

## PDF hosted at the Radboud Repository of the Radboud University Nijmegen

The following full text is a publisher's version.

For additional information about this publication click this link.

<http://hdl.handle.net/2066/47735>

Please be advised that this information was generated on 2019-02-23 and may be subject to change.

# How to optimise interventions for problem drinking among hospital outpatients?

M.J. Emmen<sup>1\*</sup>, H. Wollersheim<sup>2</sup>, G. Bleijenberg<sup>3</sup>, G.M. Schippers<sup>4</sup>

<sup>1</sup>Netherlands Institute for Health Services Research (NIVEL), Utrecht, the Netherlands, <sup>2</sup>Centre for Quality of Care Research and <sup>3</sup>Expert Centre for Chronic Fatigue, Radboud University Nijmegen Medical Centre, Nijmegen, the Netherlands, <sup>4</sup>Amsterdam Institute for Addiction Research, Amsterdam Medical Centre, the Netherlands, \*corresponding author: tel.: +31 (0)30-272 98 29, fax: +31 (0)30-272 97 29

## ABSTRACT

In this article several suggestions on how to optimise interventions for problem drinking among hospital outpatients are enumerated. These interventions are especially important for patients with diagnoses that are alcohol related. The intervention has to be brief and easy to integrate into medical specialist's routine practice; an active role for the medical specialist and flexible involvement of a specialised nurse are suggested. Key elements of the intervention are:

- early identification of problem drinking;
- raising the issue of problem drinking;
- assessment of the drinking behaviour;
- reaching an agreement about change;
- follow-up;
- evaluation of the change.

A feasible and attractive option is integrating the intervention into a broader lifestyle intervention. Those who perform the brief alcohol intervention need to be specially educated and trained.

## KEYWORDS

Alcohol consumption, alcoholism, brief intervention, hospital outpatients, prevention

## INTRODUCTION

Medical specialists in hospitals frequently encounter patients who drink above safe health limits (>14 units/week for women and >21 units/week for men). Especially

if patients have medical complications that are related to their problematic alcohol use, the medical specialist has to intervene in the alcohol problems alongside the patient's medical treatment. Although interventions for problematic alcohol use are described in guidelines such as the 'Guideline problematic alcohol use from the Dutch College of General Practitioners',<sup>1</sup> medical specialists are not used to intervening structurally in alcohol-related problems. Most lack the skills to intervene appropriately and successfully. Because of time restraints and low expectations on effect, lifestyle interventions are considered a waste of time. Medical specialists usually restrict themselves to warnings, i.e. to unidirectional advice about lifestyle. This is often not sufficient. The question arises as to how alcohol problems among hospital patients can be dealt with in a more structured way during medical practice. In this article we will give suggestions on how interventions for problem drinking among hospital outpatients can be optimised, based on relevant literature and our own research experience. We will refer to the type of intervention, target population and to the question who can best provide the intervention. This is followed by a description of the important elements of a brief alcohol intervention among hospital outpatients including an example. Training should be an important facilitator of the intervention.

## TYPE OF INTERVENTION, TARGET GROUP AND PROVIDER

### Type of intervention

To stimulate medical caregivers to perform an intervention

to reduce alcohol consumption among their patients, the intervention needs to be brief and easy to integrate into daily hospital medical practice. The majority of the patients with mild or moderate alcohol problems might profit from such an intervention.<sup>2,3</sup> Those who fail to change their drinking behaviour can be referred to specialised treatment with a higher level of intensity. Most brief interventions comprise assessment, advice, counselling with educational elements, and some form of written information. They are less time-consuming than intensive alcohol treatment and are generally delivered by professionals other than specialists in substance abuse.<sup>4</sup> They are often 'opportunistic', since their aim is to modify drinking behaviour in patients whose primary interest is not discussing their drinking behaviour. Most brief interventions aim for moderate or harm-free drinking rather than total abstinence.

