

## CHAPTER 9. ALCOHOL INTERVENTIONS AND TREATMENTS IN EUROPE

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### Summary

This research focuses on six European countries (Austria, England, Germany, Italy, Spain and Switzerland) in order to assess similarities and differences in four main areas relating to, and influencing, service provision for alcohol use disorders (AUD), service utilisation, impact and cost-effectiveness of brief interventions and specialist treatment for alcohol use disorders.

Semi-structured questionnaires were designed for key clinical and policy experts, to provide a fuller picture of treatment systems including the availability of strategies, protocols, care pathways, prevalence, historical context and common barriers and facilitators for provision. Practitioner attitudes were then examined via two surveys for general practice and accident and emergency settings. Finally, data were extracted from the country reporting in element one – and sourced elsewhere, where necessary – in order to estimate the gap between need for, and access to, specialist alcohol treatment for each country.

We found a diverse provision of alcohol interventions in the key informant study, with devolved responsibility for alcohol treatment policy and significant private health insurance involvement being important contributors to this diversity. Considerable variation existed in the demographics of general practitioners, and in their knowledge of screening and intervention tools, although attitudes to working with alcohol misusers were similar and largely positive. Prevalence of alcohol dependence varied greatly; Italy and Spain having the lowest, and Switzerland the highest. England had the highest number of people accessing specialist treatment and Switzerland had the lowest.

The results from meta-analyses of screening and brief intervention for hazardous and harmful alcohol consumption for trials conducted in primary care and emergency department settings both indicated significant effects in favour of brief intervention when compared to a control group. This overall effect is significant for trials conducted in both Europe and the rest of the world at 6 and 12 month follow-up. In terms of specialist treatments for alcohol use disorders, sufficient evidence to enable sub-group meta-analysis for Europe and the rest of the world comparing the effectiveness of the psychological therapies Motivational Techniques and Cognitive Behavioural Therapies was not available. This was due to heterogeneity in the study methodologies and their measurement and reporting of treatment outcomes. There was little conclusive evidence provided by the sub-group analysis that there is a significant difference in efficacy of acamprosate and naltrexone between studies conducted in Europe and the rest of

the world. In terms of cost-effectiveness of alcohol interventions, presenting a meaningful comparison and summary of the health economic evidence is difficult due to a lack of relevant studies as well as methodological differences across studies including the types of comparator treatments considered, the study populations, and importantly, the costs and outcomes reported.

Results, and particularly variation in prevalence and access to treatment, should be interpreted with caution, as the data collection methods vary considerably between countries. Meaningful comparison is therefore limited. The devolution of health systems and powers appears to exacerbate this problem, with fragmented or incompatible monitoring systems. Clear guidance should be provided to all countries on how to improve and more accurately assess the public health impact of alcohol interventions including improved monitoring systems for alcohol brief intervention and treatment activity, and comparable measurement of the prevalence of alcohol use disorders across Europe.

## Introduction

This research takes as its starting point the existing extensive international research that has been carried out on brief interventions and treatment for alcohol use disorders over the past 20 years, much of it pioneered in Europe. The WHO Collaborative research programme on identification and management of alcohol problems concluded recently with a Phase IV international project on implementation of screening and brief interventions (SBI) for hazardous and harmful drinkers, involving several European countries: the *Primary Health Care European Project on Alcohol* (PHEPA), on implementing brief interventions in Europe (PHEPA, 2009). This work built on earlier phases which variously identified a valid screening tool for alcohol use disorders - the AUDIT questionnaire (Babor et al., 2001) - in addition to identifying studies on the efficacy and effectiveness of screening and brief intervention (SBI) as an intervention, and research on optimal methods for its implementation.

There is an extensive international literature on the effectiveness of SBI. Most recently a Cochrane review (Kaner et al., 2007) confirmed that SBI is highly effective in reducing hazardous and harmful alcohol consumption and health costs in primary health care (PHC) settings. There is also growing evidence of effectiveness in other health settings including accident and emergency departments (Dinh-Zarr et al., 2004; Crawford et al., 2005), and growing evidence of cost-effectiveness of these interventions (Chisholm et al., 2004; NICE, 2010). This and other evidence has recently led to the UK National Institute for Healthcare and Clinical Effectiveness (NICE) to recommend widespread implementation of SBI in the National Health Service (NICE, 2010).

Most research on the implementation of alcohol interventions in Europe has been restricted to SBI (Drummond et al., 2011). However, several reviews have taken place of the international literature on effectiveness of specialist treatment for people with alcohol dependence. A recent review by NICE in England concluded that various forms of specialist treatment (including psychosocial and pharmacological interventions) are both effective and cost-effective in harmful drinking and alcohol dependence (NICE, 2011). This review also emphasised the need for coordinated systems of care for people with alcohol use disorders (AUDs), offering a stepped care approach to deliver the most appropriate interventions to the in-need population in a cost-effective way. Therefore across the spectrum of severity of alcohol problems, there is clear evidence of the effectiveness of these interventions, at an individual level.

However, four clear gaps exist in considering the contribution of individually directed alcohol interventions as a public health measure to reduce harm caused by alcohol in Europe:

1. Alcohol treatment system characteristics: Health care utilization varies greatly across European countries, as does the nature of services (European Commission, 2004). These differences in implementation and utilization are likely to be due to political, financial, practical and ethical considerations; however there is a lack of comparative data on variations in alcohol treatment systems across European countries (Drummond et al., 2011). A comparative study of characteristics of treatment systems across European countries – and the country-specific factors facilitating or hampering implementation – could lead to improved guidance on optimal implementation methods.
2. Barriers and facilitators to implementation of SBI in Primary Health Care and Emergency Department settings: This study builds on previous studies and reports of attitudes towards and practices of SBI among GPs and primary care nurses in England (Deehan et al., 1998; Kaner et al., 1999; Lock et al., 2002; McAvoy et al., 1999) and in Europe (Anderson et al, 2003; 2004). There is evidence that implementation of SBI is related to practitioners' attitudes, and that these attitudes can be influenced by appropriate training and support. Attitudes to SBI and managing patients with AUDs may vary from one country to another across Europe, though commonalities are also to be expected, and are equally interesting and important; Identification of barriers and facilitators is the first step to developing optimal methods of implementation.
3. The gap between need for and access to interventions for alcohol dependence: The findings of a recent literature review of existing research on the prevalence of AUD and availability of interventions across Europe has pointed to key gaps in knowledge relating to European alcohol interventions, including a lack of comparative data on the prevalence of AUDs across European countries and the relative gap between need and access to treatment (Drummond et al., 2011). A recent needs assessment study in England (Drummond et al., 2005) found that only 1 in 18 (5.6%) of alcohol dependent drinkers in the general population actually accessed treatment per annum with regional variation from 1 in 102 to 1 in 12. Previous North American research suggested an access level of 1 in 10 was "low", in public health impact terms (Rush, 1990). Several studies have also shown that only a small minority of hazardous and harmful drinkers who could benefit from brief interventions are identified or treated (Kaner et al., 1999; Cheeta et al., 2008). An increase in access to interventions could potentially have a major public health impact. Yet, despite the fact that developed needs assessment methodologies exist, and have been utilised in some places (Drummond et al, 2005; Drummond et al, 2009; Rehm et al., 2012b), there has been little use made of this methodology across European countries, and there has been no purpose-designed EU-wide alcohol needs assessment conducted to establish the gap between need and access to interventions for AUD in different countries (Drummond et al., 2011). Finally, a clear demonstration of the cost-effectiveness of interventions (cost offset) across European countries could provide a rationale for increased spending to support more widespread implementation.
4. Impact and cost-effectiveness of interventions and treatments for alcohol use disorders across Europe: In previous meta-analyses, data from European trials have typically been combined with data from the rest of the world, where the health systems in which treatment is delivered may be very different from Europe. Such variations may be a function of the way in which the interventions and specialist

treatments are delivered (expertise and training of staff), the context of the treatment system and background treatments being provided (e.g. setting, intensity, elements of care), or the characteristics of the subjects recruited into different trials (e.g. severity, demographics), or a combination or interaction between these factors (Drummond et al., 2011). Additionally, the cost effectiveness differences between European countries are not typically distinguished from cost-effectiveness analyses compared to the rest of the world, and there are only a few studies dedicated to understanding the economic benefits of alcohol interventions (McCollister & French, 2003).

### What we did and what we found

Under this work package of the AMPHORA project, a set of studies were carried out to address all four of the points above. The work comprised several linked research projects, conducted over 4 years, and has six core participating European countries (Germany, Italy, Spain, Switzerland, Austria and England).

#### 1. Descriptive study of alcohol intervention systems in six European countries

This work-stream sought to describe the systems of early intervention and treatment for AUD, in order to provide comparative information on approaches and the extent of their implementation across the six participating countries. Data collected was used to identify similarities and differences in the systems of provision of SBI and treatment for AUD. System level factors contributing to the effective implementation and public health impact of alcohol interventions were also identified, in order to inform future European public health action on alcohol. Information obtained was both qualitative and quantitative and provides a context for subsequent linked research.

#### Methods (what we did)

Key informants were identified in each participating country, including: government officials; senior public health specialists with a remit for alcohol treatment provision; senior alcohol treatment service providers; senior primary health practitioners involved in the implementation of early identification and interventions for hazardous and harmful drinkers. This process was assisted by core AMPHORA investigators, additional collaborators, and contacts from within PHEPA, the European Working Group on Treatment Alcohol Dependence, and the World Health Organisation (WHO). Initial interviews were conducted to ascertain appropriateness of the selected key informants, and to encourage positive engagement.

A formal literature search of available published and unpublished official information on provision of alcohol interventions in the participating countries was conducted, supplemented with advice from the key informants.

Semi-structured questionnaires were developed in order to collect comparable information for each country based on previous published and on-going work mapping the provision of alcohol interventions, including PHEPA, UK National Audit Office (2008), and WHO (Babor & Poznyak, 2010). The contents and terminology were examined and discussed in order to maximise comprehension and retain cultural or contextual accuracy. In most cases the questionnaire was posted in advance of the interview, to ensure completeness of data provided.

