# EFFECTIVENESS OF PHYSICIAN-BASED INTERVENTIONS WITH PROBLEM DRINKERS: A REVIEW

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## Abstract • Résumé

**Objective:** To review the results of randomized controlled trials on the effectiveness of brief physician interventions with problem drinkers.

**Data sources:** The MEDLINE and EMBASE databases were searched for articles published from 1966 and 1972 respectively, with the terms "problem/controlled/responsible/moderate/risk/drink"; "advice/drink"; "physician, nurse, general practitioner"; and "random." Forty-three articles were identified in the EMBASE search and 112 articles in the MEDLINE search.

**Study selection:** All trials examining the effectiveness of interventions by physicians in reducing alcohol consumption among problem drinkers attending a health-care facility were reviewed. Trials involving subjects attending an alcohol treatment clinic and those involving interventions delivered solely by nonphysicians were excluded. Eleven trials met the final selection criteria.

**Data extraction:** For each article, two of the authors independently assigned a score from 0 to 2 on a number of criteria for validity and generalizability.

**Data synthesis:** The four trials with the highest validity scores showed that men in the intervention groups reduced their weekly alcohol consumption by five to seven standard drinks more than the men in the control groups. Results for women were inconsistent. No convincing evidence of declines in alcohol-related morbidity among men or women was found.

**Conclusions:** The trials support the use of brief interventions by physicians for patients with drinking problems. Although further studies are needed to determine their effect on morbidity and mortality, the public health impact of such interventions is potentially enormous. Further research is needed to determine which patients are best suited for brief interventions, the optimal intensity of treatment and which components of brief interventions are most effective. Research is also needed to establish which strategies are effective in inducing physicians to use brief interventions.

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**Objectif :** Examiner les résultats d'essais randomisés contrôlés sur l'efficacité de brèves interventions de médecins auprès de gens qui abusent de l'alcool.

**Sources de données :** On a cherché dans les bases de données MEDLINE et EMBASE des articles publiés depuis 1966 et 1972 respectivement en utilisant les terms suivants : «problem/controlled/responsible/moderate/risk/drink»; «advice/drink», «physician, nurse, general practitioner», et «random». On a trouvé 43 articles dans EMBASE et 112 dans MEDLINE.

**Sélection d'études :** On a examiné tous les essais qui ont porté sur l'efficacité d'interventions de médecins dans la réduction de la consommation d'alcool chez des sujets qui abusaient de l'alcool et fréquentaient un établissement de soins de santé. On a exclu les essais portant sur des sujets inscrits à une clinique de désintoxication ou comportant des interventions de non-médecins seulement. Onze essais ont satisfait aux critères de sélection finals.

**Extraction de données :** Deux des auteurs ont attribué à chaque article, chacun de leur côté, une note de 0 à 2 en fonction de critères de validité et de généralisabilité.

**Synthèse des données :** Les quatre essais qui ont obtenu les cotes de validité les plus élevées ont révélé que les hommes membres des groupes d'étude ont réduit leur consommation hebdomadaire d'alcool de cinq, six ou sept consommations standard de plus que les hommes membres des groupes témoins. Les


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résultats ont été irréguliers chez les femmes. On n'a trouvé aucune preuve convaincante de baisse de la morbidité liée à l'alcool chez les hommes ou les femmes.

**Conclusions :** Les essais appuient le recours à de brèves interventions de médecins auprès de patients qui abusent de l'alcool. D'autres études s'imposent si l'on veut en déterminer l'effet sur la morbidité et la mortalité, mais ces interventions pourraient avoir un impact énorme sur la santé publique. D'autres recherches s'imposent si l'on veut déterminer dans quels cas de brèves interventions conviennent le mieux, l'intensité optimale du traitement et les éléments des interventions brèves qui sont les plus efficaces. Des recherches s'imposent aussi si l'on veut déterminer les stratégies qui réussissent à inciter les médecins à avoir recours aux interventions brèves.

In the past 20 years a number of randomized controlled trials in Europe and North America have examined the effectiveness of physician interventions with patients with drinking problems. The purpose of this review is to provide a critical assessment of these trials and to consider their implications for practising physicians.

## Background

Moderate alcohol consumption has been associated with decreases in all-cause and cardiovascular mortality[1–3] and with increases in the rate of death from trauma[4] and breast cancer.[5,6] The maximum safe level of alcohol consumption has not been established with certainty. The Royal College of Physicians and Surgeons of Canada recently recommended that daily alcohol intake not exceed two standard drinks a day for men and one third less for women.[7] (A standard drink is defined as 355 mL of beer, 150 mL of table wine and 45 mL of spirits.) Studies indicate that a high proportion of Canadians drink above this level. In the National Alcohol Survey, conducted in 1989,[8] 5.0% of adult men reported consuming 15 to 21 drinks per week and 4.6% reported an intake of 22 drinks or more; 1.2% of women reported having 15 or more drinks per week. The survey also found that 11.3% of adult men and 2.4% of women were "heavy, frequent" drinkers; that is, they had more than five drinks per occasion at least four times a month.

