A strong link exists between alcohol impairment at work and work-related injuries (Frone 2006, 2008). In 1996, a WHO report estimated that 20-25% of all workplace accidents involve alcohol in some way (Henderson et al 1996). Alcohol consumption, particularly heavy drinking, has been identified as a primary or secondary factor in many workplace accidents (Watkins et al 2000) and fatalities (Leigh 1996). Research also suggests that heavy drinking occasions, rather than "typical" drinking levels are predictive of injury in the workplace and injury-based absences (Bacharach et al 2010; Leggatt & Smith 2009).

Working environment and employee relations

The working environment is an important factor in workplace drinking and problems. Prevailing norms around drinking, relations among employees and with supervisors, as well as working conditions, boredom, stress, or repetitive tasks play a key role (Ames et al 2000; Frone 2008, 2009; Frone & Brown, 2010; Rospenda et al 2009; Cook 1997a). These factors are known to contribute to absenteeism and other problems (Bamberger & Biron 2007; Rentsch & Steel 2003). However, the converse is also worth considering. Alcohol impairment and alcohol problems may, in turn, contribute to poor working conditions and workplace relations, increasing the likelihood that interpersonal problems will develop within the workplace (Ames et al 2000; Bennett & Lehman 1998, 1999; McFarlin et al 2001; Moore et al 2000).

5.2 Minimizing alcohol-related harm in the workplace

From a public health perspective, the workplace offers a convenient access point for addressing a range of health and social issues and for health promotion, given that most adults of working age are likely to be employed and to spend a considerable proportion of their time at work. Table 5 offers figures from 2008 showing full-time employment among working-age adults in EU countries (OECD 2010). Although there has been a more recent shift in the employment landscape in Europe due to the global economic crisis, the workplace still allows access to a large proportion of the adult population.

From the perspective of employers, there are many reasons for implementing workplace policies and interventions around alcohol misuse. The most obvious (direct) costs to employers may be financial, although the extent of such costs depends on whether they are borne in their entirety by employers or also covered through the social security system, for example. However, businesses also have an interest in addressing health and safety issues among their workforce for other reasons. For example, many enterprises are concerned about their reputations and about upholding their commitment to corporate social responsibility (CSR). Large companies, in particular, are likely to address CSR concerns,

which can benefit them in a number of different ways. Enhanced workplace health and safety have been shown to contribute to worker satisfaction and enhanced productivity (Barling et al 2003; Zacharatos et al 2005).

For employers, costs may also manifest themselves in other, less tangible ways. It is worth considering, for example, the impact of workplace accidents on the reputation of a company (Lewis 2001, 2003). High-profile accidents involving alcohol, like the Exxon Valdez oil spill, for example, demonstrate the significant extent of cost in terms of reputation (Small 1991). This is difficult to measure in absolute terms but has an impact on the bottom line as consumer confidence is eroded.

Table 5 Rates of full employment, self-employment, and part-time employment among people of working age, 2008 Source: OECD, 2010.

Country	Total employment (%)	Self-employment (%)	Part-time employment (%)
Austria	72.1	13.8	17.6
Belgium	62.0	14.2	18.7
Czech Republic	66.6	16.2	3.5
Denmark	78.4	8.8	18.0
Finland	71.3	12.8	11.5
France	64.6	9.0	13.4
Germany	70.2	11.7	22.1
Greece	62.2	35.1	7.8
Hungary	56.7	12.3	3.1
Ireland	68.1	17.3	21.0
Italy	58.7	25.7	16.3
Luxembourg	64.4	5.9	12.7
Netherlands	76.1	13.2	36.1
Poland	59.2	22.9	9.3
Portugal	68.2	24.1	9.7
Slovak Republic	62.3	13.8	2.7
Spain	65.3	17.7	11.1
Sweden	75.7	10.4	14.4
United Kingdom	72.7	13.4	22.9
Estonia	69.5	7.7	6.2
Slovenia	68.6	14.1	7.5

The establishment of workplace measures that address these issues is also a consideration that factors into an employer's reputation and can help to position companies as good places to work. A high ranking can contribute to a competitive edge in hiring and worker retention, which carries clear benefits for employers. The United Nations Global Compact (U.N. Global Compact 2011), to which many large companies are signatories, similarly represents a strategic initiative for businesses that requires alignment with ten core principles related to labour, human rights, environment and anti-corruption. A case can also be made for the ethical responsibility of employers for the safety and wellbeing of their workforce, which includes protecting them from harm caused by alcohol in the workplace.

Various approaches exist to reducing harm from drinking affecting the workplace. They range from government legislation to prevention efforts and interventions that may be

implemented by employers. These include explicit workplace policies, including those ensuring alcohol-free work environments, as well as a range of prevention programs to address employees suffering from alcohol problems. Education and counselling, secondary prevention aimed at screening and early detection of problems, and treatment services and other related interventions are among the approaches used and are an important complement to workplace alcohol policies.

Addressing alcohol-related harm through the workplace is a complex issue. It requires, at a minimum, the participation of various functions at employer level, including management, worker representatives, human resources and occupational health and safety. The participation of other stakeholders beyond employers is also needed -- national and local government, worker unions, employer organizations, insurance companies, experts in public health and occupational safety, academia, and others. An interdisciplinary partnership approach is desirable. Partnerships around occupational health are explicitly called for, for example, under WHO resolution WHA60.26 (WHO 2007).

Regulatory context

Occupational health and safety, particularly as it relates to workplace hazards, are generally overseen by national authorities (e.g., Ministries of Health or Labour). Workplace policies that address health or lifestyle issues, including drinking and problems that may accompany it, on the other hand, are generally left up to employers and are implemented at the level of individual companies and organizations.