Although various studies have reported about the use of brief alcohol interventions in general practice,<sup>5,6</sup> less studies examined brief alcohol intervention in the hospital setting. In a review of the literature regarding studies performed in the general hospital setting, we found only eight controlled trials.<sup>7</sup> Two of these studies were performed among outpatients. Although one of these outpatient studies found a reduction in alcohol consumption and a decrease in  $\gamma$ -glutamyltransferase (GGT),<sup>8</sup> and the other a decrease in sickness allowance days,<sup>9</sup> both studies had major methodological weaknesses. So the evidence for the effectiveness of such brief interventions is not convincing. However, various arguments underscore the need for a brief intervention that is structured, flexible and feasible. The chronic character of many alcohol problems needs to be taken into account. A single intervention by one medical specialist during one or two consultations might not be sufficient to have a lasting effect on chronic disorders.<sup>2</sup> An alcohol intervention embedded in a chain of repeated interventions, preferably in cooperation with other caregivers, might eventually lead to better results. A short, feasible motivational advice may help the doctor-patient interaction. Finally, whether they like it or not, medical doctors are regularly confronted with patients who continue their drinking habit that is in flagrant contradiction to their health. The causal or contributing effects of heavy drinking on somatic illnesses is strong and undisputed. As such, medical specialists cannot neglect this behaviour. It seems simply unethical to disregard it. So, how should the intervention be performed?

Although brief interventions for problem drinking are also performed among hospital patients who attend the accident and emergency department or came straight to a clinic for treatment of injuries,<sup>10-12</sup> we focus more on the medical specialist in the chronic care setting. In acute care settings the population more often consists of younger drinkers who drink too much on one occasion (binge

drinkers) instead of the chronic excessive drinkers. Often less time is available for intervention, so follow-up of an intervention can become difficult. If the patient's injury is related to the use of alcohol, the intervener should primarily pay attention to that injury. All these factors make brief interventions in the acute care different from those we describe in our article

### Target group

Brief alcohol interventions could also be effective for problem drinkers with nonalcohol-related complaints. However, it can be questioned who will be the best person to perform this form of prevention. We think it can be useful if medical specialists who identify excessive drinkers with health problems that are neither directly nor indirectly related to excessive alcohol use at least make a remark about the healthy drinking limits, and ask the general practitioner to deal with it further.

### Provider of the intervention

Brief interventions in the hospital setting can be performed by different healthcare providers such as medical specialists,<sup>8</sup> psychologists,<sup>13</sup> specialised nurses,<sup>13-16</sup> or combinations of these.<sup>9,17</sup>

We doubt whether psychologists should be the secondary reference to provide a brief intervention in the hospital setting. Elvy and colleagues (1988) studied a brief intervention in which hospital inpatients were approached by a psychologist who confronted them with their self-reported drinking problems and asked whether they would accept referral to an alcoholism counsellor.<sup>13</sup> Although patients who received the intervention improved in terms of self-reported alcohol problems, no differences in reduction in alcohol consumption were found compared with those who did not receive the intervention. We also failed to find evidence for the effectiveness of adding a brief motivational intervention for problem drinking provided by a psychologist to physician's advice among hospital outpatients.<sup>18</sup> The two-session intervention focused on enhancing motivation by perceiving consequences of excessive use and reflecting on them. After six months there were no differences between the patients who did and those who did not receive the intervention.

Evidence suggests that nurses are effective at reducing excessive drinking in the primary healthcare setting.<sup>19</sup> Nurses performed approximately half of the interventions evaluated in the World Health Organisation study of brief interventions in primary healthcare.<sup>19</sup> This study showed that their simple advice and brief counselling had a significant effect on reducing alcohol consumption, especially among males. Another primary care study also found a reduction in alcohol consumption after very brief advice and counselling delivered by a nurse practitioner.<sup>20</sup>