The literature suggests that among patients who attend outpatient medical clinics frequently, there is an even higher prevalence of hazardous drinking than in the general population. In a case–control study conducted at two family practice centres at the University of Western Ontario, London,[9] problem drinkers visited their physicians twice as frequently as did control subjects.

### Definition of problem drinking

For clinical purposes a problem drinker may be defined as someone who (a) drinks at a hazardous level (more than 12 standard drinks per week), (b) has developed a social or physical problem as a result of his or her drinking and (c) does not exhibit clinical features of serious alcohol dependence such as preoccupation with alcohol, withdrawal symptoms or severe social or physical problems resulting from alcohol use. The term "problem drinking" is consistent with the *International Statistical Classification of Diseases and Related Health Problems* diagnostic category, "harmful use of alcohol."[10] Table 1 lists some of the most common problems caused by hazardous drinking.

The ratio of problem drinkers to patients with severe alcohol dependence is at least 4:1.[11–14] In the National Alcohol Survey 8.5% of participating men reported having had at least one alcohol-related physical health problem in the preceding 12 months, and 5.7% reported having had a problem with friendships or social life as a result of drinking. By contrast, the estimated prevalence of alcoholism in Canada in 1988 was 1.8%.[8]

Because of the greater numbers of problem drinkers, the prevalence of alcohol-related morbidity and mortality is probably much higher among people without severe alcohol dependence than among alcoholics.[7,15,16] For example, among drivers admitted to the Trauma Unit of the Sunnybrook Health Science Centre, North York, Ont., following motor vehicle accidents, those with a positive

**Table 1: Common problems associated with hazardous drinking**

| |
|---|
| **Cardiovascular** |
| Hemorrhagic stroke |
| Hypertension |
| Tachyarrhythmia |
| **Gastrointestinal** |
| Fatty liver |
| Gastritis |
| Nonspecific dyspepsia |
| Recurrent diarrhea |
| **Musculoskeletal** |
| Trauma |
| **Psychologic** |
| Anxiety |
| Depression |
| Drug abuse |
| Fatigue |
| Insomnia |
| **Reproductive** |
| Impotence |
| Infertility |
| Menstrual irregularities |
| **Social** |
| Family violence |
| Impaired driving |
| Marital discord |
| Work or school absenteeism and poor performance |

blood alcohol concentration (BAC) test result had normal scores on the Alcohol Dependence Scale, indicating no or low alcohol dependence. They were, however, more likely to report drinking problems than a control group of drivers who had a negative BAC test result.[17]

### Physician interventions with problem drinkers

The predominant treatment approach to patients with drinking problems emphasizes lifelong abstinence, to be achieved through participation in self-help groups such as Alcoholics Anonymous and with the support of intensive counselling (often in inpatient settings) by therapists specializing in addictions. The traditional role for physicians has been to identify the drinking problem, treat the associated medical complications and encourage the patient to attend for specialized treatment. However, this treatment model was originally developed for the severely dependent patient and is not necessarily suitable for the problem drinker.

In recent years an expanded role for physicians in the management of problem drinkers has been recommended on the premise that these patients do not always require intensive or specialized treatment and will often respond to simple advice and counselling emphasizing strategies to reduce drinking to safe levels.

The trials included in this review examined the impact of this expanded role on problem drinking. Table 2 lists some of the main strategies used in the interventions to identify and counsel problem drinkers.

## Review methods

Our review was undertaken to identify and summarize the results of all randomized controlled trials of interventions by physicians directed at patients whose drinking was excessive. A search of the MEDLINE and EMBASE databases was conducted for articles published from 1966 and 1972 respectively. The search terms used were "problem/controlled/responsible/moderate/risk/drink"; "advice/drink"; "physician, nurse, general practitioner"; and "random." Forty-three articles were identified in the EMBASE search and 112 articles in the MEDLINE search. The reference lists of the retrieved articles were reviewed for additional articles.

All randomized controlled trials that examined the effectiveness of interventions by physicians in reducing alcohol consumption among problem drinkers attending health care facilities were included for review. Trials involving subjects attending alcohol treatment clinics and trials involving interventions delivered solely by nonphysicians were excluded. The 11 trials that met our final selection criteria are listed in Table 3.

Each trial was assigned a score from 0 to 2 on a number of criteria assessing validity (Table 4) and generalizability (Table 5). Two of us (L.W. and L.B.) scored the articles independently. Disagreements were resolved by consensus.

The 11 trials involved a total of 4048 subjects. Three studies presented separate results for men and women, one study involved women only, and the rest involved men only or men and women in a combined sample. Because studies involving combined samples included more men than women, their results will be presented in the discussion of results of trials involving only men.