Qualitative and quantitative data was sought on a range of issues including: present and historical provision of alcohol interventions; policy initiatives to increase implementation of alcohol interventions and their impact; comparable data on annual spending relating to

alcohol interventions across the spectrum of care provision (based on the intervention categories, or “service tiers” as described in *Models of Care for Alcohol Misusers* (Department of Health, 2006); comparable data on numbers of individuals identified and receiving alcohol interventions; information on available materials and methods to deliver alcohol interventions (including services, prescribed medication, psychosocial interventions, training, protocols and tools); descriptive information on typical care pathways for AUD; identification of barriers and facilitators to the implementation of alcohol interventions; and key informants’ perceptions of the extent to which alcohol intervention have been successfully or otherwise implemented in their respective countries, and reasons for this.

### Results (what we found)

Six country reports were produced on the findings from key informant interviews, and these were collated into a final comprehensive report, which provided comparisons across countries, where possible, given the variations in formats of information and availability of comparable data (Wolstenholme et al., 2013).

Table 1 summarises the health systems and treatment provision for AUD across the 6 countries. Most countries (83.3%) were able to report having some alcohol service mapping mechanism in place, to describe current alcohol service provision, however only half (50%) had a formal national alcohol strategy which included alcohol service provision. All countries were able to provide examples of initiatives designed to increase implementation of alcohol interventions, however the success rates and impact of these initiatives was less straightforward to demonstrate or compare, as each country used different methods of data collection. Likewise, data on annual spending is collated and estimated in different ways in each country. Indeed, the more federalised state structures found it difficult to collate all regional data to inform an overall national picture.

The availability of materials and methods to deliver alcohol interventions is described in Table 2. It can be seen that most of the countries had access to appropriate methods to deliver alcohol interventions, although the extent to which this was the case or was actively promoted, varied between countries.

Drawing meaningful comparisons on national prevalence rates of AUD and numbers receiving an alcohol-specific intervention presented challenges. Data is available across all countries on patients who have received specialist treatment in a range of settings, but methods of coding and recording are different, some using primary or secondary alcohol-attributable diagnoses, or number of people entering treatment for AUD within a year, or hospital discharge diagnoses. In the case of hospital discharge diagnoses it is unclear if patients identified with alcohol dependence actually received an alcohol intervention as opposed to being in hospital only for treatment of a physical illness (e.g. alcoholic liver disease). The resulting between-country comparisons are therefore less robust than would be ideal.

**Table 1. Health systems and treatment for AUD (of the six participating countries)**

	Provision of screening and brief interventions, for hazardous/harmful drinking	Provision of specialist treatment for alcohol dependence	Health system funding sources	Treatment monitoring systems in place	Availability of a national alcohol strategy (including aspects of service provision)	Existence of decentralisation in the health system
<b>Austria</b>	No	Yes: mainly residential setting (units/hospitals), though moving towards outpatient	Social insurance, Government / tax (local, regional, national), private insurance and co-payments	Not specifically mentioned, but hospital discharge data available	No: moves afoot to develop but still some way off	Yes 9 Länder and very decentralised. Plus multi-layered health systems.
<b>England</b>	Yes: primary Health Care, A&E and out of hours	Yes community based or residential, psychosocial, detoxification and stepped care - some also treat physical and mental comorbidity	Government / tax and out-of-pocket/copayments	Yes: NATMS	Yes: little if any service provision	Yes: strategic Health Authorities, and potentially more so with new structures due in the present reorganisation of National Health Service
<b>Germany</b>	SBI programmes do exist but are rarely implemented	Yes: outpatient, inpatient and rehabilitation. Past decade has changed to shorter and more intensive package of care	Social insurance	Yes	No	Yes 16 Bundesländer
<b>Italy</b>	Yes: primary health care – GPs only, but rarely implemented	Yes: mainly outpatient: Specialist addictions clinics, departments or hospital - medically assisted and psychosocial. Inpatient by not for profit orgs recognised by NHS	National and regional taxes, and co-payments. Private insurance does not play a significant role due to the universal coverage of the NHS	Yes	Yes: including aspects of service provision	Yes: 21 regions and 145 Local Health Authorities (ASLs)
<b>Spain</b>	Yes: primary Health Care and increasingly in other medical settings, and outpatient and inpatient units in mental health units	Yes: outpatient and inpatient . Therapeutic communities. Mutual aid and self-help connect with health care institutions	Tax	Yes	Yes: but contains nothing on service provision	Yes 17 autonomous communities
<b>Switzerland</b>	Yes: widespread, undertaken by most disciplines but not officially driven	Yes: range of inpatient, outpatient, medical and psychosocial. Demand for large scale treatment has reduced and system of care has updated over past 10yrs	Tax, health insurance, and a mixture of other funding sources (depends on the particular service and setting). Access at almost no cost to patient	In some single Cantons only	Yes (in the form of a national program, which is the forerunner to a strategy. But not much by way of service provision)	Yes 26 Cantons This is a big factor in the variation and fragmentation of the treatment on offer

Countries were able to provide little recorded or monitored information on SBI taking place within non-specialist settings compared to specialist treatment episodes. Formalised care pathways and treatment protocols are similarly better documented for people with alcohol dependence than those with hazardous and harmful use of alcohol. Many common experiences were shared across countries as to which were the barriers and facilitators in implementing alcohol interventions, including attitudinal, fiscal, administrative or political factors.

**Table 2. Summary of availability of materials and methods to deliver alcohol interventions (this table states whether examples have been provided for each of these categories)**

	Austria	England	Germany	Italy	Spain	Switzerland
a) Materials, methods, screening tools	YES	YES	YES	YES	YES	YES to some degree, but not promoted
b) Interventions: used & promoted in practice	YES	YES	YES	YES	YES	YES
c) Number of service providers delivering alcohol interventions (stat/non-stat)	YES	YES	YES	YES	YES	YES
d) Pharma products: licensed and available	YES	YES	YES	YES	YES	YES
e) Psychological interventions available	YES	YES	YES	YES	YES	YES
f) Service provider workforce training (& any national initiatives to promote training)	NO (very small number)	YES	YES	YES	YES	YES
g) Protocols or tools, promoted to deliver effective alcohol interventions	Yes	YES	YES	YES	YES	YES
h) National review of effectiveness of treatment, or published national standards in treatment delivery	NO	YES	NO	YES	NO	NO
i) Internet based interventions	YES	YES (but not to a great extent)	YES	NO	YES	YES
j) Internet based resources for professionals	YES	YES	YES	YES	YES	YES
k) Extent of role of mutual aid and/or self-help	YES	YES	YES	YES	YES	YES

Common themes regarding barriers to implementation of alcohol interventions were identified across countries. These included low awareness of risk and related harm due to alcohol in the general public and health care system; lack of education of health professionals on SBI; competing demands on health professionals' time; lack of dedicated funding allocation for alcohol interventions, particularly those extending beyond pilot or demonstration projects; organisational fragmentation; negative attitudes and low motivation towards treating alcohol misusers amongst health professionals; a lack of clear implementation strategies; a lack of dedicated staff to provide alcohol interventions, including both SBI and specialist treatment. Countries that had a more devolved administration for health care reported greater

fragmentation and poor national coordination of alcohol public health initiatives, including alcohol interventions. Countries with more substantial private health care insurance encountered particular problems in obtaining reimbursement for alcohol interventions, which were not viewed by some insurance providers as being as important as some other health care interventions. Some countries had a historically higher level of inpatient provision, compared to outpatient/community provision, than would be supported by the research evidence base.

Few countries identified positive facilitators for implementation of alcohol interventions. However some countries noted that the development of national monitoring systems was helping to inform health care commissioning in this area as gaps were identified. There were also some national initiatives described such as the Alcohol Improvement Programme, led by the UK Department of Health in England, and two countries reported specific training initiatives with medical students to increase their awareness of alcohol interventions and competence in delivering them.

Many of the barriers to implementation are common across countries. Roll-out of interventions is hampered in most countries by a lack of clear national strategy for training, funding and implementation. Several country respondents noted that the public health response to alcohol is some way behind equivalent initiatives towards tobacco and illicit drug misuse.

### Conclusions

In all areas of the research we identified considerable between-country variation in the organisation and provision of alcohol interventions. Countries that had more developed national alcohol strategies in relation to individually directed alcohol interventions appeared to achieve higher levels of implementation of both SBI and specialist treatment than countries without such strategies. The devolution of health care management and funding to a local level appeared to hamper implementation of effective public health strategies, although they may be more effective for other types of health care delivery for other disease conditions.

Since alcohol places a considerable health, social and economic burden on Europe, there is a need for a more concerted effort to implement SBI and more intensive treatment as part of the overall public health response. In order to assess the public health impact of these interventions and make comparisons between countries, there is a need for improved, and up-to-date, data on prevalence and service utilisation to support rational and cost-effective health care planning. Currently implementation appears to be based on relatively poor quality data, which is largely not comparable between countries in Europe, hampering meaningful evaluation of effectiveness and impact. A common standard of identified indicators would enable a better evaluation of the impact of alcohol interventions across countries.

As this project was conducted in some of the more developed countries in Europe, the situation in less developed countries with less data availability may be even more difficult to assess.

### Recommendations

The implementation and monitoring of individually directed alcohol interventions across all EU member states, including SBI and specialist treatment, should be considered at the European Commission and WHO Europe level to develop an improved public health response to alcohol. High on the list of priorities will be a harmonised Europe-wide system of estimating prevalence of alcohol use disorders and monitoring implementation of SBI and specialist alcohol treatment.

There is a need for clear clinical guidance on evidence-based specialist interventions for alcohol dependence to guide implementation across Europe. There is a need for greater training for health professionals in alcohol clinical management of alcohol use disorders from the undergraduate curriculum through to continuing medical education.

## 2. Survey of medical practitioners in primary care and emergency departments

We conducted a parallel series of national surveys of alcohol intervention service providers across the 6 countries. This included medical practitioners in primary health care settings (PHC) and accident and emergency departments (A&E). The aims of this study were to identify barriers and facilitators to service provision in PHC and A&E.