Less studies evaluated brief interventions for problem

drinking performed by nurses in the hospital setting, and the effects are less convincing. Three studies that evaluated brief alcohol interventions performed by a (specialised) nurse among hospital inpatients reported no effects on alcohol consumption.<sup>14-16</sup> However, an intensive interview by a specialised nurse led to a reduction in alcohol-related problems and a reduction in the biochemical marker GGT.<sup>14</sup> After an audiovisual presentation of information on alcohol and a booklet offered by nursing staff a significantly larger proportion of patients experienced a decrease in their alcohol-related health problems compared with a control group.<sup>15</sup> So the effects of nurses providing the brief intervention for problem drinking among hospital patients are mixed. Nevertheless, because nurses with a specialisation in mental health counselling regularly provide treatment in organisations dealing with substance use disorders, specialised nurses can be considered quite suitable to be employed for this task in outpatient clinics as well. Based on the positive effects of brief alcohol interventions performed by the general practitioner,<sup>5,6</sup> it seems likely that a hospital intervention for problem drinking is most effective when it is performed, or at least initiated, by the medical specialist himself. This was the case in the only hospital intervention study with clear positive effects.<sup>8</sup> A motivated medical specialist gave his patients personal advice and reinforced this four times within eight weeks. Also, in a recent study among outpatients with high cardiovascular risk, we demonstrated that targeting several risk behaviours such as excessive drinking, smoking, unhealthy eating habits and inactivity by a medical specialist in internal medicine appeared to have positive although small effects.<sup>21</sup> However, lack of time, knowledge or motivation, doubts about effectiveness and inadequate skills often prevent medical specialists from performing brief interventions to promote patient health.<sup>22-24</sup> A feasible alternative might be that they pass on the intervention to another care provider after they have established rapport with the identified problem drinker. These care providers can be trained more extensively and can save costs if they take over tasks that are now carried out by the medical specialist. Research in primary healthcare has demonstrated positive effects when screening and raising the issue of a drinking problem by the physician were combined with an intervention by a nurse.<sup>25</sup> This could be a valuable combination in the hospital setting too.

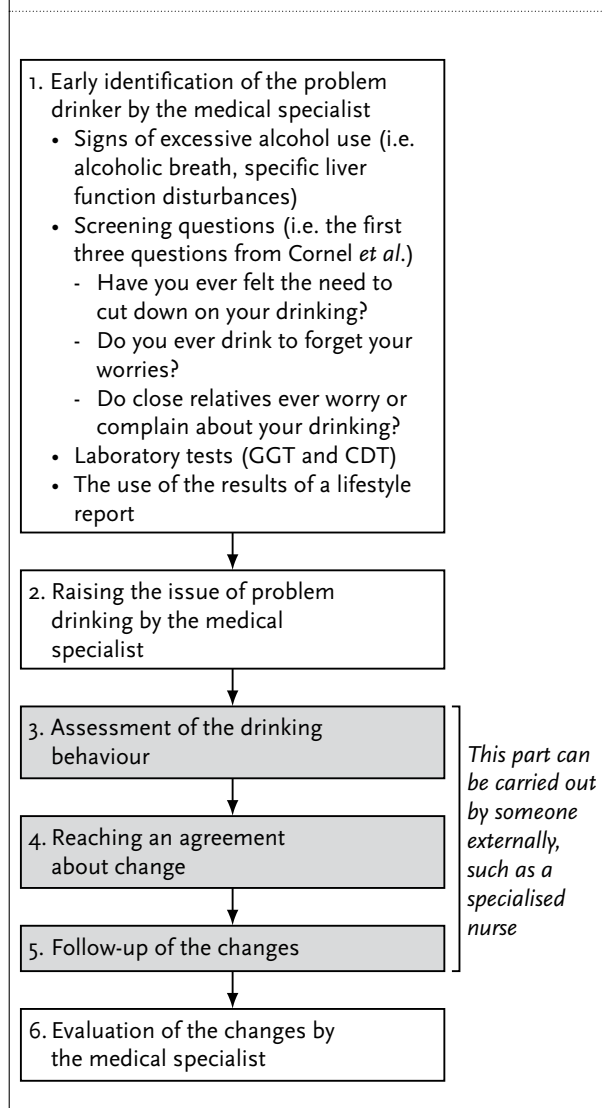
#### KEY ELEMENTS OF A BRIEF ALCOHOL INTERVENTION AMONG HOSPITAL OUTPATIENTS

Based on the guide 'Helping patients with alcohol problems', published by the National Institute on Alcohol

Abuse and Alcoholism,<sup>26</sup> and in line with the recently published Dutch guidelines for intervention in smoking behaviour,<sup>27</sup> and inspired by our own experiences, we have developed a stepwise approach for brief, structured intervening in problem drinking among hospital outpatients. The six key elements of a brief alcohol intervention are (figure 1):

- early identification of problem drinking;
- raising the issue of problem drinking;
- assessment of the drinking behaviour;
- reaching an agreement about changing the drinking behaviour;
- follow-up;
- evaluation of the change.