At EU level, the Community Strategy on Safety and Health at Work (European Commission 2007) lays out a political framework for policy around workplace health and safety. While the Communication does not specifically address alcohol issues, it does acknowledge that illnesses associated with psychological stress have become more common in the workplace, along with occupational illnesses and infectious diseases. The overall objective of the EU strategy is to reduce by 25% the total incidence rate of accidents at work per 100,000 workers in the EU 27 by 2012 (EU-OSHA 2011).

Since a common approach to workplace policies on drinking does not exist at EU level, interventions that are implemented by different enterprises must be viewed within the context of existing rules and regulations that apply at country level. Many countries around the world have some legal framework around drinking in the workplace, although the extent of this framework and the areas covered vary. In some cases, an alcohol-free work environment is required by law, in others the consumption of alcohol in the workplace is not explicitly prohibited. However, laws may include provisions against intoxication or address the impact of drinking on work performance. The following examples illustrate the variations that exist.

Germany's Arbeitsschutzgesetz, for example, specifies that the consumption of alcohol may not have an impact on workplace performance (Bundesministerium der Justiz 1996). It requires that alcohol problems and dependence among employees be treated as health issues and addressed as such. In France, the Code du Travail also does not prohibit alcohol in the workplace, but includes provisions against intoxication in any work setting (Code Juridique de la République Française 2008). The United Kingdom's Health and Safety at Work Act similarly does not prohibit alcohol in the workplace (Parliament of the United Kingdom 1974). However, like German law, it requires that alcohol dependence be treated as an illness, and, like French law, includes provisions against intoxication. While there is no legal requirement for employers to implement workplace alcohol policies, the Health and Safety at Work Act imposes a duty on both employer and employee to maintain a safe working environment.

A different perspective is offered by the Czech Labour Code (Zakonik práce), that outlines rights and duties of employees and places much of the onus of responsibility on them. It

prohibits the consumption of alcohol by employees in the workplace and during working hours (whether in or outside of the workplace) with exceptions for particular work conditions and for some employees, notably those "whose consumption of alcoholic drinks is an integral part of their performance of working tasks or is usually associated with performance of these tasks" (Ministry of Labour and Social Affairs, Czech Republic 2006).

Even where legislation exists around alcohol in the workplace, there may be no formal requirement for employer-instituted workplace alcohol policies and interventions. While companies may be encouraged through other legal requirements (e.g., liability or insurance) to implement policies and prevention measures around alcohol and the workplace, these are largely voluntary. As will be discussed later, this creates a gap from a public health perspective with potentially significant implications.

Workplace interventions

Occupational health and safety issues (for example, noise, ergonomic issues, or toxic substances) have been addressed through the workplace for some time, similar approaches to personal health issues that include alcohol abuse, smoking, nutrition or exercise, on the other hand, are a relatively recent concept Danna & Griffin, 1999; Hasle & Wissing 2000). Today, the workplace is increasingly being used by employers to address health-related behaviors by targeting employees (Bergström et al 2008; Cercarelli et al 2009). They cover a range of health issues from smoking cessation (Cahill et al 2008; Moher et al 2003) to other lifestyle factors such as diet and exercise (Groeneveld et al 2010; Head et al 2006), and have been used to address drinking problems among the workforce. The workplace has been designated by the World Health Organization as a priority setting for health promotion (WHO, 2011) and is one of the priority areas designated in the EU strategy (EU-OSHA 2011).

Table 6 Employment rates by age group in EU Member States, 2008 Source: OECD, 2010.

Country	Employment rate ages 15-24	Employment rate ages 25-54	Employment rate ages 55-64
Austria	55.9	84.4	41
Belgium	26.9	80.5	32.8
Czech Republic	28.1	83.8	47.6
Denmark	68.5	87.9	57.7
Finland	46.4	84.3	56.4
France	30.7	83.2	38.2
Germany	47.2	81	53.8
Greece	24	76.6	42.9
Hungary	20	74.4	31.4
Ireland	46.1	78	53.9
Italy	24.4	73.5	34.4
Luxembourg	26.2	80.2	38.3
Netherlands	69.2	85.7	50.7
Poland	27.3	77.5	31.6
Portugal	34.7	81.6	50.8
Slovak Republic	26.2	80.1	39.3
Spain	39.5	75.3	45.6
Sweden	45.9	86.5	70.3
United Kingdom	56.4	81.6	58.2
Estonia	36.4	83.9	62.4
Slovenia	38.4	86.8	32.8

With regard to alcohol misuse and its impact on health and safety, the workplace offers a useful intervention and access point for reaching a large proportion of working age adults (see Table 6). It is also useful for individuals who may be at particular risk for harm. For example, young men are more likely to be employed. They are also more likely than their older counterparts to be heavier drinkers. Therefore, interventions aimed at changing potentially harmful drinking patterns can be implemented through the workplace (OECD 2010). Among problem drinkers, performance may be affected in the workplace, a sign that screening or intervention may be needed (Roman & Blum 2002).

Finally, workplace interventions can be used to reach those in particular professions where the risk for harmful drinking may be increased. The saliency of alcohol in the core business of some industries has been cited as a potential risk factor for drinking problems and harm (Ames & Grube 1999; Nusbaumer et al 2010). High rates of premature mortality have been reported, for example, among those who work in the service and retail side of the alcohol beverage or drinks industry as bar staff, publicans or restaurant workers (Baker 2008; Broome & Bennett, 2011; Moore et al 2009; Romeri et al 2007; reviewed in Part I of this Report). Those in management jobs, arts, entertainment, sports, media, food preparation and services, as well as buildings and grounds workers, those in sales, construction and heavy transportation all have been reported to be more likely than those in other jobs to be under the influence of alcohol while at work (Frone 2006).

