Screening and brief interventions for hazardous and harmful alcohol use

Q1: What is the effectiveness of screening and brief interventions for hazardous and harmful alcohol use in non-specialist settings?

Background

Health care settings provide an opportunity for patients with alcohol use disorders to receive advice from health care professionals on their patterns of alcohol consumption and associated risks. Surveys conducted in different countries have shown anywhere between 10-20% of the primary care population can have alcohol use disorders, with rates often higher in emergency departments, medical wards and surgical departments. Some patients will present with problems related to their alcohol consumption, and some with completely unrelated issues. Few patients specifically request assistance for their alcohol use disorder. Generally the alcohol use disorder is not detected by the primary care or hospital medical staff, even if the presenting problem is related to alcohol. Systematic screening can raise the detection of alcohol use disorders, as can a raised level of alertness by the medical practitioner to the contribution of alcohol on the presenting complaint. Provision of brief intervention (BI) (10 minutes to 60 minutes approximately in one or two interactions) may influence the pattern of drinking and related problems.

Population/Intervention(s)/Comparator/Outcome(s) (PICO)

Population:	health care settings (primary care, hospital emergency department, outpatients) not specialized in the treatment of alcohol use disorders
Interventions:	brief interventions (up to 30 minutes) incorporating screening
Comparison:	no intervention, usual care, leaflets
Outcomes:	alcohol consumption risk patterns
	alcohol related harm (injuries)
	alcohol consumption
	mortality

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List of the systematic reviews identified by the search process

INCLUDED IN GRADE TABLES OR FOOTNOTES

Cuijpers P, Riper H, Lemmers L (2004). The effects on mortality of brief interventions for problem drinking: a meta-analysis. *Addiction,* 99:839-45.

Dinh-Zarr T et al (2004). Interventions for preventing injuries in problem drinkers. *Cochrane Database of Systematic Reviews*, (3):CD001857.

Havard A, Shakeshaft A, Sanson-Fishwe R (2008). Systematic review and meta-analyses of strategies targeting alcohol problems in emergency departments: interventions to reduce alcohol related injuries. *Addiction*, 103:368-76.

Kaner E et al (2007). Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database of Systematic Reviews*, (2):CD004148.

EXCLUDED FROM GRADE TABLES AND FOOTNOTES

McQueen J et al (2005). Brief interventions for heavy alcohol users admitted to general hospital wards. *Cochrane Database of Systematic Reviews*, (2): CD005191.

There are numerous reviews of brief interventions. A review of reviews conducted for the Department of Health, UK (NICE, 2010) identified no fewer than 27 reviews and meta-analyses. The Kaner et al, 2007 review was chosen because it was the most comprehensive and up-to-date. The Cuijpers et al, 2004 review was included because it was the most comprehensive review of mortality, including long term follow up of studies included in the Kaner et al, 2007 review and person-time incidence rate analysis. The Havard et al, 2008 review was included in preference to the McQueen et al, 2005 review of alcohol and injury because it had a more comprehensive meta-analysis.

PICO Table

Serial no.	Intervention/Comparison	Outcomes	Systematic reviews used for GRADE	Explanation
1	BI/control or usual care	Hazardous or harmful drinking	Kaner et al, 2007	Most up-to-date and well conducted review
2	BI/control or usual care	Alcohol consumption	Kaner et al, 2007	Most up-to-date and well conducted review
3	BI/control or usual care	Alcohol related injuries	Havard et al, 2008	Extensive review, more data available for meta-analysis

4	BI/control or usual care	Mortality	Cuijpers et al, 2004	Included studies with verified mortality rates from registry checking and made the comparison using person-time incidence rates

Narrative description of the studies that went into the analysis

Kaner et al (2007): A meta-analysis of 22 RCTs was conducted (enrolling 7,619 participants) using brief interventions (ranging from 10 minutes to 180 minutes) with a control group. In-patients in primary care with mainly harmful alcohol use and/or some dependence were detected by screening or opportunistic history taking. It showed that participants receiving brief intervention had lower alcohol consumption than the control group after a follow-up of one year or longer (mean difference: -38 grams/week, 95% CI: -54 to -23). However, there was substantial heterogeneity between trials (I square = 57%). Meta-regression showed little evidence of a greater reduction in alcohol consumption with longer treatment exposure or among trials which were less clinically representative. Extended intervention was associated with a non-significantly greater reduction in alcohol consumption than brief intervention (mean difference = -28, 95%CI: -62 to 6 grams/week, I square = 0%)