**Figure 1** The six key elements of a brief alcohol intervention in the hospital setting



### Early identification of problem drinking

Early identification of problem drinking is important since brief interventions are most effective if started early.<sup>2</sup> The medical specialists are in a favourable position to identify the problem drinker during the first diagnostic consultation. Therefore, they should question all patients regarding their alcohol consumption. However, many patients do not present their alcohol use as a problem. Not only disorders such as reflux oesophagitis, liver cirrhosis, pancreatitis, peripheral neuropathy, hypertension, fatigue and depression, but also a variety of social and behavioural complications can serve as clues to the presence of problem drinking.<sup>28,29</sup>

Screening questionnaires, such as the first three questions from an interval scale measuring the severity of problem drinking by Cornell and colleagues,<sup>30</sup> or the four questions from the CAGE questionnaire,<sup>31</sup> can be used to facilitate the early identification of problem drinkers. The administration of the three screening questions from Cornell's scale takes 25 seconds. The administration of the four questions from the CAGE takes 32 seconds. Given the good psychometric qualities, we would recommend the first three questions from Cornell's interval scale.<sup>30</sup> The AUDIT is a useful screening questionnaire too,<sup>32</sup> but two minutes are required for the administration of this ten-item questionnaire and another minute for the interpretation of the scores. Altogether this takes too much time. In our study regarding the effectiveness of a brief psychological motivational alcohol intervention among hospital outpatients, internal medicine residents did a structural screening. They used the Cornell scale for all patients who consumed alcohol. About 70% of the participating residents reported that they found it difficult to ask the sensitive alcohol-related questions to patients with complaints that were obviously not alcohol related or to patients who stated that they only drank sporadically. They were concerned about offending these patients. In general, they had fewer problems with the screening if patients drank regularly or had probable alcohol-related complaints. Other researchers found similar problems with universal screening among general practitioners.<sup>33</sup> Therefore we would like to advocate a greater alertness in identifying problem drinking than screening all patients structurally.

The screening questions could be supported by the use of biochemical markers of excessive alcohol consumption such as an elevated GGT or carbohydrate-deficient transferrin (CDT).<sup>34</sup> The cut-off value for the % CDT (axis-shield % CDT assay) is  $\geq 2.6\%$ . However, for both markers the predictive value for diagnosing alcohol abuse is not high.<sup>34</sup> If elevated, these markers can be valuable during follow-up. They can be used to motivate patients who have successfully lowered their consumption and in whom the test normalised.

### Raising the issue of problem drinking

Raising the issue of problem drinking sensitively is the next step. Since problematic alcohol use is associated with more stigmas than, for example, tobacco use, and patients can feel ashamed, the topic should be raised non-moralistically. This part of the intervention will be most convincing if medical specialists do it, since they are the experts to emphasise the relation between the patient's alcohol use and medical symptoms. After mentioning the (possible) influence of 'use of alcohol' on the patient's complaints, the specialist can ask the patient to discuss his/her drinking behaviour. Rollnick and colleagues suggest that words such as 'problem' or even 'concern' can best be avoided and that 'use of alcohol' is the safest phrase to use.<sup>35</sup> They also advise that if the subject is raised and the patient is feeling threatened, it can be good to give a patient time to think it over, coming back to it later. Yet, this could mean an extra consultation.

### Assessment of the drinking behaviour

The following step is the assessment of the drinking behaviour. Although in our experience medical specialists can be trained to assess patient's drinking behaviour within five minutes, it could be an option to involve a specially trained nurse for this part of the intervention. Based on the biopsychosocial model of health and illnesses developed by Engel,<sup>36,37</sup> we suggest examining the drinking behaviour from a biological, psychological and social perspective. The biological perspective means examining the relation between patient's alcohol use and medical symptoms. The psychological perspective deals with where, when and how much the patient drinks, his cognitions (ideas and opinions about alcohol use), and emotions (how the patient feels when drinking alcohol). The social perspective concerns the self-reported influences on the patient's social environment; how the social environment confirms, accepts or rejects the patient's drinking behaviour, and with whom and where the patient drinks.