There is also evidence that those with repetitive jobs, and where levels of stress or boredom are high are more likely to misuse alcohol (Ames et al 2000; Frone, 2008, 2009; Frone & Brown 2010; Rospenda et al 2009; Cook 1997a). Similarly, shift work has been described as a predictor for workplace alcohol consumption and impairment (Frone 2006). Workers with irregular or flexible hours are more likely to drink before coming to work and during working hours.

These findings suggest that approaches targeted at particular working environments, types of jobs and certain professions can be used as useful access points to addressing alcohol misuse and alcohol-related harm. Although relatively little work has been done to evaluate the impact of various approaches on workplace alcohol problems, these data also suggest that workplace modifications may be a viable approach to reducing harm.

5.5 Employer workplace policies

The basic requirement for interventions around alcohol misuse in the workplace is the existence of explicit policies at the company level outlining acceptable and unacceptable practices. Where they exist, workplace policies delineate the rights and responsibilities of employers, employees, and their representatives (e.g., trade unions), framed within the context of any national laws around drinking and the workplace.

A framework for managing alcohol-related issues in the workplace has been developed by the International Labour Office (ILO) (1996) in its Code of Practice around the management of alcohol and drug-related issues. It is intended for all types of employers – whether in the public, private, or informal sector. The guidelines it offers are based on a comprehensive approach that requires an explicit policy, and addresses alcohol problems within the context of health issues. There is an emphasis on prevention for all employees, regardless of position, and on assistance to those who have experienced harm. Workplace policies are also intended to encourage behaviour change while at the same time allowing the employee to retain a stable working environment. Disciplinary action is usually a last resort.

The ILO Code (1996) recommends that such policies be developed through cooperation between the parties involved. The aim of workplace policies is to help provide a safe and healthy work environment, thereby improving productivity. At the same time, they are intended to promote the reduction of alcohol abuse and to offer a framework for providing assistance.

Although most companies are likely to take some action to deal with alcohol misuse in the workplace, there is a wide disparity in the scope of approaches. Large companies are most likely to have both explicit policies to deal with alcohol issues in the workplace, and a structure for implementing them. There is also a particular need for workplace policies on alcohol in certain professions and workplaces where the risk of harm may be especially high. These include, for example, operators of heavy machinery or those in industries where high levels of performance or acuity are required. Included are also health professionals, as well as first responders, such as police and emergency personnel for whom the ability to function on the job without impairment is paramount. In these professions, zero-tolerance of alcohol consumption is usually applied in the workplace.

In some cases, as for example in the transportation industry, workplace policies may also be supplemented by government regulations and industry policies around alcohol consumption across an entire sector at international or national level. Such industry-wide policies exist in the airline industry and include provisions around alcohol-free work environments, BAC limits, as well as required time intervals between drinking and assuming duty (FAA 2011). Similarly, a legal framework exists for operators of commercial vehicles in most countries, generally focusing on permissible levels of blood alcohol, and the shipping industry also has its own standards, framed within government regulations around official BAC limits (ICAP 2003).

5.6 Workplace interventions

A second tier of approaches generally accompanying workplace policies includes educational efforts and counselling aimed at employees and their families (Matano et al 2007; Cook et al 1996; Heirich & Sieck 2000), peer-based interventions (Spicer & Miller 2005), and efforts that are intended to change workplace culture around alcohol (Bennet et al 2004; Frone & Brown 2010). While the available body of evidence is still sparse, an impact on problem drinking and other health-related issues has been reported for all of these approaches.

How employers apply interventions to address alcohol problems in the workplace depends on company size and available resources. Large employers are most likely to implement (and can best afford) measures to address problems among their employees. According to one study examining programs in place in companies in United Kingdom, FTSE500 companies provide the greatest coverage for employees. Among these, the service industries offer particularly good penetration of programs to their workforce. Smaller companies and those in manufacturing are less likely to offer such services to employees (Hoskinson & Beer 2005).

In some companies, alcohol-related problems among employees may be treated as personnel and human resource issues. In others, interventions may be outsourced to external occupational health services that may offer broader services or may specialize specifically in dealing with alcohol problems (Hoskinson & Beer 2005). There are also differing approaches to how alcohol problems are addressed – they may be integrated into a broader approach to health and wellness in the workplace, while in others, or may focus exclusively on alcohol. It should be noted that, in addition to employers, trade unions also

play an important role in the provision of workplace interventions and health promotion (Johansson & Partanen 2002).

Employee assistance programs (EAP) are commonly used in the workplace, particularly in large enterprises (Cook & Schlenger 2002; Hartwell et al 1996; Roman & Blum, 2002). They offer access points for coping with behavioural and mental health issues. They are aimed at allowing employees to seek assistance for a range of health-related issues while retaining their job security and productivity. EAPs are, therefore, useful in preventing costs related to job loss for both the employer and the employee.

Entry into EAPs may be through various means: self-referral by the employee; informal, usually through the supervisor; or formal, when external intervention is required (reviewed in Roman & Blum 2002). EAPs are often complemented by other interventions, including programs to educate employees about drinking and outcomes, peer intervention, counselling and brief interventions for problem drinkers (Anderson & Larimer 2002; Jepson et al 2010; Richmond et al 2000; Wutzke et al 2002). They have been shown to have an impact on productivity and represent cost savings to employers (Osilla et al 2010). In particular, where screening and brief interventions are performed in connection with routine health and lifestyle workplace examinations, the impact on reducing problem drinking has been promising (Hermansson et al 2010). An example of an effort to describe "best practice" around EAPs is provided in Figure 9 (Csiernik 2003).