Cuijpers et al (2004): A meta-analysis was conducted of randomized studies comparing brief interventions with a control group, using the fixed-effects model. A systematic literature search produced four studies in which the mortality status of subjects was verified at follow-up. Six more studies reported some deaths at follow-up but did not verify mortality in death registers, and 22 further studies did not report the mortality status of the included subjects. The pooled relative risk (RR) of dying was 0.47 for the four studies with verified mortality rates (95% CI: 0.25, 0.89). The pooled RR of all 32 studies was comparable (RR = 0.57; 95% CI: 0.38, 0.84), as were the RRs of several other subsamples of studies. The prevented fraction was 0.33 in the studies with verified mortality rates.

Havard et al (2008): An electronic search of 11 databases and a manual search of reference lists were conducted to identify studies published in peer-review journals between January 1996 and July 2007 (inclusive). Studies evaluating the outcome of an intervention designed to reduce alcohol problems in patients presenting to the emergency department (ED) were eligible for inclusion. Methodological data were extracted using review criteria adapted from the both the Centre for Disease Control (CDC) Guide to Community Preventive Services Data Collection Instrument and the Cochrane Effective Practice and Organization of Care Review Group Data Collection Checklist. Continuous outcomes were pooled using a fixed effect inverse variance approach, while binary outcomes were pooled in a generic inverse variance meta-analysis. Thirteen studies were identified for inclusion in the review. Methodological quality was found to be reasonable, with the exception of poor reporting of effect-size information and inconsistent selection of outcome measures. Meta-analyses revealed that interventions did not significantly reduce subsequent alcohol consumption, but were associated with approximately half the odds of experiencing an alcohol-related injury (odds ratio = 0.59, 95% confidence interval 0.42–0.84).

GRADE tables

Table 1

Author(s): N Clark, N Lintzeris
Date: 2009-08-06
Question: Should brief interventions vs no intervention or standard care be used for high risk or harmful alcohol use?
Settings: primary care, emergency department, hospitals
Bibliography: Kaner et al (2007). Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database of Systematic Reviews*, (2):CD004148.

Havard A, Shakeshaft A, Sanson-Fishwe R (2008). Systematic review and meta-analyses of strategies targeting alcohol problems in emergency departments: interventions to reduce alcohol related injuries. *Addiction*, 103:368-76.

Quality assessment							Summary of findings					
							No of patients		Effect		Quality	Importance
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	brief interventions	no intervention or standard care	Relative (95% CI)	Absolute		
Heavy drinking (follow-up mean 1 year[1]; self report)												
9[2]	randomized trials	very serious[3]	no serious inconsistency	no serious indirectness	serious[4]	none	523/1356 (38.6%)	760/1405 (54.1%)	RR 0.68 (0.57 to 0.81)[5]	173 fewer per 1000 (from 103 fewer to 233 fewer)	VERY LOW	CRITICAL
Alcohol related injury (follow-up 6-12 months; interview)												
3[6]	randomized trials	serious[7]	no serious inconsistency	serious[8]	no serious imprecision[9]	none	0/481 (0%)[10]	20%	RR 0.59 (0.42 to 0.84)	82 fewer per 1000 (from 32 fewer to 116 fewer)	LOW	IMPORTANT
Alcohol consumption (gm/wk) (follow-up 1 year[1]; measured with: self report; range of scores: -300-300; Better indicated by lower values)												
22[11]	randomized trials	very serious[3]	serious[12]	no serious indirectness	no serious imprecision	none	2938	2922	-	MD 38.42 lower (54.16 to 22.67 lower)	VERY LOW	IMPORTANT
Mortality (follow-up 1-10 years[13]; Registry searches)												

4	randomized trials	no serious limitations	no serious inconsistency	no serious indirectness	serious[14]	none	21/966 (2.2%)[15]	22/674 (3.3%)[16]	RR 0.47 (0.25 to 0.89)	17 fewer per 1000 (from 4 fewer to 24 fewer)	MODERATE	CRITICAL

[1] Variable, but on average 6 months to one year follow up.