### Methods (what we did)

We aimed to survey a random sample of 100 primary care staff (general practitioners – one from each practice/surgery) in each of the six countries, using national databases and registers of primary care practitioners or selected from the relevant professional organisations. For A&E staff, we aimed to randomly select five A&E departments in each country. Twenty staff members from each department were invited to complete an online survey, or postal survey, or were interviewed over the phone. We aimed to interview 100 members of staff from a sample of randomly selected A&E departments in each country (600 in total). Staff members in each department were invited to complete an online survey, complete a postal survey, or were interviewed by phone. Tables 3 and 4, below, summarise the number of respondents for each country, sampling frame and methods used to collect this data. This provided a total of 683 primary care staff and a total of 468 A&E staff across the six participating countries. A survey was developed based on the recent UK (Kaner et al., 2008; Deluca et al., 2008), US and WHO surveys of health professionals on the identification and management of AUDs, which also included the Short Alcohol and Alcohol Problems Perception Questionnaire (SAAPPQ, Anderson and Clement, 1987).

**Table 3. Summary of the Primary Health Care survey methods**

Country	Method/s	Sampling	Completed
Austria	Email/online	5,000	103
Germany	Letter (and email)	800	103
Italy	Online	1,300	198
Spain (Catalonia)	Online	100 (centres)	74
Switzerland	Postal	500	102
UK (England)	Online/Phone	300	103
		Total	683

The SAAPPQ is a 10 item, 7-point Likert-type questionnaire measuring the attitudes of professionals towards the provision of care to those with alcohol use disorders. The SAAPPQ is a shorter version of the original AAPPQ (Cartwright, 1980). The SAAPPQ measures two

attitudinal dimensions – ‘role legitimacy’ and ‘therapeutic commitment’. ‘Role legitimacy’ refers to the way in which professionals perceive the adequacy of their skills and knowledge in relation to problem drinkers and how appropriate it is for them to work with such clients. ‘Therapeutic commitment’ refers to the extent to which professionals seek to engage drinkers in treatment and the extent that they find the work rewarding on both a professional or personal level (Gorman and Cartwright, 1991).

**Table 4. Summary of the Emergency Department survey methods**

Country	Methods	Number of A&E departments	Completed
Austria	In person, paper copy, email/online	35	96
Germany	Online, postal (and email)	40	10
Italy	Online, postal	16	88
Catalonia	Paper copy	5	97
Switzerland	Postal	14	71
England	Online	20	106
<b>Total</b>		130	468

Once finalized the survey was adapted and translated to meet different national languages and contexts. Participating staff either completed an electronic survey online, received an electronic version via email, received a printed copy by post, or were interviewed over the phone, in order to achieve the sample size as quickly and efficiently as possible. Data collected from each partner country were entered into a single SPSS file for analysis.

## Results (what we found)

### Primary Health Care

Table 5 shows the proportion of males and average age of the respondents across the six countries. The gender balance of respondents varied between countries, with the percentage of male GPs varying between 74.2% in Italy to 23.3% in Catalonia. Mean age of respondents also varied from 56.2 years in Italy to 46.5 years in England.

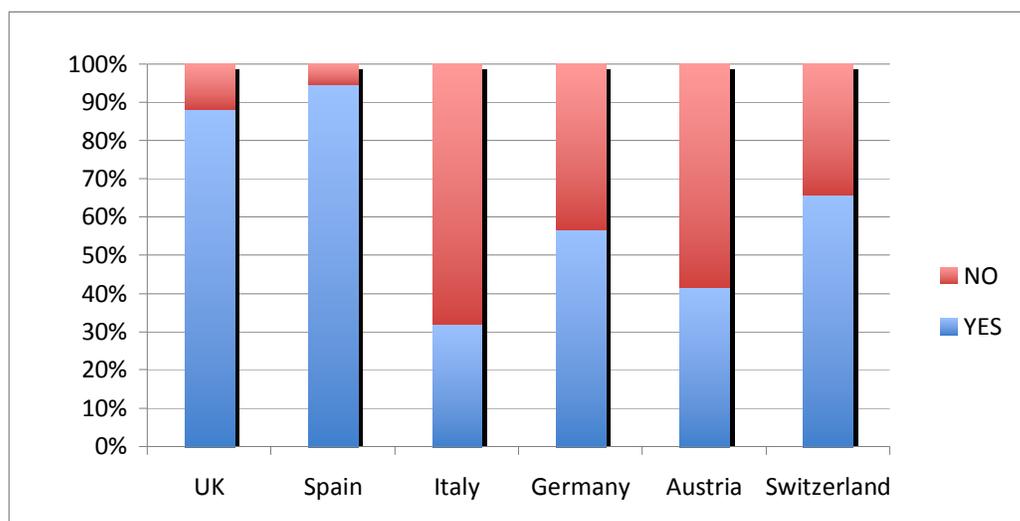
Number of patients seen each week by each individual general practitioner was highest in Austria (n=285) and lowest in Switzerland (n=98). However, when adjusted for the number of people seen, GPs in Switzerland were able to identify more people with AUDs (4.5%) than GPs from any other country (Table 5).

Table 5. Sample demographics and patients seen and screened positive for AUD per week

Country	Gender (% males) of respondents	Age (Mean) of respondents	Patients per week	Patients screen positive/week (%)
Austria	46.5%	55.2	285	6.54 (2.5%)
Germany	53.4%	53.8	203	7.76 (3.8%)
Italy	74.2%	56.2	117	5.18 (4.4%)
Spain (Catalonia)	23.3%	47.3	149	4.14 (2.8%)
Switzerland	61.8%	52.5	98	4.40 (4.5%)
UK (England)	52.4%	46.5	110	3.87 (3.5%)
Total (mean)	56.3%	52.7	154	5.34 (3.5%)

Figure 1 shows the proportion of GPs who are familiar with standardised alcohol screening tools such as FAST or AUDIT across the countries. Spain (Catalonia) and UK (England) were top of the list with 94.6% and 88.2% respectively. GPs in Italy are the least aware of standardised tools for the identification of people with alcohol problems.

Figure 1. Are GPs familiar with standardised alcohol screening tools?



Similarly the majority of GPs in Spain (Catalonia) and the UK (England) are more familiar with alcohol brief interventions. With this term we refer to interventions carried out in non-specialist settings, by non-specialist personnel and which are directed at hazardous and harmful drinkers who are not typically complaining about, or seeking help for, an alcohol problem. These interventions might vary in length from 5 minutes to 30/40 minutes, and from a single session to repeated sessions.

Figure 2. Are GPs familiar with brief interventions?

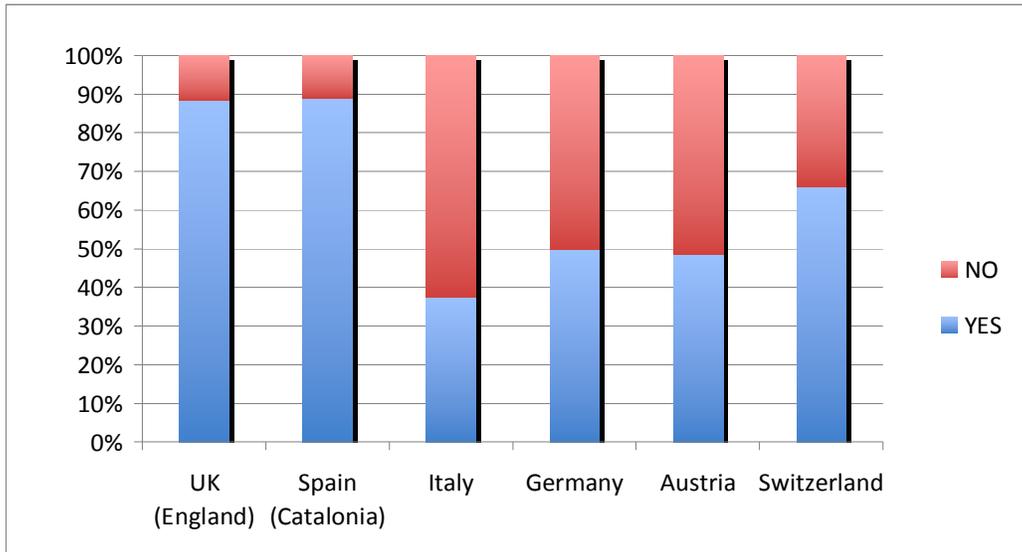
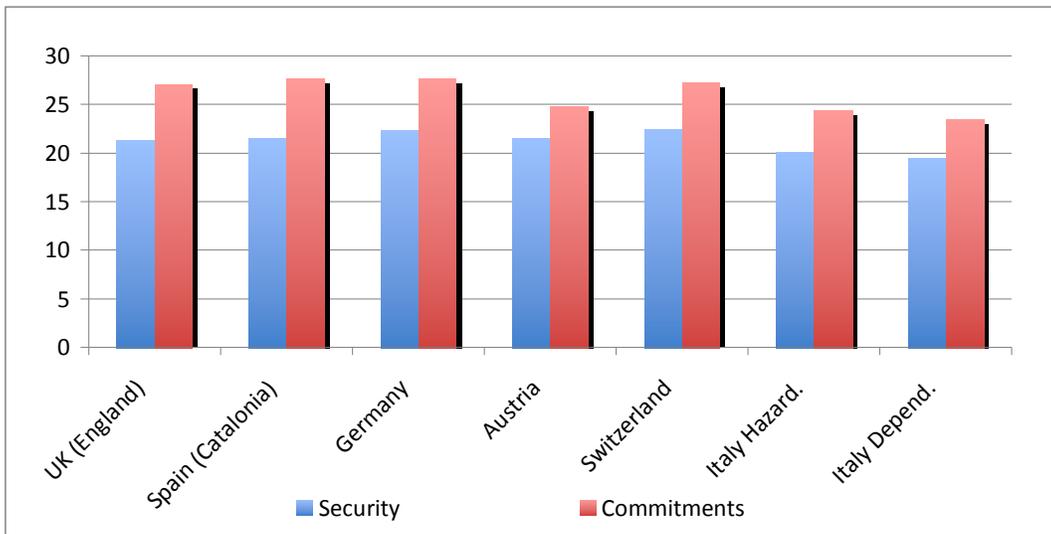


Figure 3 compares the subscale-scores of the SAAPPQ relating to Role legitimacy / Role security and Therapeutic commitment. These show no statistically significant differences between the respondents across countries.

Figure 3. GPs SAAPPQ score by country



**Accident and Emergency Departments**

Table 6 shows the gender and mean age of the respondents across the six countries. The gender of respondents varied between countries, with the percentage of male ED staff varying between 69.3% in Italy to 38.9% in Catalonia. The mean age of respondents also varied from 49.1 years in Italy to 34.7 years in Catalonia.