Best practice guidelines for EAPs:

- Endorsement by management and labour
- Clear procedures for access
    - Voluntary use by employees
    - Options for informal or formal referral by unions, peers, management, health services
    - Follow-up counselling or treatment services
- Confidentiality, including around use of records
- Joint periodic review by labour and management
- Education and promotion to employees and their families
- Monitoring and periodic review and evaluation of effectiveness of policy and procedures
- Eligibility for coverage through health insurance and compensation

Figure 9 Guidelines for best practice around Employee Assistance Programs. Adapted from Csiernik, 2003.

The provision of EAPs may be required by company policies. Programs are often integrated into health promotion efforts around broader health issues and may be administered through occupational health services (OHS). Occupational services may also provide alcohol testing, counselling, screening for problems and brief interventions for problem drinkers (Holmqvist et al 2008; Hermansson et al 2000, 2002, 2010; Webb et al 2009), and interventions aimed at drinking and driving. As is the case with many efforts around reducing harmful drinking and problems, there is often synergy between various approaches that address health and lifestyle issues (Webb et al 2009). It has been estimated, for example, that combining brief interventions with EAPs can lead to more significant improvements in productivity than brief interventions or EAPs alone (Osilla et al 2009).

5.7 Evaluation of workplace interventions

Health promotion in the workplace has been evaluated in a number of different areas. They have been reported to have an impact on reducing risk factors, and also days of illness (Bertera 1993; Danna & Griffin 1999). A reduction in healthcare costs and increase in productivity have also been reported (Kumar et al 2009). Whether workplace interventions have an impact on problems depends to a large degree on what they are intended to address (Goldgruber & Ahrens 2010; Zungu & Setswe 2007); in particular, targeted interventions for specific groups have a higher success rate than initiatives that are aimed at the general workforce.

Evaluations of workplace programs that address alcohol misuse have also been conducted. Some studies have shown that workplace policies and interventions can reduce alcohol consumption and alcohol-related problems (Anderson & Larimer 2002; Bennett et al 2004; Cook et al 1996; Heirich & Sieck 2000; Matano et al 2007; Pidd et al 2006b; Spicer & Miller 2005; Walters & Woodall 2003), as well as perceptions of risk from alcohol consumption (Walters & Woodall 2003), and future intentions to engage in heavy drinking (Lapham et al 2003). However, overall, the evidence regarding effectiveness of workplace interventions is not robust. To a large extent, this dearth of evidence is a reflection of the general emphasis of alcohol research on harm, rather than on responses. With regard to the workplace, many interventions simply have not been properly evaluated. A more extensive analysis of existing evaluations undertaken is provided in Part I.

As a result, a clear gap exists in the evidence base that would allow conclusions to be drawn about the interaction between situations (harmful drinking and the workplace) and responses (interventions), and its implications for policy. Further research is required to improve our knowledge, particularly relating to evidence of effectiveness. In addition to additional research into impact on problems and behaviour, more attention is also needed to economic evaluation of the cost-effectiveness of various interventions, both for employers and society.

6. WORKPLACE INTERVENTIONS IN PRACTICE: THE EXAMPLE OF BEVERAGE ALCOHOL PRODUCER COMPANIES

Good practice around workplace interventions to address various health issues, including alcohol-related harm, has been implemented across a range of industries. Interventions address acceptability of alcohol consumption in the workplace, prevention of potential problems among employees, and provision of interventions and treatment, where needed. A comprehensive review of workplace initiatives across different industries is beyond the scope of this report. Instead, companies that produce beverage alcohol have been selected as a case study to illustrate what is being and can be done, offering a useful model for other industries where such practices currently do not exist. Since alcohol producer companies are members of the Alcohol and Health Forum, information about their efforts could be obtained easily. In addition, the saliency of alcohol in the workplace in this industry has been cited as a potential risk factor for drinking problems and harm (Ames & Grube 1999; Nusbaumer et al 2010), making its particular practices worthy of a closer look.

Given the nature of their business, producer companies have devoted significant resources to addressing workplace drinking and alcohol-related harm among their employees. First, there are safety concerns about those who work on the production lines of distilleries, breweries and wineries. These companies also employ significant numbers of workers in their distribution and sales force, including those who are responsible for transport and are required to travel in the execution of their professional duties. Access to alcohol may be relatively easy in these types of working environments. As a result, careful monitoring and safeguards must be put in place.

In general, large producers have company-wide policies on alcohol, which are applied in all markets where the companies are active. Within companies, these standards follow the principles laid out in the ILO code. These policies must comply with local law and conform to local custom. However, the rigor of company standards often exceeds that required by local law.

Workplace alcohol policies

At a minimum, producer companies have clear and written codes that lay out the rights and responsibilities of both employers and employees. Alcohol misuse is treated as a health issue and either addressed by itself or as part of a broader effort to ensure the wellbeing and health of the workforce. Most companies have proscriptions (zero-tolerance) against drinking in the workplace, particularly in “at-risk” jobs. Exceptions for drinking at work may be made for those employees, for example, who are responsible for tasting and quality control. However, there is always a proscription against intoxication.

Among large producers, policies are mandatory and the same guiding principles apply across all operating companies, regardless of the market in which they operate. They extend to all employees, regardless of position or type of job and often also to employees of joint venture operations and to contractors. By and large, these policies are reflected in contractual agreements between employer and employees, which also include provisions for assistance to those who require it.