### Reaching an agreement about change

After the assessment, the medical specialist or specialised nurse tries to reach an agreement with the patient about changing the risk behaviour. The advice provided to the patient depends on the severity of the complaints and the patient's drinking history. Based on the guidelines to help patients with alcohol problems published by the National Institute on Alcohol Abuse and Alcoholism<sup>26</sup> the following advice is recommended: reducing alcohol consumption below the national health limit (in the Netherlands:  $\leq 3$  U/day for men and  $\leq 2$  U/day for women) for patients with mild or moderate alcohol problems and abstaining from alcohol for patients with severe alcohol-related diagnoses, alcohol dependency, or a long drinking history.

After the advice, the patient should be given the opportunity to react. The medical specialist gauges the patient's readiness to change by asking what the patient thinks and if he is ready to cut down or to abstain. According to the transtheoretical model of behaviour change the patient is stimulated to move through a series of changes from not thinking about change (precontemplation), to being unsure about it (contemplation), ready for change (preparation), engaged in change (action) and keeping the change going (maintenance).<sup>38,39</sup> If a patient is not ready to change, the medical specialist can restate concern about the patient's health and reaffirm his willingness to assist the patient when he is ready to change his drinking behaviour. Although this patient will not immediately change his drinking behaviour, offering the advice might have caused a change in the patient's thinking about the risky drinking behaviour. If a patient is ready to try to cut down or to abstain, the patient and care provider can negotiate a feasible behavioural change goal. Patients are more likely to change their drinking behaviour when they are involved in goal setting.<sup>40</sup> The care provider can enhance the commitment by noting the mutual agreement down in the patient's medical record, and by announcing that he will return to the subject at the next consultation.

#### Follow-up

The fifth step of a brief intervention is a follow-up at the next consultation. The care provider asks the patient how he has progressed with his behaviour change and reinforces any progress toward reduction in alcohol consumption. It is important to enhance the patient's confidence, so the patient will feel able to change his drinking behaviour.<sup>40</sup> If a patient has not reached his treatment goals, the care provider should explore the reasons for this. New feasible goals can be set and new agreements can be made.

The role of these follow-up sessions in which patient's progress is monitored should not be underestimated. Interventions for excessive drinkers seem to be more effective when extended by one or more follow-up sessions.<sup>41,42</sup> Both effective brief interventions in the primary care,<sup>5,6,25</sup> and the only successful hospital intervention,<sup>8</sup> included several follow-up sessions.

#### Evaluating the change

The sixth and last step of the intervention is the evaluation of the change by the medical specialist. If someone else performed the assessment, reached the agreement and did one or more follow-up sessions, the medical specialist needs to be informed about the results, so he can evaluate how a patient has progressed. To prevent patients from relapsing and to better maintain the established changes in drinking behaviour, the medical spe-

cialist can inform the patient's general practitioner and eventually other health providers about the agreement of change and results by a letter. A copy of the letter can be sent to the patients. This written document might enhance patient commitment.

For those patients who have had several unsuccessful attempts at changing their drinking behaviour, the medical specialist should consider referral to a specialist in substance abuse or a self-help group such as the AA (Alcoholics Anonymous). Again the specialist can send a copy of the referral letter to the patient.

#### BRIEF ALCOHOL INTERVENTIONS AS PART OF A BROADER LIFESTYLE INTERVENTION

Integrating alcohol assessment in the context of a broader lifestyle assessment will probably make it more acceptable to both internists and nurses and less threatening for the patients.<sup>43</sup> Recently, we studied the implementation and effect of brief behavioural feedback intervention in hospital outpatients.<sup>21</sup> The intervention was performed by medical specialists in internal medicine and directed at patients with lifestyle-related complaints, in particular those with a high cardiovascular risk profile. The intervention was brief and easy to perform, it took about one to five minutes, seemed to be feasible to implement, and had small but significant positive effects. The intervention involved not only the reduction of excessive alcohol consumption, but also modification of smoking, physical inactivity and poor dietary habits.<sup>21</sup>