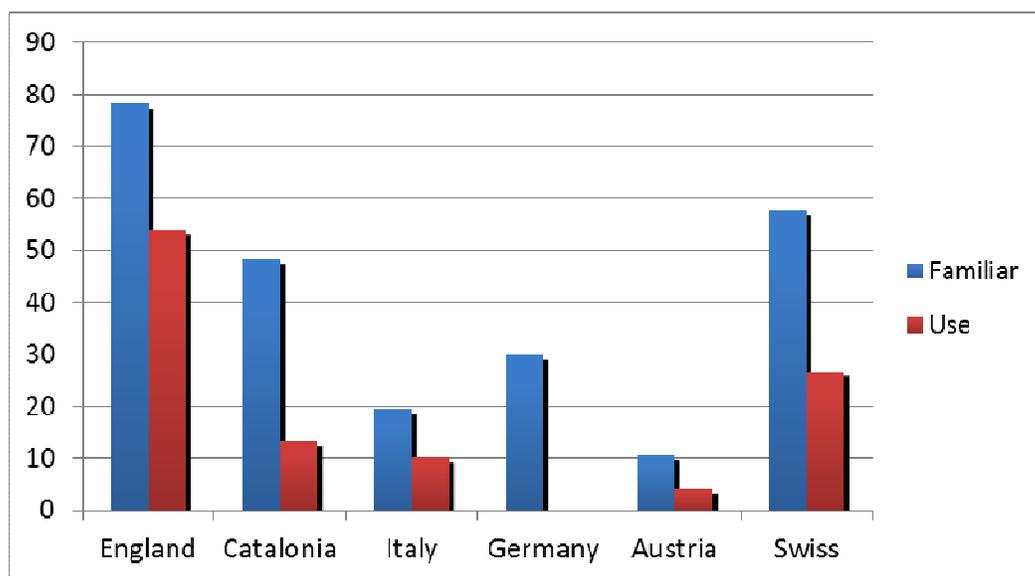
The total number of patients seen each week by each individual A&E staff member was highest in Austria (n=117) and lowest in Catalonia (n=40). The largest number of patients identified as positive for AUD in a 4-week period was highest in England (mean= 14.2) and lowest in Italy (mean= 4.7). However, when adjusted for the total number of people seen, A&E staff in Switzerland were able to identify a higher proportion of people with AUDs (6.6%) than A&E staff in other countries (Table 6).

**Table 6 – Sample demographics and patients seen and screened positive for AUD per week.**

Country	Gender of respondents(% males)	Mean age of respondents	Patients per week	Patients screen +ive/4weeks (%)
Austria	39.6%	38.3	117	13.1 (2.8%)
Germany	80.0%	39.6	58	8.4 (3.6%)
Italy	69.3%	49.1	78	4.7 (1.5%)
Spain (Catalonia)	38.9%	34.7	40	6.9 (4.3%)
Switzerland	43.7%	36.2	36	9.5 (6.6%)
UK (England)	49.1%	42.7	64	14.2 (5.5%)
Mean across countries	48.7%	40.3	68	9.89 (3.6%)

Figure 4 shows the proportion of A&E staff who were familiar with and used standardised alcohol screening tools such as FAST or AUDIT across the countries. The UK (England) and Switzerland had the highest proportion who were familiar, with 78.1% and 57.7% respectively. A&E staff in Austria were the least aware of standardised tools for the identification of people with AUDs. Actual use of standardised tools was highest in England (53.8%) and lowest in Germany (0%). A&E staff mentioned ‘Time constraints’ and ‘Lack of training’ as the most important barriers to screening in this clinical setting (see also Table 7).

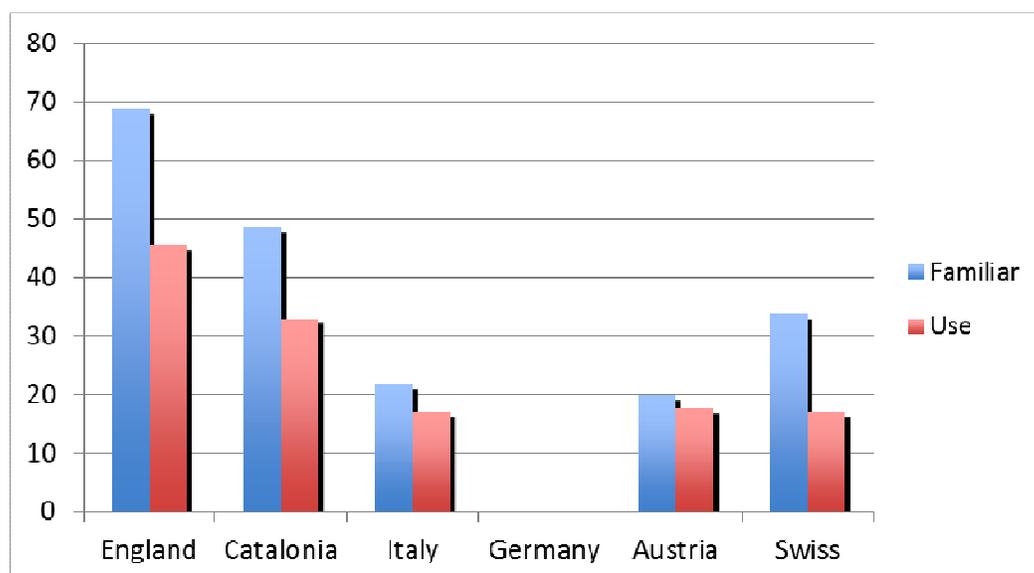
**Figure 4 – Are A&E staff familiar with and/or use standardized alcohol screening tools?**



**Table 7 – Main barriers to alcohol screening in Accident and Emergency**

Reason	N of responses	% of cases
Time constraints	275	77.7
Lack of financial incentives	33	9.3
Risk of upsetting the patient	75	21.2
Lack of training	123	34.7
Lack of services to refer patient to	119	33.6
Lack of familiarity	98	27.7
Other reasons	47	13.3
Total	770	

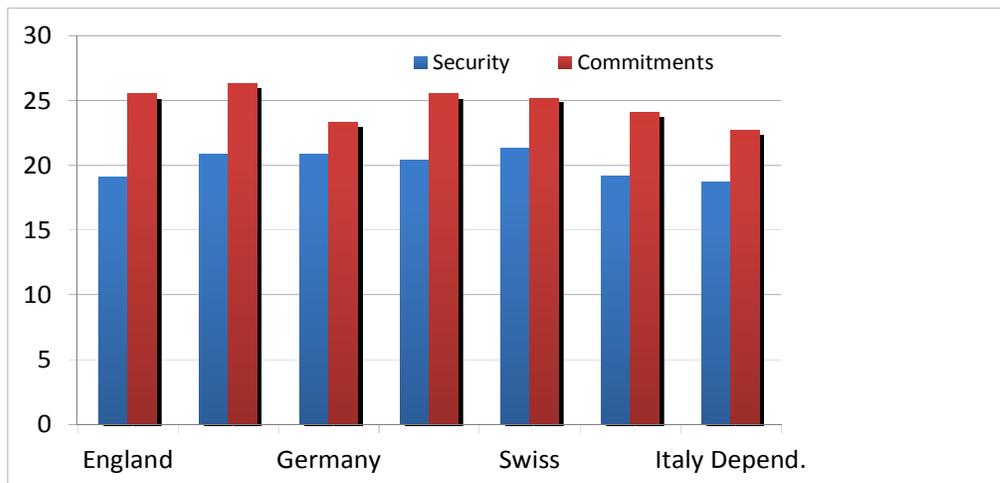
Similarly A&E staff in the UK (England) and Spain (Catalonia) were more familiar with alcohol brief interventions than A&E staff in other countries. As with the GP survey, this term is used to refer to intervention carried out in non-specialist settings, by non-specialist personnel and directed at hazardous and harmful drinkers who are not typically complaining about, or seeking help for, an alcohol problem. Of the A&E staff that responded, 45.3% in England also offered brief interventions to patients in their clinical setting whilst in the other participating countries this percentage is lower. Provision of brief interventions reflects the use of standardised screening tool as reported earlier with England having the highest percentage and Germany the lowest reported level of use (see Figure 5 below). 'Time constraints' and 'lack of training' were again mentioned as the most important barriers to offering alcohol brief interventions in A&E.

**Figure 5 – Are A&E staff familiar with and/or provide brief interventions?**

**Table 8 – Main barriers to alcohol brief interventions in Accident & Emergency**

Reason	N of responses	Percent of cases
Time constraints	269	76.9
Lack of financial incentives	38	10.9
Risk of upsetting the patient	57	16.3
Lack of training	175	50.0
Lack of resources	140	40.0
Other reasons	44	12.6
Total	723	

Figure 6 compares the subscale-scores of the SAAPPQ relating to Role legitimacy / Role security and Therapeutic commitment. These showed no statistically significant differences between the respondents across the six participating countries. In Italy, A&E staff were administered the SAAPPQ twice, first referring to hazardous and harmful drinkers, and subsequently referring to dependent drinkers. Total scores from those two sets of questions were highly correlated (0.961  $p < 0.001$ ).

**Figure 6 – A&E staff SAAPPQ score by country**

Role security, Therapeutic commitment and total score of the SAAPPQ did not differ significantly between male and female responders across all countries (respectively  $M=20.5$   $F=19.7$ ;  $M=24.6$   $F=25.9$ ;  $M=45.2$   $F=45.7$ ;  $p > 0.05$ ). However, Therapeutic commitment and SAAPPQ total score did significantly inversely correlate with age (respectively,  $p=0.001$  and  $p=0.003$ ). Therefore younger A&E staff had a greater therapeutic commitment and overall SAAPPQ score than older respondents.

Finally, a t-test analysis comparing SAAPPQ scores between GPs and A&E staff showed significant differences across the role security subscales (Mean=21.3; Mean=20.1;  $p < 0.001$ ), therapeutic commitment (Mean=26.2; Mean=25.3;  $p < 0.005$ ) and total SAAPPQ score

(Mean=47.6; Mean=45.5;  $p < 0.001$ ) indicating GPs scored significantly more positively than A&E staff.