[2] Analysis 1.18 of Kaner et al, 2007review.

[3] Most studies had loss to follow up greater than 30% and these patients were generally not included in the analysis. Outcome assessment was not masked in 40% of studies.

[4] I squared 66%.

[5] This analysis was not conducted in the Kanar et al, 2007 review because different definitions of heavy drinkers were used in the studies. Review of the definitions used found them not that dissimilar and the analysis was conducted in Revman from the data in the Kanar et al, 2007 review.

[6] Longabaugh, Monti and Spirito (Havard et al, 2008).

[7] Blinding in outcome assessment not reported. Although injury is a "hard" outcome, there was interpretation as to whether the injury was alcohol related or not.

[8] Review of emergency department studies.

[9] I squared is 0.41 (calculated from chi squared 3.42 with 2 degrees of freedom).

[10] Number of events not reported in the meta-analysis or one of the trials. Meta-analysis was done on the basis of odds ratio and confidence interval which was reported in all the studies.

[11] Comparison 1 of Kaner et al, 2007 review.

[12] I squared 57%.

[13] To adjust for the difference in follow up, the number of deaths was converted to a person-time incidence rate.

[14] Small numbers of events leading to wide confidence intervals.

[15] 5919 person years, rate of 3.5 per 1000 person-years.

[16] 3187 person years follow-up, with a mortality rate of 6.7 per 1000 person years.

Reference List

Cuijpers P, Riper H, Lemmers L (2004). The effects on mortality of brief interventions for problem drinking: a meta-analysis. *Addiction,* 99:839-45.

Havard A, Shakeshaft A, Sanson-Fishwe R (2008). Systematic review and meta-analyses of strategies targeting alcohol problems in emergency departments: interventions to reduce alcohol related injuries. *Addiction*, 103:368-76.

Kaner E et al (2007). Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database of Systematic Reviews*, (2):CD004148.

McQueen J et al (2005). Brief interventions for heavy alcohol users admitted to general hospital wards. *Cochrane Database of Systematic Reviews*, (2): CD005191.

NICE (2010). NICE public health guidance 24. Alcohol-use disorders: preventing the development of hazardous and harmful drinking.

From evidence to recommendations

Factor	Explanation
Narrative summary of the evidence base for the scoping question	Brief interventions incorporating screening and short duration (1-2 sessions) of 10 to 60 minutes are effective in reducing total alcohol consumption, reducing high risk alcohol use (excessive drinking), and negative consequences of alcohol consumption (alcohol related injuries and mortality). The reduction in overall consumption is modest (less than one drink per day on average), but the reduction on hazardous drinking and harmful effects of drinking are more substantial (NNT = 5.7 for hazardous drinking, 12.2 for injuries and 58.8 for mortality), indicating that brief interventions are more effective in those people who are more likely to experience problems related to alcohol consumption than other alcohol consumers. Brief interventions incorporating screening have been demonstrated to be effective in primary care settings, emergency departments, hospital outpatient departments, and trauma centres. There is mixed evidence for their effectiveness in hospital wards. Brief interventions incorporating screening have been shown to be effective in both men and women, with a range of severity of drinking problems. Effectiveness has been demonstrated for very brief (5-10 minute) interventions and for more extended interventions (60 minutes, sometimes in more than one session). In some studies the very brief intervention did not perform as well as the extended brief intervention. Brief interventions over several sessions did not generally demonstrate any additional benefit. Issues of uncertainty: Quality of life and psychosocial function and Screening Data was lacking on the impact of brief interventions incorporating screening on quality of life and psychosocial functioning. The package of screening and brief intervention is shown to be effective in the trials described above. There is inadequate evidence to separate screening and brief interventions compared to opportunistic brief interventions (patients presenting to primary health setting with alcohol related problem). Also, it is unclear whether brief interventions are more effective in people with alcohol related health problems in which risky or harmful alcohol consumption would likely be detected in a