The code of Anheuser-Busch InBev (ABI), the world’s largest brewer, offers a good example of a company-wide comprehensive responsible drinking policy. The policy applies to all employees, as well as to contractors, temporary staff, trainees, and event staff. ABI’s Global Standards for Employee Responsible Drinking policy (ABI, internal communication) are intended to be adapted for different markets in which the company operates, taking into account variations in cultural and legal context. They are based on the ILO code (1996) and,

while the application of the Global Standards may vary according to market, it lays out minimum requirements that must apply everywhere and to all employees. A national Employee Responsible Drinking policy based on these standards is now required in every operating company.

ABI's policy specifically includes attention to the rights and responsibilities of employers and employees. While moderate consumption of alcohol may be tolerated within the working context, this must occur within clear guidelines and with special attention to those whose job functions may increase risk, for example, sales people and quality technicians. "No level of impairment due to alcohol during working hours is tolerated." The company's policy sets out provisions for procedures to address problem drinking through counselling and assistance programs. Where there is a breach of policy, disciplinary action may be taken in the event that assistance and treatment are not required or where all other options have been exhausted.

Like the policies of other companies, ABI's guidelines specifically address responsible drinking outside of working hours at events hosted by the company and also drinking and driving. Intoxication while operating a motor vehicle is not tolerated; this applies to all motor vehicles, including company vehicles and rental vehicles used for work purposes. The policy also pays particular attention to those employees who execute so-called "at risk" functions, such as sales people and professional drivers.

Employee education and awareness

A second element, also laid out in the ILO code of practice, is the inclusion of education and awareness building programs that can be applied in the workplace. These programs are intended to educate employees about alcohol, its effects on the body, the impact of drinking on performance and health, as well as about laws that may exist in their country. Alcohol education initiatives are intended to encourage employees to make informed choices about their drinking within the proscribed parameters laid out in the policy itself. Training for employees is widespread, whether through company websites or seminars, and regular refresher courses are required.

Diageo, the world's largest producer of beer, wine and spirits, includes in its policy and related efforts comprehensive tools for the education of the workforce about different aspects of drinking and the relationship between consumption patterns and outcomes (Diageo 2010a). Its responsible drinking website, DRINKiQ.com is intended to raise awareness and debate about alcohol issues. The global website has also been adapted for local use in 18 countries. Within the EU region, websites exist for Belgium, Germany, Greece, Ireland, Italy, Spain and the United Kingdom (Diageo 2010b). The DRINKiQ.com address is also included on all labels on Diageo products. While the sites are outward-facing, they are also aimed at Diageo employees and offer expert opinions and facts about alcohol, as well as a range of resources that are aimed at reducing alcohol misuse.

A DRINKiQ internal awareness initiative runs in parallel with the DRINKiQ.com website. Launched in 2005, it has been targeted to 18,000 Diageo employees around the world and is designed to assist them with making responsible decisions about drinking – or not drinking. The website is complemented through workshops for all employees (Diageo 2009).

Diageo also makes efforts to conduct internal evaluations of its policies around alcohol and the workplace. These are undertaken through employee surveys and provide feedback levels of knowledge about alcohol issues and subjective assessment by employees about whether the information provided through DRINKiQ helped to change their own drinking behaviors. According to Diageo, 87% of those who underwent the full DRINKiQ training reported being "better equipped" to discuss responsible drinking, and 72% were likely to change their drinking patterns as a result (personal communication).

Addressing employees at risk

The recognition that specific action must be taken to address those workers at risk for harm from drinking and those who have developed alcohol problems is also a key feature of workplace policies implemented by alcohol producers. Companies provide EAPs, as well as counselling and brief interventions, and, where needed, treatment for alcohol dependence. Efforts are made to address any problems while allowing employees to retain their jobs and the stability and care that are required.

The Cool@Work program of Heineken, one of the world's largest brewers, lays out the various areas where risk may be increased and intervention is required in order to improve safety and health in the workplace (Heineken International 2005). Every Heineken Operating Company, regardless of size or market of operation, is "obliged to implement an alcohol and work policy, to conduct a Cool@Work programme and to ensure Cool@Work refreshers every two years" (Heineken International 2005). All new employees are required to complete an induction program that includes information on responsible drinking, recommended drinking guidelines, the employee alcohol policy and the company's responsible marketing policy. Central to the program is the notion that "doing business and drinking alcohol do not mix" (Heineken International 2005).

Particular attention is devoted to risk among three groups of employees: the "safe group," the "at risk" group," and the "problem drinkers." Provisions for the "safe group" apply across the workforce and include information and instruction about drinking and outcomes. All employees are required to behave responsibly and to serve as "ambassadors" for the company, setting an example in both their professional and private lives. This particularly applies to management. It is assumed that most employees are moderate and responsible drinkers and fall into the "safe group."

Employees "at risk" include those whose drinking habits or job activities may increase the likelihood for harm, even at low levels of consumption – e.g., drivers and others working in transportation, sales personnel, laboratory personnel, operators, management, and shift workers. In some cases, they may be individuals who drink as part of their job. "In these cases clear norms and attitudes, information and education may be effective in changing risky drinking behaviours" (Heineken International 2005).

The third group is made up of identified "problem drinkers" – individuals who have demonstrated significant problems with their alcohol consumption, including absenteeism, (near) incidents, impaired productivity, reduced performance on the job, or impaired relations with other employees. For them the company requires the provision of Employee Assistance Programs (EAPs), treatment and rehabilitation, as well as support in order to help them manage their drinking and return to an acceptable level of performance.

Addressing high-risk contexts

Given that alcohol beverages are the core business of producer companies, special attention also must be given to those contexts that, while not directly the workplace, are associated with work-related activities. Companies pay particular attention to managing potential for harm that may be linked with events at which alcohol is consumed or with activities where it may raise risk for harm.