## The trials

### Outcome measures

Most of the studies used self-reports of alcohol intake as their main outcome measure. Some also calculated the proportion of patients who decreased their intake from heavy to moderate levels. Reduced drinking was an acceptable treatment goal in all of the studies except the GI trial,[19] in which abstinence was the only ac-

**Table 2: Elements of physician interventions with problem drinkers**

| |
|---|
| Identifying problem drinkers by means of a screening device such as: |
| CAGE: Have you ever tried to **C**ut down on your drinking? Have you ever been **A**nnoyed by others telling you to cut down? Have you ever felt **G**uilty about your drinking? Have you ever needed an **E**ye opener? (A positive response to two or more is considered indicative of a drinking problem.) |
| **or** |
| The "problem question": Have you ever felt that you had a problem with alcohol? |
| Determining whether the patient is a problem drinker or has alcohol dependence (as indicated by withdrawal symptoms, severe social or physical problems resulting from drinking, preoccupation with alcohol, neglect of major social responsibilities because of alcohol or inability to drink moderately). Recommending abstinence for patients with alcohol dependence and referring them for more intensive treatment. |
| Informing patients about safe drinking guidelines (12 standard drinks per week for men, 9 for women, and no more than 2 or 3 drinks on any one occasion). |
| Reviewing the relevant health effects of alcohol with the patient. |
| Counselling patients to set a goal such as achieving abstinence or reducing drinking to, for example, two drinks three nights per week. |
| Providing tips on reducing the rate of alcohol consumption, such as: Don't have more than one drink per hour. Sip drinks slowly. Alternate alcoholic with nonalcoholic drinks. Dilute drinks with mixer. |
| Asking patients to keep a daily record of alcohol consumption. |
| Providing literature such as the materials contained in the College of Family Physicians' ARAI project. |
| Monitoring serum γ-glutamyl transferase levels at regular intervals and informing patients of the results. |

ceptable goal. A variety of clinical parameters were used, of which the serum γ-glutamyl transferase (GGT) level was the most popular. Two studies used the systolic blood pressure as an indicator of consumption levels, five used questionnaires to measure alcohol-related clinical problems, and two measured consultation rates and two used sick days as an indicator of alcohol-related problems.

### Validity scores

The four studies with the highest validity scores were the UK Medical Research Council (MRC),[23] Oxford men-only[24] and women-only[25] and World Health Organization (WHO)[28] trials (Table 4). These trials had an appropriate study design, relatively good follow-up of subjects and complete outcome measurements. The studies showed modest decreases in weekly alcohol consumption among the participating men. Results for the women who participated were inconsistent.

The main limitations in the validity of the 11 studies are summarized as follows.

#### Sample size

Of the three trials with negative results, two did not present power analyses.[18,25] The Oxford women's trial[25] recruited one third of the number of subjects that would have been required to demonstrate a 25% reduction in alcohol intake in the treatment group.

#### Follow-up

In only two studies were follow-up data obtained on 90% or more of the recruited subjects. An additional four trials obtained follow-up data on 80% to 90% of subjects. Subjects lost to follow-up tended to be younger and to have had a heavier baseline alcohol consumption. Most of the studies with incomplete follow-up excluded such patients from the analysis, thus potentially biasing the results. Three studies included patients lost to follow-up in their analyses, using the assumption that their drinking patterns had not changed.

#### Outcome measures

Seven of the trials[18,20,23–26,28] measured outcome using both self-reported alcohol consumption and objective measures such as the serum GGT level. Except in the MRC and Oxford men-only trials, the research teams who interviewed the subjects about drinking patterns were not blinded to the group assignment of the subject and therefore were potentially biased in their assessments. However, declines in the serum GGT level accompanied the subjects' reports of decreased intake in three of the five trials that reported positive results.[20,23,27]

#### Co-intervention

In the Malmo study[22] — the study of longest duration (5 years) and the only study to observe marked reduc-

**Table 3: Characteristics of trials of brief physician interventions with problem drinkers***

| Trial | No. of participants | Type (and no.) of setting | Intervener | Duration |
|---|---|---|---|---|
| DRAMS[18] | 78 men<br>26 women | General practice (16) | GP | 6 mo |
| GI[19] | 114 men and women | GI inpatient ward (1) | Nurse, social worker, GI resident | 16 wk |
| HT[20] | 41 men | HT clinic (1) | Clinic physician | 8 wk |
| Lund[21] | 68 men<br>17 women | Outpatient medical clinic (5) | Research team physicians and nurse | 1 yr |
| Malmo[22] | 473 men | Screening clinic (1) | Clinic physician and nurse | 2 to 6 yr |
| MRC[23] | 656 men<br>273 women | General practice (47) | GP | 1 yr |
| Oxford (men only)[24] | 154 men | General practice (8) | GP | 1 yr |
| Oxford (women only)[25] | 72 women | General practice (8) | GP | 1 yr |
| Stockholm[26] | 70 men<br>13 women | Random population sample | GP | 1 yr |
| Tromso[27] | 290 men<br>48 women | Community-based survey | Not clear | 1 yr |
| WHO[28] | 1356 men<br>299 women | Hospitals, primary care clinics, work and school sites (in 12 countries) | Nurse, psychiatrist, physician | 6 mo |