### Conclusions

In summary, several points of interest emerged from the between country and setting comparisons of attitudes and practices of GPs and A&E clinicians. There was considerable variation in the demographic characteristics and level of activity from respondents across the countries. It is also interesting to note that there was considerable variation in knowledge of screening and intervention methods across countries, although attitudes towards working with alcohol misusers were remarkably similar among GPs.

In particular, GPs reported very low screening activity with an average of five patients screened positive over a four-week period, representing 0.8% of their patients. GPs did however have a relatively high level of knowledge and understanding of screening tools and brief interventions, although with some variations across countries. GPs in England and Catalonia reported being more familiar with SBI compared with GPs in the other countries. In contrast, the actual use of screening tools and provision of brief interventions was lower than the proportion who reported familiarity with these methods across all countries. GPs reported 'time constraints', 'risk of upsetting the patient' and 'lack of training' to be the main barriers to both alcohol screening and offering of brief alcohol interventions. GPs from the participating countries did not differ on the subscale-scores of the SAAPPQ relating to Role legitimacy / Role security and Therapeutic commitment. However, when compared with the A&E staff they showed a significantly more positive attitudes towards working with patients with AUDs.

Conducting the surveys of A&E staff was considerably more challenging, and in some countries this required more time and effort than anticipated based on experience with the survey of GPs. Key stakeholders and A&E staff in Germany, Austria and Italy showed considerable resistance in responding to the survey. This may be a reflection of the more negative attitudes towards working with AUD patients. In particular, A&E staff in England, Catalonia and Switzerland had greater knowledge of and familiarity with standardised alcohol screening tools and alcohol brief interventions. As emerged in the GP survey findings, there were barriers that limit the implementation of alcohol screening and brief interventions. 'Time constraints' and 'Lack of training' were the most cited reasons. England, Catalonia and Switzerland respondents also reported a higher proportion of people screened positive each week, and interestingly, A&E staff across the six countries screen and identify 4.5 times more AUD positive individuals than their GP counterparts, which may be a reflection of higher prevalence rates of AUD amongst A&E compared to primary care attenders.

### 3. Study of the gap between the need for and access to treatment for alcohol dependence across Europe

The aim of this work-stream was to estimate the prevalence of alcohol dependence in the six participating countries, and to conduct a needs assessment to estimate the gap between alcohol-related need and access to specialist alcohol treatment in each country. Available data on the prevalence of alcohol dependence and alcohol-related morbidity and mortality was identified in each country, and the prevalence compared with access to treatment for people with alcohol dependence in all six countries, creating a prevalence-service utilisation ratio (PSUR).

### Methods (what we did)

First, all relevant data was extracted from the country expert reports that would inform estimates of the prevalence of alcohol dependence and access to treatment in each of the six countries.

- Need for treatment: Data was combined from country reports, where available, to estimate the prevalence of alcohol dependence in each country. Where this data was unavailable, prevalence figures were used from the recent European alcohol needs assessment by Rehm et al. (2012).
- Access to treatment. All available published or unpublished national data on patients accessing specialist treatment was identified. Some countries routinely collect national data on treatment access. Data on numbers accessing specialist inpatient and outpatient treatment was therefore extracted from the country reports where available. In countries with more devolved health care administration or greater private health insurance involvement, comprehensive national data was not possible to obtain. Where possible, treatment access data relating to the same year as the prevalence estimates was used. Only data on access to state- or insurance-funded treatment episodes was included. Data on self-help and mutual aid organizations was not included. In some countries (e.g. Italy) mutual aid was noted to be a significant contributor to the overall service provision. However where the data was unclear, unobtainable, or simply not anchored in a specific year of reference, the recently published specialist alcohol service access data relating to 2004 (Rehm et al., 2012b) was used in the gap analysis.
- Gap analysis. The gap between the need for alcohol interventions (number of people who are alcohol dependent in the general population) and access to specialist treatment services (including inpatient and outpatient services) was analysed to produce a prevalence-service utilization ratio (PSUR) for each country. The methodology used was obtained from a recent national alcohol needs assessment study in England (Drummond et al., 2005). The prevalence rates of alcohol dependence based on available survey data was combined with the relevant years' population estimates for each country, in order to estimate the number of individuals in need of specialist alcohol intervention in each country.

### Results (what we found)

The data used to calculate prevalence of alcohol dependence and the gap analysis are shown in Table 9. It can be seen that the prevalence of alcohol dependence based on the available data varied considerably across the six countries. Italy had the lowest male prevalence rate (0.7%) and Spain had the lowest female prevalence rate (0.2%). Switzerland had the highest male prevalence rate (7.2%) and Austria had the highest female prevalence rate (2.5%).

Prevalence Service Utilisation Ratios also vary widely across Europe, and this appears to be a consequence of the differences in prevalence rates. Given that Rush's model (Rush, 1990) suggested that 10% of those in need of alcohol treatment gaining access to treatment per annum is regarded as "low" and 20% is regarded as "high", we can see that Austria, England, Germany and Switzerland are relatively low, with Italy and Spain high. Italy had the highest level of access with 1 in 4.2 (23.3%) people with alcohol dependence accessing treatment per annum. Germany had the lowest level of access with just 1 in 28 (3.6%) people with alcohol dependence accessing treatment per annum.

In contrast, there was less variance between countries regarding estimated numbers accessing treatment, which could suggest that there is less between country variation in prevalence of

alcohol dependence than the available data suggest. England had the highest number of people accessing specialist alcohol treatment (111,381) and Switzerland had the lowest (23,589 – 39,000), followed closely by Austria.

Not all countries were able to provide 10 year longitudinal data, or analyses of trends. Of those available, Austria showed a slight decrease in hospital admissions with the diagnosis “alcohol dependence”, but within that, an increase in the proportion that were women. However it was acknowledged that the diagnostic tool had changed during that time period from ICD-9 to ICD-10, limiting the relevance of these findings.

Italy did not have recent prevalence data, but was able to report that the rate of alcohol attributable diseases diagnosed upon discharge from hospital has been on a downward trend since 2000. The total number of alcohol patients who received a specialist community intervention in 2009 was also slightly down from the previous year’s figures.

The number of people being treated for alcohol problems in Spain had increased over the past ten years – patients being mainly treated in outpatient settings, which runs in parallel with a small decrease of patients treated in inpatient facilities. The proportion of patients treated in non-hospital residential centres matched the proportion of patients being treated in inpatient settings. In 1999 only a small portion of patients were treated in non-hospital residential centres, but progressively the number of patients treated by them had increased. In 2008, the number of patients treated in non-hospital residential centres was very similar that the treated in inpatient settings.

In Catalonia since 2004 there has been an increase of patients being treated for alcohol problems, parallel to an increase of the use of alcohol screening tools in primary health care. It is likely that increased numbers in treatment are due to greater availability and use of screening tools in primary care, but yet screening is still considered to identify a small proportion of those in need of treatment. Stakeholders interviewed considered there to be an under-estimation of hazardous drinking, so the quality of screening was being assessed. It is not unrealistic to conclude therefore that prevalence rates for alcohol dependence also suffer from underestimation.

**Table 9. Gap analysis of specialist treatment for alcohol dependence**

	<b>General population</b>  (full & aged 15yrs+) T-Total M- Male F- Female	<b>Prevalence rate (% of population aged 15yrs+):</b> M=male, F=female, T=Total population, if figure provided	<b>Number of adults with AD (n)</b>  (aged 15yrs+, England 16yrs+)	<b>Access to treatment (n)</b>  (aged 15yrs+, England 18yrs+)	<b>PSUR</b>  (% of in need population accessing treatment)
<b>Austria</b> <sup>1</sup>  2010	7,148,204	M: 7.5% F: 2.5%  T: 5%	357,410	39,814	9.0  (11.1%)
<b>England</b> <sup>2</sup>  2007 (& '11)	T: 53,013,000  43,682,712 (15yrs+)	M: 6% F: 2%  T: 4%	1,572,577	111,381	14.1  (7.1%)
<b>Germany</b> <sup>3</sup>  2007 (& '11)	T: 81,902,000  70,845,230 (15yrs+)	Approx: 2.3%	1,600,000  (no age group specified)	57,259	28.0  (3.6%)

	<b>General population (full &amp; aged 15yrs+)</b> T-Total M- Male F- Female	<b>Prevalence rate (% of population aged 15yrs+):</b> M=male, F=female, T=Total population, if figure provided	<b>Number of adults with AD (n)</b>  <b>(aged 15yrs+, England 16yrs+)</b>	<b>Access to treatment (n)</b>  <b>(aged 15yrs+, England 18yrs+)</b>	<b>PSUR</b>  <b>(% of in need population accessing treatment)</b>
<b>Italy</b> <sup>4</sup>  2009	T: 60,045,068  M: 24,818,220 F: 26,798,140 = 51,616,360 (15yrs+)	M: 0.7% F: 0.4%	280,921	65,360	4.3  (23.3%)
<b>Spain</b> <sup>5</sup>  2008	M: 22,978,661 F: 23,264,850 T: 46,063,511  (14.7% under 15yrs 39,2892,174 (15yrs+)	M: 1.2% F: 0.2%	M: 273,583 F: 46,529 T: 320,112	49,036	6.5  (15.3%)
<b>Switzerland</b> <sup>6</sup>  2007	T: 7,551,000  6,373,044 (15yrs+)	M: 7.2% F: 1.4%	M: 206,800 F: 42,300  T: 249,100	39,000 - 23,589	6.4 - 10.6  (15.7% - 9.5%)