At the French distiller Pernod Ricard, also among the largest global producers and with operations around the world, workplace alcohol policies of all Operating Companies and subsidiaries are included in a broader framework that addresses responsibility around drinking while performing professional duties (Pernod Ricard 2006). The policy addresses different drinking occasions, both within the company (e.g., meals, tastings, internal celebrations), and outside the company (e.g., visits to clients, distributors, or foreign markets, public relations, sales and other meetings, business meals and entertaining). These various

circumstances can present risk related to uncontrolled or inappropriate alcohol consumption, and particularly – but not exclusively – to drink driving (Pernod Ricard Corporate Alcohol Policy, internal communication).

"Responsibility for the workplace" includes the issue of drinking, potential problems, and job performance, which the company recognizes as a particular area for concern, given its role as a producer of alcohol beverages (Pernod Ricard Nordic, internal communication). Drinking and driving is one key area of focus. Employees who have been drinking are required to take a breathalyser test before driving.

Recognizing the number of employees, contractors and partners who drive for professional (commercial) reasons, the company's French operation and its two subsidiaries Pernod and Ricard have established a Road Safety Charter (Charte de Sécurité routière) (Pernod Ricard & Délégation Interministérielle á la Sécurité routière, 2002). The Charter requires education of employees about road traffic safety and compliance with laws. Compliance is mandatory for all company employees, and also applies to the sales force; sanctions are specified against employees who are in breach of either law or company code. It also specifies the use of breathalyzers and the use of sober designated drivers. Where this is not a viable option, employees are required to spend the night in a hotel in order to avoid driving while intoxicated.

The establishment of the Charter was, in part, aimed at decreasing the number of accidents involving employees of Pernod Ricard. An evaluation of the impact of the policy showed that between 2002 and 2006, involvement of company employees in road traffic crashes (both alcohol-related and not involving drinking) fell by 51% (Pernod Ricard, personal communication).

Another area that receives particular attention at Pernod Ricard and in other companies relates to work-related entertaining, whether internal or external, that are organized by the company and its employees, and where alcohol is consumed. Producers recognize a particular need in this area, given the nature of their core business.

The code covers planning of events, including compliance with licensing and age limits, as well as wording to be included on invitations that encourages responsible drinking. In addition, event hosts are required to ensure that food and water are served, and that the period during pre- and post-dinner drinks are served be limited. It is also the responsibility of the host to provide taxis and transportation, where possible. The policy also makes it clear that "employees are expected to be able to perform their role the following morning" (PRUK 2009).

While these approaches have been developed and applied within one particular industry, they are easily transferable to other workplace settings and contexts. Employee policies used by alcohol producers are not industry-specific. The information provided about alcohol and its relationship with health and social outcomes, as well as the concept of addressing groups of employees with different risk levels and working in particularly risky contexts can also be applied in other sectors.

7. GAPS AND CHALLENGES

While the workplace offers a powerful access point for addressing alcohol-related harm, there are many challenges that exist in how workplace interventions are applied across industries. Some of these challenges are external, relating to social and economic conditions, while others are internal. The effectiveness of workplace interventions hinges upon overcoming these challenges; indeed, the very evaluation of interventions is, in itself, a challenge.

7.1 Impact of workplace size and employment status

Since the implementation of workplace programs is left in the hands of employers and is voluntary, there is wide disparity in the level and quality of interventions. Among employers, large corporations are the most likely to have both policies on alcohol and the workplace and structures in place for making available appropriate interventions and treatment. It might be argued that one of the benefits of globalization is that large corporations working across many geographic regions are in a unique position to apply international standards in a range of areas, including health promotion to employees across all of the markets in which they operate.

However, according to Eurostat figures only about 30% of the non-financial workforce in EU-27 countries was employed by large companies in 2007, with the remaining 70% working for micro, small, or medium-sized enterprises (SMEs) (Eurostat 2011). The relative proportions of the workforce employed in each vary considerably across individual countries. As a result, there is wide disparity in scope and coverage of workplace alcohol programs, due to available resources and their allocation. At the same time, the cost of negative outcomes of alcohol misuse in the workplace is relatively higher for and the impact more strongly felt by smaller businesses.

Not only is a significant proportion of the global workforce employed by smaller enterprises, but globalization and accompanying economic competition have resulted in important shifts in the workforce. There is an increasing tendency towards a more flexible workplace structure through outsourcing, subcontracting and short-term contracts in an effort by companies to cut overhead costs. This means a loss for workers of entitlements and benefits that generally come with full-time employment (OECD 2002; UNDESA 2007). According to the International Labour Office (ILO) (2002), between 50 and 70% of all workers in developing countries are engaged in work in the informal sector through casual jobs or self-employment. While rates are not as high in the EU region, as Table 5 shows, a sizeable proportion of the workplace is not in fixed or full-time employment. Self-employment and part-time employment rates in the EU are high and likely to grown further, particularly during times of economic downturn.

This shift towards a more flexible workforce also has implications for health and wellness, particularly for those programs that, like interventions around alcohol misuse, can be implemented through the workplace. In many countries state-sponsored social systems have shrunk, leaving a potential gap in coverage. Where countries have moved from state socialism to a market economy, new and effective healthcare has often not replaced former state-operated health systems (ILO 2003). An additional challenge is posed by the current economic downturn that is compelling some countries to further reduce state funded health services and programs. At the same time, many businesses may be reluctant to invest in services or to engage external providers. Ironically, periods of economic downturn, which bring with them job cuts and layoffs, are arguably a time when efforts around alcohol abuse

are particularly needed, as they coincide with an increase in alcohol problems (reviewed in the report in Part I).