To deliver the intervention, the medical specialists first had to invite patients to complete a computerised lifestyle assessment including questions about smoking, physical inactivity, poor dietary habits and alcohol consumption and about patient's readiness to change these behaviours. This pilot study reported on the use of a computer programme called CLAFI (Computerised Lifestyle Assessment and Feedback Intervention). In this programme, patient's assessment scores are presented in a personal lifestyle feedback report. The scores on the different health behaviours are calculated and transformed into risk scores for the four behaviour domains. The risk scores are visualised by traffic lights: red for risky behaviour, orange for behaviour which is not really harmful yet, but could be improved, and green for healthy behaviour. The traffic lights are accompanied by educational messages such as 'Smoking is harmful for your health, you'd better stop' (red colour). For each behaviour that was 'risky' or 'could be improved', the patient's motivation to change is presented as well. This information about patients' motivation to change can be very useful for the medical specialists who have to provide feedback to their patients.

In a next consultation, the medical specialist offers the personal feedback report to the patients. We support the medical specialists by providing an instructive checklist, as part of the programme, to couple the report with verbal comments and advice. The feedback report makes risk behaviour immediately visible for the medical specialist and the patient, and places it in the frame of lifestyle in general. This facilitates in particular the key elements of identifying the lifestyle problems and raising the issue and can be followed by further assessment and an agreement on changing behaviour.

## TRAINING

Although nurses and physicians in specialised healthcare settings indicate they are often confronted with alcohol problems, they consider early recognition and treatment of heavy drinking as less appropriate and showed poor knowledge of the content of brief alcohol interventions.<sup>23</sup> Research shows that general practitioners who received more education regarding alcohol abuse are more likely to manage patients with alcohol-related harm.<sup>44</sup> Also training in alcohol counselling skills is important to give them a sense of competence to intervene with problem drinkers.<sup>45</sup> A controlled trial conducted among emergency medicine residents demonstrated that these elements are also relevant in the training of specialists.<sup>46</sup> A four-hour didactic video and skills-based workshop significantly improved the residents' knowledge and practice with regard to patients with alcohol problems.

We developed a five-hour training programme for medical specialists to perform the brief alcohol intervention described earlier, implying both raising alertness, educating and counselling, and referral. The trainers were psychologists and experienced medical specialists. The training transfers the relevance, effects and content of a brief alcohol intervention in the context of a biopsychosocial model of health and illnesses.<sup>36,37</sup>

Because it is preferable to involve nurses in brief alcohol interventions in general healthcare, a training programme is needed to help them screen and educate patients, perform brief interventions and support the treatment of patient resistance.<sup>47</sup> An adaptation of our training programme has now been designed and is being used in a running implementation project in Amsterdam and Nijmegen.

## CONCLUSION

The combination of identifying the problem drinking and raising the issue of a drinking problem by the specialist with the assessment of the drinking behaviour, reaching an agreement about change and follow-up by a specialised

nurse needs further consideration. Finally, medical specialists should evaluate the change and consider informing other care providers, or referring patients who have had several unsuccessful attempts at changing their drinking behaviour to specialised alcohol treatment. To stimulate the medical specialist and nurses to perform the intervention, it should be brief, easy to perform, fit into their workflow, and be focused on patients with complaints which are directly or indirectly related to excessive alcohol use. Moreover, it is important to educate both medical specialists and nurses about the relevance and effects of brief alcohol intervention and to train them in how to apply those interventions.

Future research can best be focused on the effectiveness of brief alcohol interventions among hospital outpatients in routine practice. For example in randomised controlled multicentre trials, where hospitals are randomised to evaluate the intervention against usual care. Such studies should include a process analysis of daily routines that might reveal factors that influence the successful implementation of the interventions and help tailoring the service.

## ACKNOWLEDGEMENT

The research is funded by ZonMw 'Netherlands Organisation for Health Research and Development', (project no.: 31000017).