## FOOTNOTES ON DATA SOURCES:

1. AUSTRIA: All data presented are for 2010, and for a population, aged 15yrs+. Population data was taken from Statistik Austria. Prevalence data rates were from assumptions made by Uhl et al (2009), and access to treatment data combined "main" and "secondary" alcohol dependence hospital diagnoses (31,218), monitored by Statistik Austria and the Federal Institute for health (Bundesinstitut für Gesundheit, ÖBIG). These have been added to outpatient figures (8,765) from the country report spanning different years between 2002 & 2009.
2. ENGLAND: Population data is from the 2011 census (Office for National Statistics, 2012) available for age 15yrs+. A new PSUR has been calculated using the 2007 APMS prevalence rate (4%) based on an AUDIT score of 16 or more (McManus et al, 2009), which refers to adults aged 16yrs+. Access to treatment data was taken from the most recent NATMS report available (for 2009-10) and refers to adults aged 18yrs+ that presented for treatment with alcohol as the primary substance of misuse.
3. GERMANY: Population was for 2009 from the OECD, and 15yrs+ calculated based on the percentages provided. Prevalence rates and number of population with alcohol dependence were provided in the WP6 German country report (Zois et al., 2011). Data for access to treatment is for 2007, from the same WP6 report (Zois et al., 2011), and is described as inpatient and outpatient treatment "provisions granted".
4. ITALY: Population figures are for 2009, males and females 15yrs+ and were from the Istat website. Prevalence is for adults aged 15yrs+ in 2001-03, taken from Rehm et al. 2012, and originally from the European Study of the Epidemiology of Mental Disorders (ESEMeD) (De Girolamo et al, 2006). These are the most recent rates available and have been used to calculate an updated estimate for the "in need" population using the 2009 population data. Access to treatment figures are for 2009, in an updated addendum for the Italy report (Gandin & Scafato, 2011). Data from the Italian monitoring system describes "the total number of alcoholics who received a community treatment at a specialist service" (65,360) for outpatient treatment, and number of fully alcohol attributable diseases upon hospital discharge (87,287)
5. SPAIN: Main population data (total and aged 15yrs+) was taken from 2008 (OECD, 2012) with age 15yrs +, calculated from the percentages provided on the OECD website (85.3% of population in 2008). However this could not be combined with a male/female population, which was required due to prevalence rates being presented in this way. Therefore numbers with alcohol dependence based on prevalence rates provided are for whole population, rather than the age range 15yrs +. Prevalence rates are from Rehm et al., (2012), and refer to those aged 15yrs+ in 2000-01. These data were originally sourced from the WHO world mental health surveys Kessler & Üstün (2008). Access to treatment data is from the PNSD 2008 and refers to outpatient, hospital and non-hospital data for 2008.
6. SWITZERLAND: Population figures are for 2007 (OECD, 2012) and adults 15yrs + have been calculated based on percentages provided on the same OECD website. Alcohol dependence prevalence rates and numbers of individuals with alcohol dependence were for adults aged 15yrs+, sourced from Rehm et al (2012), and originally from Kuendig (2010). Access to treatment was provided in higher and lower estimates for 2004, and originally taken from the WHO European Hospital Morbidity Database ((HMDB <http://data.euro.who.int/hmdb/index.php>.) and accessed August 2, 2011 (see methods section for more information).

## Conclusions

The results of the gap analysis should be interpreted with caution, due to the high levels of heterogeneity of methods used to estimate prevalence and access across countries. Alcohol dependence prevalence rates varied, but it is not clear that comparisons of these are meaningful, due to the different methods used to achieve these estimates. Given the convergence of other alcohol related indicators (e.g. per capita alcohol consumption, alcoholic liver disease mortality) between European countries over the last 20 years the reported variance in prevalence is surprising. So rather than being a true reflection of prevalence variation, it is probably more likely to be an indication of the differences in methods of estimating prevalence of alcohol dependence in different countries.

Countries with large general household surveys (e.g. England) probably had more reliable estimates than those without, but even then, different measures have been used to estimate alcohol dependence (e.g. the Adult Psychiatric Morbidity survey in England used the AUDIT questionnaire, which is not ideal for estimating prevalence of alcohol dependence as it was designed as a screening tool for hazardous and harmful drinking).

Italy and Spain both had markedly lower prevalence rates compared to the other four more northern European countries. As Rehm et al (2012) argue alcohol consumption in southern European, predominantly wine-drinking “Mediterranean” countries, is such an entrenched cultural norm, that dependence will tend to be under-detected and under-reported, and as such, is also more socially stigmatised.

Similarly, there were problems in obtaining comparable estimates of the number of people entering specialist alcohol treatment. The majority of countries had some form of monitoring system that enabled reporting on access to treatment, but gaps in the understanding of this still exist, and the comprehensiveness and robustness of the country specific data was difficult to ascertain. Not all data is available for the same years, and methodological differences in its collection further diminish its suitability for direct comparisons.

Although “access to treatment” is an essential marker of treatment implementation, it is not sufficiently exacting in its detail, and there is a need to be more prescriptive about what this means i.e. which types of treatment, which patient population it applies to and whether treatment is completed or otherwise. Access data may also vary due to factors such as the effectiveness of treatment systems and care pathways to channel less severely dependent patients into outpatient care, which may be less well monitored than inpatient care provision. Prospective treatment access data (e.g. the National Alcohol Treatment Monitoring System in England) is more reliable than those based on hospital discharge diagnosis, which by no means a direct indicator, nor a guarantee of receiving a comprehensive package of specialist treatment appropriate to need.

The UK is observed to have the highest number of individuals in treatment, yet also registers as “low” in terms of the Rush model of assessing PSURs. By the same standards, Italy and Spain appear to have high access and PSUR value, however these are the two countries with possibly the greatest underestimate of prevalence, so this estimate of service access may be misleading. Switzerland’s “high” access and PSUR rating was necessarily based on older estimates of access to treatment, due to none of sufficient reliability or comprehensiveness being able to be produced more recently.

### Recommendations

Given the importance of alcohol dependence to European public health, there is a clear need for Europe-wide surveys to estimate comparative prevalence rates using the same time frame and survey instruments. This would be essential to the rational planning of alcohol treatment provision, and meaningful benchmarking of implementation across Europe. It would also provide a more reliable picture of trends and patterns, which in turn may assist with the effective evaluation of policies and treatment implementation.

There is a need to develop harmonisation between European countries on the collection of specifically prospective treatment monitoring data, and a common methodology employed. Again this would be helpful in estimating the relative potential public health impact of alcohol treatment implementation across Europe, and identifying areas where more policy effort and implementation may be required.

Prospective data collection and monitoring should be encouraged and promoted as the 'gold standard'. It is essential that alcohol treatment is separable from that of other substances for the purpose of accurate reporting. Further detail is also required within this, such as types of treatment provided and new cases versus those returning to treatment, which may in turn allow for more targeted provision of services, and more cost-effective and efficient systems altogether.

Until such times as the cross-country data can at least be presented for the same time period, and with comparable methodology, these PSUR estimates will not provide a valid comparative estimate of treatment access rates across countries. This will require coordination at a European level.

## 4. Impact and cost effectiveness of interventions across Europe

European trials have typically been combined with data from US or other international studies in meta-analyses, where the context of treatment may be very different from Europe. Such differences could have important implications for public health policy in Europe as distinct from the rest of the world. Further, most previous meta-analyses of brief interventions and specialist treatments have been concerned with pooling data from different trials to estimate efficacy or effectiveness. In such instances, heterogeneity is regarded as a problem for comparability of pooled data. As a result, there is currently a lack of comparative data on variations in alcohol treatment across European countries.

Consequently, this element of the workpackage examined more closely the similarities and differences in outcomes between similar trials conducted in different countries. Separate meta-analyses were undertaken for randomised controlled trials conducted in three different clinical settings: primary health care, emergency departments and specialist treatment services. A meta-analysis was considered to be the most appropriate methodology to provide a better understanding of variations in treatment outcome in different countries, as well as providing a measure of efficacy of alcohol interventions and specialist treatment specifically in Europe.

In addition, very few studies are dedicated to understanding the economic benefits of alcohol interventions and specialist treatment (McCollister & French, 2003). More specifically, the cost-effectiveness differences between European countries are not distinguished from cost-effectiveness analyses conducted in other regions of the world. Indeed, health care utilisation

varies greatly across European countries, as does the nature of services as noted above (European Commission, 2004; Wolstenholme et al., 2012). Financial constraints and scarce health care resources point towards cost-effectiveness analyses as increasingly important to clinical effectiveness analyses. In response to this, a review of the cost effectiveness analysis of alcohol interventions across Europe was undertaken in a secondary analysis of published treatment outcome research.

## Methods (what we did)

### Primary Health Care and Emergency Departments

- For both the primary health care and emergency department meta-analyses, the aims were; Firstly, to conduct a systematic review of the relevant published evidence on the impact of brief interventions for hazardous and harmful alcohol consumption in each setting; Secondly, to conduct a meta-analysis of published trials of brief alcohol interventions conducted in Europe compared to the rest of the world for each setting; Finally, to take into account and compare the participant characteristics of patients recruited into clinical trials as defined above between European countries and the rest of the world. The primary outcome was the quantity for alcohol consumption at 6 and 12 months follow-up between brief intervention and control groups, sub-grouped by the European region and the rest of the world.
- An initial systematic review of brief intervention in primary care had previously been conducted by Kaner et al (2007). We supplemented this by conducting an identical systematic search for papers published since the original Kaner et al review specifically for the purposes of this project. The original Kaner review did not however consider differences between studies conducted in Europe compared to the rest of the world. The full methodology is described in a report to the European Commission (Elzerbi et al., 2013). Two sub-groups were created one for studies conducted in Europe and the other for studies conducted outside of Europe or 'the Rest of the World'. The type of statistical method used was an inverse variance model to measure the effect of treatment using standardised mean differences. The extent of heterogeneity between trials was calculated using the  $I^2$  statistic (Higgins & Thompson, 2002; Higgins & Green, 2011) where statistical significance of heterogeneity was checked using P-values from  $I^2$  tests (Deeks et al., 2008). A random effects model was used to account for the heterogeneity across populations and interventions between trials.
- For the emergency department review, a search strategy was devised, databases were searched (see above), inclusion and exclusion criteria were drawn up and risk of bias was assessed in order to identify eligible studies. Searches were conducted without language restrictions. Data from studies were extracted and pooled, and statistical comparisons were made in terms of subject characteristics, interventions provided in the control group, and clinical outcomes. Data was entered into Review Manager (RevMan, 2012), and then cross-checked for accuracy by another member of the research team. Two sub-groups were created one for studies conducted in Europe and the other for studies conducted outside of Europe or 'the Rest of the World'. The type of statistical method used identical to the one mentioned above for primary health care.

### Specialist Treatment

- The aim of the review of specialist treatments for alcohol use disorders was to examine whether there were differences in the outcome of Motivational Techniques (MT) and Cognitive Behavioural Therapy (CBT) between studies conducted in Europe

and those conducted in the rest of the world. Additionally, we also examined whether there were differences in the outcome of pharmacological therapies, namely naltrexone and acamprosate, between studies conducted in Europe compared to the rest of the world.