7.2 Barriers to workplace interventions

Ethical considerations may present a challenge to the implementation of workplace programs to address alcohol abuse and problems, as well as other lifestyle issues. The ethical dilemma posed by such interventions and by remedial measures is that they may be seen as an invasion of employee privacy. While some countries in the EU (e.g., Sweden, Norway, Netherlands, United Kingdom) allow testing for alcohol and drugs in the workplace, this may only occur in narrowly defined circumstances and random testing is virtually unknown (ILO 2009). No specific EU legislation or guidelines exist (Agius & Kintz 2010). Trade unions play an important role in safeguarding the privacy of their members. Programs around health and lifestyle issues are often contentious, particularly as regards disciplinary measures, confidentiality and disclosure issues (Ames et al 1992; Verstraete & Pierce 2001).

The assessment of effectiveness of particular approaches to intervention is hindered by issues around confidentiality and privacy. Information about employees in EAPs or treatment, for example, may be protected by privacy laws and figures difficult to obtain. Even efforts to ask relevant questions through questionnaires, for example, about current or previous alcohol consumption patterns, are considered an invasion of privacy (ILO 2009). These constraints make evaluation of how effective workplace programs are difficult.

Culture is also at times a barrier to implementing workplace policies and interventions. Local culture and custom around drinking have a significant impact on tolerance of workplace drinking and drinking, overall. Definitions may vary across cultures with regard to what is considered “alcohol abuse,” “moderate,” “problem” or “heavy” drinking and what lies within acceptable limits. Variation also exists across definitions used in official drinking guidelines (ICAP 2011). Much research has been devoted to describing these variations and to developing instruments that are valid across cultures and allow comparison. These different perspectives also have an impact on the perceived need for policies and interventions and the degree to which they are applied.

A more narrow definition of culture, as relates to enterprises themselves is also relevant. Workplace culture can be an organizational barrier. In some work settings, management does not consider addressing alcohol problems and harm in the workplace to be a sufficiently high priority (Bell et al 1996). Drinking in the workplace may be tolerated, and management may turn a blind eye to problems. Other working environments may foster a view of team spirit and camaraderie that involves drinking – whether on or off the job. Where national laws on drinking and the workplace exist, these, too may not be adequately enforced.

8. CONCLUSIONS

The workplace offers a useful intervention point for addressing alcohol-related problems and related harm because it allows access to a large segment of the working-age population, and can be used to identify individuals at increased risk, as well as high-risk contexts. Understanding the relationships between drinking patterns, contexts, and risk also offers options to modify those workplace characteristics that are associated with problematic drinking, and to tailor interventions for particular situations where risk for harm may be increased.

Workplace interventions can be used to address drinking in the workplace itself, as well as drinking that occurs outside the workplace but with an impact on the work environment, productivity, and employee relations.

There is wide disparity in coverage and scope of workplace policies.

- In the absence of common standard across the EU and variation across countries in how alcohol is addressed in the workplace, policies and interventions are largely voluntary, left to the discretion of employers.
- Large employers are more likely to address alcohol in the workplace than smaller employers, due largely to human and financial resources required for implementation.
- Part-time employees and those who are self-employed are not likely to have access to interventions aimed at alcohol problems, leaving a potentially increasing number of employees without available options.

Employers can play an important role in addressing alcohol-related harm through the workplace, an opportunity to reduce direct costs and also to demonstrate corporate social responsibility.

- Examples of good practice exist across a range of industries. Producer companies of alcohol beverages provide a useful example of what is being done, and similar approaches can be replicated across other industries.
- Research is needed into how access can be improved across workplaces, for example, through incentives for smaller employers.

Clear written policies are the basis for addressing alcohol issues in the workplace. Most places of employment are generally alcohol-free, but policies may also extend to employees' behaviour outside the workplace or may devote particular attention to risk.

Workplace policies can be complemented by interventions that provide education and awareness, access to treatment or counselling.

- While these interventions are widely applied, the evidence around their effectiveness in dealing with alcohol problems is weak.
- Additional research is needed to examine the effectiveness and cost-effectiveness of various interventions.

However, data on the impact of individual interventions may be difficult to obtain. Information about employees enrolled in particular intervention programs, for example, may be protected under confidentiality rules.

The complexity of addressing alcohol abuse in the workplace and through the workplace requires a broad and interdisciplinary approach that brings together the efforts of employers and other stakeholders. Multi-stakeholder partnerships are desirable to improve current approaches and introduce greater consistency in implementation.

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ANNEX I

European Alcohol and Health Forum request to the EAHF Science Group for scientific advice on:

Reducing the negative impact of harmful and hazardous alcohol consumption on the workplace

1 Background

1.1 EU Strategy to reduce alcohol-related harm

In the *EU strategy to support Member States in reducing alcohol related harm*[3], five priority themes are identified, which are relevant in all Member States and for which Community action to complement and coordinate national policies has added value:

1) protect young people, children and the unborn child;
2) reduce injuries and deaths from alcohol-related road traffic accidents;
3) prevent alcohol-related harm among adults and reduce the negative impact on the workplace;
4) inform, educate and raise awareness on the impact of harmful and hazardous alcohol consumption, and on appropriate consumption patterns;
5) develop, support and maintain a common evidence base.