## REFERENCES

1. Cornel M, van Olst EJ, Willink AE, Hoeksema JCM, Bloemen JR, van der Laan JR. NHG-Standaard Problematisch alcoholgebruik [Guidelines of the Dutch College of General Practitioners Problematic alcohol use]. Huisarts Wet 1990;33:280-5.
2. Moyer A, Finney JW, Swearingen CE, Vergun P. Brief interventions for alcohol problems: a meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. *Addiction* 2002;97:279-92.
3. Institute of Medicine. Broadening the base of treatment for alcohol problems. Washington DC, US: National Academy Press; 1990.
4. Heather N. Brief intervention strategies. In: Hester RK, Miller WR, editors. Handbook of alcoholism treatment approaches: Effective alternatives. Needham Heights, MA, US: Allyn & Bacon; 1995. p. 105-22.
5. Ballesteros J, Gonzalez-Pinto A, Querejeta I, Arino J. Brief interventions for hazardous drinkers delivered in primary care are equally effective in men and women. *Addiction* 2004;99:103-8.
6. Poikolainen K. Effectiveness of brief interventions to reduce alcohol intake in primary health care populations: a meta-analysis. *Prev Med* 1999;28:503-9.
7. Emmen MJ, Schippers GM, Bleijenberg G, Wollersheim H. Effectiveness of opportunistic brief interventions for problem drinking in a general hospital setting: systematic review. *BMJ* 2004;328:318-20.