- This work built on a recent systematic search of the literature on psychological and pharmacological interventions for the treatment and management of harmful use and dependence on alcohol undertaken for the development of the recent National Institute for Health and Clinical Excellence *'Guideline on Diagnosis, Assessment and Management of Harmful Drinking and Alcohol Dependence'* (NICE, 2011). Data was entered into Review Manager (RevMan, 2012), and then cross-checked for accuracy by another member of the research team. Two sub-groups were created one for studies conducted in Europe and the other for studies conducted outside of Europe or 'the Rest of the World'. All outcome variables were dichotomous and analysed as Relative Risk (RR) with the associated 95% Confidence Interval (CI).

### Cost-Effectiveness

- The aim of the cost-effectiveness analysis was to have an estimate of the typical cost-effectiveness of alcohol interventions in Europe based on published clinical research.
- These aims were achieved by conducting a sub-group analysis using the data presented in the cost-effectiveness analyses of psychological and pharmacological therapies published in the National Institute for Health and Clinical Excellence *'Guideline on Diagnosis, Assessment and Management of Harmful Drinking and Alcohol Dependence'* (NICE, 2011). The quality of all economic papers eligible for inclusion were appraised using the methodology checklist for economic evaluations recommended by NICE (NICE, 2009). Checklist for economic evaluations was also applied to the economic models developed specifically by NICE (NICE, 2011).

## Results (what we found)

### Primary Health Care

For primary care, 24 studies (reported in 28 papers) were included in the review. Fifteen trials took place in Europe and nine trials took place in the rest of the world, eight of these in the United States. Overall, at six months follow-up, the results of the meta-analysis indicated that participants receiving brief intervention drank less alcohol per week than those who were allocated to the control condition, and this difference was statistically significant. Additionally, the overall effect size for brief alcohol interventions in reducing grams of alcohol consumed per week at 12 month follow-up was small yet statistically significant.

### Emergency Departments

For emergency departments, 8 studies (reported in 10 papers) were included in the review. Overall, four trials took place in Europe, and four trials took place in the rest of the world, all of which were conducted in United States. Overall, the results of the meta-analysis at 6 month follow-up for both Europe and the rest of the world combined indicated that participants receiving brief intervention drank less alcohol per week than those who were allocated to the control condition, and this difference was statistically significant. The overall effect for brief alcohol interventions in reducing grams of alcohol consumed per week at 12 month follow-up was also statistically significant.

### Specialist Treatment

For studies assessing the efficacy of motivational techniques (MT), only one study was conducted in Europe, resulting in there being insufficient data available for further analysis to assess the effectiveness of MT in Europe versus the rest of the world. The studies that met inclusion criteria for the meta-analysis that assessed the efficacy of CBT were heterogeneous with significant differences in the methodologies used and the primary and secondary outcome measures reported. There was a variation in the way that individual studies measured specific outcomes, an example of this would again be the outcome measure for alcohol consumption. The result of this was that there was not a sufficient number of studies to be able to conduct further statistical analysis for the sub-groups Europe and the rest of the world.

For studies comparing the efficacy of acamprosate versus placebo, there was a significant difference in risk of discontinuing treatment between those in the acamprosate and placebo groups, with a 14% decreased risk for participants in the acamprosate group for studies conducted in Europe. Significant, moderate heterogeneity was present for this analysis. The opposite was true for those studies conducted in the rest of the world with participants in the acamprosate group having a 23% increased risk of leaving the study early, and heterogeneity between studies was found not to be significant. In a subgroup analysis the difference in findings for discontinuation of treatment for studies conducted in Europe and the Rest of the World was statistically significant.

For risk of relapse to drinking overall there was a 17% difference between acamprosate and placebo which was significant and in favour of acamprosate. Sub-group analysis found that participants in the acamprosate group had a 17% decreased risk of returning to alcohol at 6 months follow-up compared to the placebo group for those studies conducted in Europe (Figure 6) but heterogeneity was significant and substantial. This result was not replicated in the studies conducted in the Rest of the World. Seventeen of the 19 eligible studies reported data for this variable, just two of which were conducted in a non-European country resulting in a small sample size for the Rest of the World sub-group. The risk ratios for Europe and the Rest of the World, were identical in magnitude. Heterogeneity was small and not significant for this analysis. The difference in relative risk was not statistically significant between the sub-groups Europe and the Rest of the World. However the pooled effect of acamprosate on drinking was significant for all studies combined.

For the meta-analysis comparing the efficacy of naltrexone versus placebo, on consideration of the outcome variables reported for these studies it was decided that just four had sufficient data to enable further analysis for Europe versus the Rest of the World, these variables were; 1) Discontinued treatment (leaving the study early) 2) Leaving due to adverse events 3) Lapsed (individuals drinking any alcohol at 12-16 weeks follow-up) 4) Relapse to heavy drinking (3 month follow-up). There was no statistically significant difference between participants in the naltrexone group compared to the placebo group when considering leaving the study early due to adverse events in the European studies, with no significant heterogeneity. However, the results of the analysis that included only those studies conducted outside of Europe found that those in the naltrexone group were at a 2.41 times greater risk of leaving the study early due to adverse events compared to participants in the placebo group. Meta-analysis of the third variable (lapsed – individuals drinking any alcohol at 12-16 weeks) found that there was no statistically significant difference between participants in the placebo group and those in the naltrexone group for this variable. However, there was significant, substantial heterogeneity present. The meta-analysis for the rest of the world found that there was a small but significant 9% decrease in risk of relapse to any alcohol consumption at 12-16 week

follow-up for the experimental group compared to the control group. The final meta-analysis for the variable lapsed to heavy drinking at 3 months found that there was no significant difference between participants in the naltrexone and placebo groups for studies conducted in Europe but heterogeneity for this variable was statistically significant and substantial. For those studies conducted in the Rest of the World, there was a 16% decrease in risk of relapse to heavy drinking at 3 months for the naltrexone group compared to the placebo group with no significant heterogeneity.

### **Cost-Effectiveness**

For studies examining the cost-effectiveness of screening and brief interventions in primary health care settings in Europe, only one such analysis was identified. A further study was found, although it been conducted in US so was not considered to be directly relevant to the European treatment context. For the cost-effectiveness of screening and brief interventions in emergency department settings, two studies were identified, one of which had taken place in Europe, whilst the other was a US study. Six European studies were identified which examined the economic outcomes for cost-effectiveness studies of pharmacological interventions. Three further non-European studies reported the cost-effectiveness of pharmacological interventions. Two European cost-effectiveness studies focussed on the assessment and delivery of alcohol interventions. In terms of the cost-effectiveness of psychological treatments for alcohol use disorders, only two European studies were identified compared to three studies conducted in the rest of the world.

## **Conclusions**

### **Primary Health Care**

In primary health care settings, the overall effects of brief intervention for hazardous and harmful drinkers, when compared to a control group at 6 and 12 month follow-up, for trials conducted in both Europe and the rest of the world, are significantly in favour of brief intervention. Importantly, these results indicate that the effects of brief intervention persist beyond the initial improvements seen at 6 months. The subgroup differences of the effects of brief intervention on hazardous and harmful drinkers, when compared to a control group at 6 and 12 month follow-up, between trials conducted in Europe versus the United States, are not significant. Therefore brief interventions are equally effective in Europe and the rest of the world (primarily the US). Across both the European trials and the trials conducted in other regions of the world, the overwhelmingly majority of participants were middle-aged, male drinkers with other social groups drastically under-represented. This may limit the generalisability of the results. Further, statistical heterogeneity between trials exists possibly on account of the screening instruments used, the populations included and the types of assessments and brief interventions delivered to the experimental and control groups.

### **Emergency Departments**

In emergency department settings, a meaningful interpretation of the results is limited on account of the small number of studies included in the meta-analysis. Despite this, for the studies included, the results indicate that the overall effects of brief intervention on hazardous and harmful drinkers, when compared to a control group at 6 and 12 month follow-up, for trials conducted in both Europe and the United States, are significantly in favour of brief intervention. As mentioned above, this is an important result in that it indicates that the effects of brief intervention for hazardous and harmful alcohol consumption persist beyond the initial improvements seen at 6 months. Secondly, the subgroup differences of the effects

of brief intervention on hazardous and harmful drinkers, when compared to a control group at 6 and 12 month follow-up, between trials conducted in Europe versus the United States, are not significant. Across both the European trials and the trials conducted in the US, the majority focused on middle-aged, male drinkers with other groups under-represented. This may limit the generalisability of the results. Further statistical heterogeneity between trials exists possibly on account of the screening instruments used, the populations included and the types of assessments and brief interventions delivered to the experimental and control groups.

### **Specialist Treatment**

Sufficient evidence to enable sub-group meta-analysis for Europe and the rest of the world comparing the effectiveness of the psychological therapies MT and CBT was not available. This was due to heterogeneity in the study methodologies and their measurement and reporting of treatment outcomes. The pooled effect of naltrexone versus placebo was significant in terms of reduced lapse and relapse to heavy drinking, and for acamprosate it was significant in relation to lapse to any drinking. There was little conclusive evidence provided by the sub-group analysis that there is a significant difference in efficacy of acamprosate and naltrexone according to the country in which it is administered (i.e. Europe versus the rest of the world) with naltrexone being more effective in the rest of the world compared to Europe, and vice versa for acamprosate. This may be partly related to the preponderance of naltrexone studies conducted in the United States compared to Europe, and vice versa for acamprosate.

### **Cost-Effectiveness**

The lack of health economic data is not due to a lack of research but due to an absence of consistency in the methodologies used and the measurement and reporting of study outcome measures. Presenting a meaningful comparison and summary of the health economic evidence is difficult on account of the lack of relevant studies and methodological differences across studies including the types of comparator treatments considered, the study populations, and importantly, the costs and outcomes reported. Additionally, the utilised costs arising from cost-effective analyses from regions in the rest of the world, dominantly the United States, may not be directly applicable to the European region. Therefore there are concerns about generalising from such trials to treatment settings across Europe.

### **What does this mean? Overall conclusions**

This study builds on knowledge from earlier cross-European studies of alcohol interventions. In all areas of the research, we identified considerable between-country variation in the organisation and provision of alcohol interventions both in terms of SBI and specialist treatment. Countries that appear to have more developed national alcohol strategies appear to be achieving higher levels of implementation of both SBI and specialist treatment than countries without such strategies. The devolution of health care management and funding to local levels appears to hamper implementation of effective public health strategies, although these countries may be more effective in delivering other types of health care for other disease conditions.