The extent and nature of negative impact of harmful and hazardous alcohol consumption on the workplace was addressed in background work carried out in the preparatory phase of the Strategy. Two pieces of work brought together new information: *An ex ante assessment on the economic impact of the different policy options*[4] carried out by RAND Europe and the report *Alcohol in Europe*,[5] produced by the Institute of Alcohol Studies. Some of the conclusions were summarised in the *Impact assessment report*[6] accompanying the Strategy:

- Harmful and hazardous alcohol consumption has a negative impact on working capacity and productivity.
- Consumption of alcohol at the workplace increases the likelihood of occupational accidents and also increases the rate of various types of occupational diseases.
- Alcohol dependence and heavy drinking tend to lower productivity and increase absenteeism, can lead to unemployment or early retirement, and increase the risk of social and economic harm.
- Absenteeism combines a loss of productivity with continued wage payments, thus raising the costs of production.
- Unemployment involves a social cost that is not balanced by an individual economic contribution, thus imposing a negative externality on (working) taxpayers.
- The links between productivity, earnings, and employment opportunities are obvious at an individual or microeconomic level. Macroeconomic analysis shows a weaker link as it deals with the marginal rather than the absolute or average effect.

[3] Communication from the Commission of 24 October 2006, "An EU strategy to support Member States in reducing alcohol-related harm", COM(2006) 625 final.
[4] Horlings E. & Scoggins A. An Ex Ante Assessment of the Economic Impacts of EU Alcohol Policies. RAND Europe, 2006.
[5] Anderson P. and Baumberg B. Alcohol in Europe. Institute of Alcohol Studies, 2006.
[6] Impact assessment on a Commission communication on An EU strategy to support Member States in reducing alcohol related harm (SEC/2006/1411).

The negative impact of harmful and hazardous alcohol consumption on the workplace is a cross-cutting theme that has been addressed within all coordination structures set up by the Commission to support the implementation of the EU Alcohol Strategy. [7]

- A broad range of actions are being deployed in Member States to reduce alcohol-related harm among adults and in the workplace.
- Within the framework the Community strategy on health and safety at work, several projects have taken forward the need to reduce the impact of alcohol related harm on the workplace.
- The Committee on Data Collection, Indicators and Definitions has sought to identify possible indicators for assessing and monitoring workplace-related harm across the EU.
- Workplace aspects in the alcoholic beverage production and distribution sectors are addressed in some of the commitments for action to reduce alcohol-related harm by members of the European Alcohol and Health Forum.[8]

With reference to the current economic climate and to loss of productivity due to harmful use of alcohol, it is noted in the first progress report that a particular emphasis on the EU Alcohol Strategy's third priority should be given in the work ahead, and new ways to support people in the workplace should be developed.

2 Terms of Reference

The European Alcohol and Health Forum asks the Science Group to provide [by…] a summary of the evidence base and advice for possible actions by Forum members to address the Strategy's goals of preventing alcohol-related harm among adults and reducing the negative impact on the workplace.

As a starting point, Forum participants and national government representatives will by end April provide the Group with what they believe to be relevant input on their own activities and on the national policy, cultural and legal context for current programs and policies around alcohol and the workplace.

From those materials, the documents referenced here and any relevant studies since the publication of the Alcohol in Europe report in 2006, the Group is asked to provide:

1. A quantification of the impact on alcohol on the workplace, and an evaluation of the effects of the productivity of the EU workforce.
2. A concise overview of the current state of play across Europe, highlighting key trends and/or any variations in national or sector experiences as well as between larger or smaller workplace settings.
3. Any pointers towards:
    a. High value options for additional research or collection of additional data and indicators;
    b. Effective approaches to consider for wider deployment in more workplace settings, including any guidance as to the need for prioritisation of action targeting particular sectoral, professional or age specific groups.

[7] First progress report on the implementation of the EU Alcohol Strategy. Directorate-General for Health & Consumers, 2009.
[8] http://ec.europa.eu/eahf/index.jsp

ANNEX II

List of materials provided by members of the European Alcohol and Health Forum to the attention of the Science Group

Guidance, tools and templates

- Alcohol and the workplace in the European Union: An exploration. Quest for Quality, 2005.
- Alcool au travail. Entreprise & Prévention, PPT, no date.
- Link to CD: http://www.preventionalcool.com/index.php?/alcool-a-travail/alcool-a-travail/
- Drug demand reduction in the workplace. European Monitoring Centre on Drugs and Drug Addiction (EMCDDA), 1997.
- ENWHP Toolbox: A European collection of methods and practices for promoting health at the workplace. European Network for Workplace Health Promotion, 2004.
- Management of alcohol- and drug-related issues in the workplace. International Labour Office, 1996.
- Collective Labour Agreement CAO no. 100: an alcohol and drug prevention policy in the company. VAD, PPT, 2010.

Case examples

- Alcohol policy model at places of education and the workplace. Goda for Carlsberg, no date.
- A national programme on harmful alcohol consumption & drug abuse in the workplace. EPIC Programme Ireland ltd, 2004.
- Alcool et vie professionnelle: mode d'emploi. Moët Hennessy, brochure, no date.
- Employee alcohol policy. SABMiller, 2009.
- Employee alcohol policy: guidance notes. SABMiller, 2008.

Transport safety

- Charte de sécurité routière. Pernod Ricard, 2002.
- Reducing road safety risk driving for work and to work in the EU: An overview. European Transport Safety Council (ETSC), 2010.

Other

- Alcohol and Workplace – a bibliography produced by the Brewers of Europe, no date.
- Alcohol & the workplace: A European comparative study on preventive and supporting measures for problem drinkers in their working environment. SOLCO S.r.l., no date.
- Prohibition to serve and to consume alcohol beverages at the workplace: Jobs and professions at risk. Agreement between the Italian State and Regional Governments, 16 March 2006.
- Short summary of the Italian approach to addressing alcohol in the workplace, no date.
- The contribution made by beer to the European economy. Ernst & Young for the Brewers of Europe, 2009.