	good history and clinical examination. It is unclear, then, whether medical practices should focus on detecting patients through good history taking, or through systematic screening by patients or clinic staff, or both. NNT: NNT = 8 to reduce one excessive drinker. Numbers needed to screen: in general primary care (e.g. GP settings), up to one in three patients screened will warrant a brief intervention. Hence, in general primary care settings with screening, screening approximately 24 patients and delivering brief intervention in 8 high risk patients will reduce high risk drinking in one patient.
Summary of the quality of evidence	Although there are many trials, the quality of the evidence was low to moderate due to inadequate masking of outcome assessors and higher drop out rates.
Balance of benefits versus harms	The risk of harm from brief intervention is considered minimal. Questions regarding alcohol consumption in people under the legal drinking age may put them at legal risk. On balance the benefits appear to clearly outweigh the potential harms.
Define the values and preferences including any variability and human rights issues	This recommendation values the health of those who will suffer adverse effects of alcohol consumption over any potential benefit of alcohol consumption that may have arisen. This recommendation assumes that in the interests of greater public health, it is better to enquire about hazardous and harmful alcohol consumption in those who may be at risk rather than to wait until patients identify their alcohol consumption as a concern for them.
Define the costs and resource use and any other relevant feasibility issues	In some settings, screening may not be feasible or cost effective, either because the rates of hazardous and harmful alcohol use are low or because health care practitioners are already overburdened. Screening for hazardous and harmful alcohol consumption has been found to be cost effective in high income countries. Given that the lifetime Quality adjusted life-year (QALY) gain is estimated to be between 0.004 and 0.020 per patient screened, it is likely to be cost effective to screen in lower income settings in which the prevalence of hazardous and harmful use are average or higher.

Final recommendation(s)

Screening and brief interventions for hazardous and harmful alcohol use are recommended in non-specialist health care settings, except in areas of

low prevalence. The brief intervention is still relevant in low prevalence areas/population groups.
Strength of recommendation: STRONG

Screening for hazardous and harmful alcohol use should be conducted, using a validated instrument that can be easily incorporated into routine clinical practice (e.g. AUDIT-3, AUDIT-C, ASSIST). In settings in which screening is not feasible or affordable, practitioners should explore alcohol consumption in their patients when relevant.
Strength of recommendation: STRONG

Patients with a hazardous and harmful alcohol use should receive a brief intervention. The brief intervention should comprise a single session of 5-30 minutes duration, incorporating individualised feedback and advice on reducing or ceasing alcohol consumption, and the offer of follow-up.
Strength of recommendation: STRONG

Patients who on screening are identified as having dependence should be managed according to the recommendations in the section on alcohol dependence.
Strength of recommendation: STRONG

Update of the literature search – June 2012

Screening and brief interventions for hazardous and harmful alcohol use

In June 2012 the literature search for this scoping question was updated. The following systematic reviews were found to be relevant without changing the recommendation:

Kaner EF, Dickinson HO, Beyer FR, Campbell F, Schlesinger C, Heather N, Saunders JB, Burnand B, Pienaar ED. Effectiveness of brief alcohol interventions in primary care populations. Cochrane Database of Systematic Reviews 2007, Issue 2. Art. No.: CD004148. DOI: 10.1002/14651858.CD004148.pub3. (**Edited (no change to conclusions), published in Issue 4, 2009**.)

McQueen J, Howe TE, Allan L, Mains D, Hardy V. Brief interventions for heavy alcohol users admitted to general hospital wards. Cochrane Database of Systematic Reviews 2011, Issue 8. Art. No.: CD005191. DOI: 10.1002/14651858.CD005191.pub3. (**New search for studies and content updated (no change to conclusions), published in Issue 8, 2011.)**

Sullivan LE, Tetrault JM, Braithwaite RS, Turner BJ, Fiellin DA. A Meta-analysis of the Efficacy of Nonphysician Brief Interventions for Unhealthy Alcohol Use: Implications for the Patient-Centered Medical Home. The American Journal on Addictions 2011, 20: 343–356, DOI: 10.1111/j.1521-0391.2011.00143.x.