There is variation between countries in terms of attitudes and practices in relation to implementation of SBI. In particular there were considerable differences in the implementation of SBI in emergency departments across Europe. This may reflect differences in the priority afforded to implementation of SBI in national and local alcohol public health strategies and variations in training and support for health professionals to deliver this activity. This points to the need for more concerted training for health professionals both at undergraduate and postgraduate level across Europe.

We found comparable effectiveness of SBI in both primary care and emergency departments from published studies conducted in Europe and the rest of the world. Similar findings pertained to pharmacotherapies (acamprosate and naltrexone). Therefore the research literature provides encouragement that these interventions are as effective in Europe as in the rest of the world.

Since alcohol places a considerable health, social and economic burden on Europe, there is a need for a more concerted effort to implement evidence-based early intervention and treatment strategies as part of the overall public health response. In order to assess the public health impact of these interventions and make comparisons between countries, there is a need for improved and up-to-date data on prevalence and service utilization to support rational and cost-effective health care planning. Currently, implementation appears to be based on relatively poor quality data, which is largely not comparable between countries in Europe. We suspect that, as this project was conducted in some of the more developed countries in Europe, the situation in less developed countries may be even more difficult to assess.

We therefore recommend that these issues are considered at the European Commission and WHO Europe level to develop an improved public health response to alcohol through implementation of early identification and treatment. High on the list of priorities will be the identification of a harmonised Europe-wide system of estimating prevalence of alcohol use disorders, and monitoring implementation of SBI and specialist alcohol treatment.

### Take home messages

1. There is considerable variation in the implementation of alcohol interventions across Europe, partly related to national strategies and devolved responsibility.
2. There is a need for a more concerted effort across Europe to implement evidence based alcohol interventions.
3. There is a need for more concerted training efforts at both undergraduate and postgraduate level for health professionals in implementation of alcohol screening and brief interventions across Europe
4. There is a lack of comparable high quality information on the prevalence of alcohol use disorders and access to interventions.
5. A Europe-wide system for estimating prevalence of alcohol use disorders and monitoring implementation of early identification and treatment is needed.

### Conflict of Interest Statement

Amy Wolstenholme, Colin Drummond, Paolo Deluca, Zoe Davey, Catherine Elzerbi, Noemí Robles, Cees Goos, Julian Strizek, Christine Godfrey, Karl Mann, Evangelos Zois, Sabine

Hoffman, Hervé Kuendig, Emanuele Scafato, Claudia Gandin, Simon Coulton, Kim Donoghue, Eileen Kaner, Begoña Baena & Joan Colom have no conflicts of interest to declare

Since January 2007, Antoni Gual has received honoraria and travel grants from Lundbeck, Janssen, Servier and D&A Pharma, and has worked on research grants from Bayer and Lundbeck.

Since January 2007, Gerhard Gmel has participated in scientific meetings co-sponsored by the pharmaceutical industry. He has received funding indirectly, through taxes, for research projects from the Swiss Alcohol Monopoly. He has never received direct research funding from any industry.

Since January 2007, Christine Godfrey has received an honorarium from Lundbeck S/A.

## References

Anderson P, Kaner E, Wutzke S, Wensing M, Grol R, Heather N et al. (2003) Attitudes and management of alcohol problems in general practice: descriptive analysis based on findings of a World Health Organization international collaborative study. *Alcohol & Alcoholism*, 38, 597-601.

Anderson P, Kaner E, Wutzke S, Funk M, Heather N, Wensing M et al. (2004) Attitudes and managing alcohol problems in general practice: an interaction analysis based on findings from a WHO Collaborative Study. *Alcohol & Alcoholism*, 39, 351-359.

Babor T, Higgins-Biddle J, Saunders J & Monteiro M (2001) *The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care* (Second Edition) World Health Organisation, Geneva

Babor T & Poznyak W (2010) The World Health Organization substance abuse instrument for mapping services: rationale, structure and functions. *Nordic Studies on Alcohol and Drugs* 27 (6): 703–711

Cheeta S, Drummond C, Oyefeso A et al. (2008) Low identification of alcohol use disorders in general practice in England. *Addiction*, 103, 766–773.

Chisholm D, Rehm J, van Ommeren M, Monteiro M (2004) Reducing the Global Burden of Hazardous Alcohol Use: A Comparative Cost-Effectiveness Analysis. *Journal of Studies on Alcohol and Drugs* 65(6)

Crawford M J, Patton R, Touquet R, Drummond C, Byford S, Barrett B, Reece B, Brown A, Henry JA (2004) Screening and referral for brief intervention of alcohol misusing patients in an Accident and Emergency Department: a pragmatic randomised controlled trial. *Lancet*; 364(9442): 1334-39.

Deehan A, Templeton L, Taylor C, Drummond C & Strang J (1998). Low detection rates, negative attitudes and failure to meet the 'Health of the Nation' alcohol targets: findings from a national survey of GPs in England and Wales. *Drug & Alcohol Review*, 17, 249-258.

Deeks, J. J., Altman, D. G., & Bradburn, M. J. (2008) Statistical Methods for Examining Heterogeneity and Combining Results from Several Studies in Meta-Analysis. *Systematic Reviews in Health Care: Meta-Analysis in Context, Second Edition*, 285-312.

Department of Health (2006) Models of Care for Alcohol Misusers. London: National Treatment Agency. Available at: [http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4136806](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4136806) [Accessed January 2011].

Dinh-Zarr T, Goss C, Heitman E, Roberts I, DiGiuseppi C (2004) Interventions for preventing injuries in problem drinkers. *Cochrane database of systematic reviews (online)* Issue 3, pages CD001857

Drummond C, Oyefeso N, Phillips T et al. (2005) *Alcohol Needs Assessment Research Project (ANARP): The 2004 National Alcohol Needs Assessment for England*. London: Department of Health.

Drummond C, Coulton S, James D et al. (2009) Effectiveness and cost- effectiveness of a stepped care intervention for alcohol use disorders in primary care: pilot study. *The British Journal of Psychiatry*, 195, 448–456.

Drummond C, Gual A, Goos C, Godfrey C, Deluca P, von der Goltz C, Gmel G, Scafato E, Wolstenholme A, Mann K, Couton S, Kaner E (2011) Identifying the gap between need and intervention for alcohol use disorders in Europe. *Addiction* 2011; 106 (Suppl. 1), 30–5.

Elzerbi, C, Donghue, K, Drummond, C (2013) *Report on the European Public Health Impact and Cost Effectiveness of Early Diagnosis and Treatment of Alcohol Use Disorders. Deliverable 3.3, Workpackage 6*. AMPHORA.

([http://amphoraproject.net/view.php?id\\_cont=22&PHPSESSID=9su6o99kep07hlo9tsrte204f5](http://amphoraproject.net/view.php?id_cont=22&PHPSESSID=9su6o99kep07hlo9tsrte204f5))

European Commission (2004) *The State of Mental Health in the European Union*. Luxembourg, European Commission, 2004

Higgins, J., & Thompson, S. G. (2002) Quantifying heterogeneity in a meta-analysis. *Statistics in medicine*, 21(11), 1539-1558.

Higgins JPT, Green S (editors) *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011.

Kaner EFS, Haighton CA, McAvoy BR, Heather N, Gilvarry E (1999) An RCT of three training and support strategies to encourage implementation of screening and brief alcohol intervention by general practitioners. *British Journal of General Practice* 49(446):699-703.

Kaner EFS, Beyer F, Dickinson HO, Pienaar E, Campbell F, Schlesinger C et al. (2007) Effectiveness of brief alcohol interventions in primary-care populations. *Cochrane Database Syst Rev*, 18: CD004148

Lock C, Kaner E, Lamont S, Bond S (2002) A qualitative study of nurses' attitudes and practices regarding alcohol intervention in primary health care. *Journal of Advanced Nursing*, 39(4): 333-342.

McAvoy BR, Kaner EF, Lock CA, Heather N & Gilvarry E (1999) Our Healthier Nation: are general practitioners willing and able to deliver? A survey of attitudes to and involvement in health promotion and lifestyle counselling. *British Journal of General Practice*, 49 (440), 181-90.

McCollister, K. E., & French, M. T. (2003). The relative contribution of outcome domains in the total economic benefit of addiction interventions: a review of first findings. *Addiction*, 98(12), 1647-1659.

National Audit Office (2008) *Reducing Alcohol Harm: Health Services in England for Alcohol Misuse*. London: National Audit Office.

NICE (2010) Alcohol-Use Disorders: Preventing the Development of Hazardous and Harmful Drinking. *Public Health Intervention Guidance* No. 24. London: NICE

NICE (2011) Alcohol Use Disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence. *Clinical Guideline* 115. London: NICE

Raistrick D, Heather N & Godfrey C (2006) *Review of the Effectiveness of Treatment for Alcohol Problems*. London: National Treatment Agency for Substance Misuse.

Rehm J, Shield K, Rehm M et al. (2012) *Alcohol consumption, alcohol dependence, and attributable burden of diseases in Europe: potential gains from effective interventions for alcohol dependence*. Toronto, ON, Health, C. F. a. a. M

Review Manager (RevMan) [Computer program]. Version 5.2. Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration, 2012.

Rush B (1990) A systems approach to estimating the required capacity of alcohol treatment services. *British Journal of Addiction*, 85, 49–59

Wolstenholme A., Drummond, D., Deluca, P., Davey, Z., Elzerbi, C., Gual, A., Robles, N., Reynolds, J., Goos, J., Strizek, J., Godfrey, C., Mann, K., Zois, E., Hoffman, S., Gmel, G., Kuendig, H., Scafato, E., Gandin, C., Coulton, S., Colom, J., Segura, L., Baena, B. (2013) Report on the mapping of European need and service provision for early diagnosis and treatment of alcohol use disorders. Unpublished: submitted to European Commission as part of the AMPHORA project reporting process.

## Websites

European Working Group on the Treatment of Alcohol Dependence (EWGTAD) <http://www.api.or.at/ewgtad/index.php?page=1> (accessed August 2012)

Primary Health Care European Project on Alcohol (PHEPA) 2009 – <http://www.phepa.net> (access June 2013)