8. Maheswaran R, Beevers M, Beevers DG. Effectiveness of advice to reduce alcohol consumption in hypertensive patients. *Hypertension* 1992;19:79-84.
9. Persson J, Magnusson PH. Early intervention in patients with excessive consumption of alcohol: a controlled study. *Alcohol* 1989;6:403-8.
10. Antti-Poika I, Karaharju E, Roine R, Salaspuro M. Intervention of heavy drinking--a prospective and controlled study of 438 consecutive injured male patients. *Alcohol Alcohol* 1988;23:115-21.
11. Longabaugh R, Woolard RE, Nirenberg TD, et al. Evaluating the effects of a brief motivational intervention for injured drinkers in the emergency department. *J Stud Alcohol* 2001;62:806-16.
12. Smith AJ, Hodgson RJ, Bridgeman K, Shepherd JP. A randomized controlled trial of a brief intervention after alcohol-related facial injury. *Addiction* 2003;98:43-52.
13. Elvy GA, Wells JE, Baird KA. Attempted referral as intervention for problem drinking in the general hospital. *Br J Addict* 1988;83:83-9.
14. Chick J, Lloyd G, Crombie E. Counselling problem drinkers in medical wards: a controlled study. *BMJ* 1985;290:965-7.
15. Rowland N, Maynard AK. Standardized and alcohol education: a hit or miss affair? *Health Promotion Int* 1993;8:5-12.
16. Watson HE. A study of minimal interventions for problem drinkers in acute care settings. *Int J Nurs Stud* 1999;36:425-34.
17. Heather N, Rollnick S, Bell A, Richmond R. Effects of brief counselling among male heavy drinkers identified on general hospital wards. *Drug Alcohol Rev* 1996;15:29-38.
18. Emmen MJ, Schippers GM, Bleijenberg G, Wollersheim H. Adding psychologist's intervention to physicians' advice to problem drinkers in the out-patient clinic. *Alcohol Alcohol* 2005;40:219-26.
19. Babor TF, Grant M, Acuda W, et al. A randomized clinical trial of brief interventions in primary care: summary of a WHO project. *Addiction* 1994;89:657-60.
20. Ockene JK, Adams A, Hurley TG, Wheeler EV, Hebert JR. Brief physician- and nurse practitioner-delivered counseling for high-risk drinkers: does it work? *Arch Intern Med* 1999;159:2198-205.
21. Emmen MJ, Peters E, Elving LD, et al. A brief behavioral feedback intervention in hospital outpatients with a high cardiovascular risk. *Patient Education and Counselling*. In press. Epub 2005 Jan 4.
22. Brull R, Ghali WA, Quan H. Missed opportunities for prevention in general internal medicine. *CMAJ* 1999;160:1137-40.
23. Kaariainen J, Sillanaukee P, Poutanen P, Seppa K. Opinions on alcohol-related issues among professionals in primary, occupational, and specialized health care. *Alcohol Alcohol* 2001;36:141-6.
24. Schwartz JS, Lewis CE, Clancy C, Kinoshian MS, Radany MH, Koplan JP. Internists' practices in health promotion and disease prevention. A survey. *Ann Intern Med* 1991;114:46-53.
25. Israel Y, Hollander O, Sanchez-Craig M, et al. Screening for problem drinking and counseling by the primary care physician-nurse team. *Alcohol Clin Exp Res* 1996;20:1443-50.
26. National Institute on Alcohol Abuse and Alcoholism. Helping patients with alcohol problems: A health practitioners guide. 2004 February NIH Publication No.:04-3769.
27. Van Weel C, Coebergh JW, Drenthen AJM, et al. Richtlijnen voor medici en paramedici bij de behandeling van tabaksverslaving [Review]. *Ned Tijdschr Geneesk* 2005;149(1):17-21. Erratum in *Ned Tijdschr Geneesk* 2005;149(12):672.
28. Isaacson JH, Nielsen C, Urbanic R, Challengren E. Markers for Patients with Alcohol Problems in an Outpatient General Medicine Clinic. *Subst Abuse* 1999;20:141-7.
29. O'Connor PG. The General Internist. *Alcohol Res Health* 1994;18:110-6.
30. Cornel M, Knibbe RA, van Zutphen WM, Drop MJ. Problem drinking in a general practice population: the construction of an interval scale for severity of problem drinking. *J Stud Alcohol* 1994;55:466-70.
31. Ewing JA. Detecting alcoholism. The CAGE questionnaire. *JAMA* 1984;252:1905-7.
32. Babor TF, De La Fuente JR, Saunders J, Grant M. AUDIT: the Alcohol Use Disorders Identification Test. Guidelines for use in the primary health care. Geneva: World Health Organization; 1989.
33. Beich A, Gannik D, Malterud K. Screening and brief intervention for excessive alcohol use: qualitative interview study of the experiences of general practitioners. *BMJ* 2002;325:870-2.
34. Aithal GP, Thornes H, Dwarakanath AD, Tanner AR. Measurement of carbohydrate-deficient transferrin (CDT) in a general medical clinic: is this test useful in assessing alcohol consumption. *Alcohol Alcohol* 1998;33:304-9.
35. Rollnick S, Mason P, Butler C. *Health Behaviour Change: A guide for practitioners*. Edinburgh: Churchill Livingstone; 1999.
36. Engel GL. The need for a new medical model: a challenge for biomedicine. *Science* 1977;196:129-36.
37. Engel GL. The clinical application of the biopsychosocial model. *Am J Psychiatry* 1980;137:535-44.
38. Prochaska JO, Diclemente CC. Toward a comprehensive model of change. In: Miller WR, Heather N, editors. *Treating addictive behaviors: Processes of Change*. New York: Plenum Press; 1986. p. 3-27.
39. Prochaska JO, Diclemente CC, Norcross JC. In search of how people change. Applications to addictive behaviors. *Am Psychol* 1992;47:1102-14.
40. Miller WR, Rollnick S. *Motivational interviewing: Preparing people to change addictive behavior*. New York: The Guilford Press; 1991.
41. Humphreys K, Tucker JA. Toward more responsive and effective intervention systems for alcohol-related problems. *Addiction* 2002;97:126-32.
42. McAvoy BR, Kaner EF, Lock CA, Heather N, Gilvarry E. Our Healthier Nation: are general practitioners willing and able to deliver? A survey of attitudes to and involvement in health promotion and lifestyle counselling. *Br J Gen Pract* 1999;49:187-90.
43. Graham AW. Screening for alcoholism by life-style risk assessment in a community hospital. *Arch Intern Med* 1991;151:958-64.
44. Anderson P, Kaner E, Wutzke S, et al. Attitudes and management of alcohol problems in general practice: descriptive analysis based on findings of a world health organization international collaborative survey. *Alcohol Alcohol* 2003;38:597-601.
45. Ockene JK, Wheeler EV, Adams A, Hurley TG, Hebert J. Provider training for patient-centered alcohol counseling in a primary care setting. *Arch Intern Med* 1997;157:2334-41.
46. D'Onofrio G, Nadel ES, Degutis LC, et al. Improving emergency medicine residents' approach to patients with alcohol problems: a controlled educational trial. *Ann Emerg Med* 2002;40:50-62.
47. Lock CA, Kaner E, Lamont S, Bond S. A qualitative study of nurses' attitudes and practices regarding brief alcohol intervention in primary health care. *J Adv Nurs* 2002;39:333-42.