*DRAMS = Drinking Reasonably and Moderately with Self-Control, GP = general practitioner, GI = gastrointestinal, HT = hypertension, MRC = Medical Research Council, WHO = World Health Organization.

**Table 4: Validity scores assigned to design elements of trials***

| | Primary care | | | | | Specialist clinic | | Population-based | | | Hospital |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design element | DRAMS | MRC | Oxford (men) | Oxford (women) | WHO | HT | Lund | Malmo | Tromso | Stockholm | GI |
| Randomization | 0 | 2 | 2 | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 2 |
| Control for prognostic factors | 0 | 2 | 2 | 2 | 2 | 0 | 1 | 1 | 0 | 0 | 0 |
| Exclusion of patients with severe alcohol dependence | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 |
| Inclusion of withdrawals as relapses | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | ND | 2 |
| Analysis of intention to treat | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | ND | 2 |
| Follow-up | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 2 |
| Trial duration | 1 | 2 | 2 | 2 | 1 | 0 | 2 | 2 | 2 | 2 | 0 |
| Completeness of alcohol intake data | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 2 | 0 |
| Verification of self-reported alcohol intake | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 1 |
| Inclusion of alcohol-related morbidity and mortality data | 2 | 0 | 2 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 0 |
| Blinding of assessor | 2 | 2 | 2 | 2 | ND | 0 | 2 | ND | ND | 0 | ND |
| Control-group contamination | 0 | ND | ND | 0 | 2 | 2 | ND | 2 | ND | 2 | ND |
| Co-intervention | 2 | ND | 2 | 2 | 2 | 2 | ND | ND | 2 | 2 | 1 |
| Sample size (men or combined) | 0 | 2 | 2 | NA | 2 | 2 | 2 | 2 | 2 | 0 | 0 |
| Sample size (women) | NA | 2 | NA | 0 | 0 | NA | 0 | NA | NA | NA | NA |
| Total | 16 | 21 | 24 | 21 | 18 | 15 | 15 | 11 | 12 | 13 | 10 |

*ND = not done, NA = not applicable. For full validity scoring criteria see Appendix 1.

**Table 5: Generalizability scores assigned to components of trials***

| | Primary care | | | | | Specialist clinic | | Population-based | | | Hospital |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Component | DRAMS | MRC | Oxford (men) | Oxford (women) | WHO | HT | Lund | Malmo | Tromso | Stockholm | GI |
| Sample source | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 0 |
| Intervener | 2 | 2 | 2 | 2 | 0 | 1 | 1 | 1 | ND | 2 | 0 |
| Length of training program | ND | ND | 2 | 2 | 0 | ND | ND | ND | ND | ND | 0 |
| Length of time for intervention | ND | ND | 2 | 2 | 2 | ND | ND | ND | ND | ND | 0 |
| Exclusion criteria | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 |
| Recruitment | 2 | 0 | 0 | 0 | 0 | 2 | ND | 0 | 0 | 0 | 2 |
| Inclusion of women | 1 | 2 | 0 | 2 | 2 | 0 | 2 | 0 | 1 | 1 | ND |
| Total | 9 | 6 | 8 | 10 | 5 | 4 | 4 | 5 | 3 | 6 | 4 |

*ND = not done. For full generalizability scoring criteria see Appendix 2.

tions in morbidity in the intervention group — the subjects in the intervention group were expected to see the clinic physician every 3 months and the clinic nurse every month. Because alcohol consumption was not recorded, reductions in hospital days and absenteeism reported in the study may have reflected better medical and nursing care of patients in the intervention group rather than an actual reduction in drinking.

### Control-group contamination

In at least two of the trials,[18,25] some subjects in the control group also received counselling on alcohol, and most trials did not even attempt to ascertain the degree of control-group contamination by outside interventions of this kind. Several of the studies did not use a pure control group but instead used a group that received minimal intervention in the form of advice to cut down on their drinking given by letter[22] or verbally by their general practitioner.[18,26]

## Generalizability scores

Of the six trials with the highest generalizability scores (Table 5) three (the MRC, the Oxford men-only and the WHO trials) showed declines in heavy drinking among men. These trials also had high validity scores. Three of the trials had negative results, but all of these had an inadequate sample size.

### Sample sources

The trials were based in primary care, specialist clinic or hospital settings or were population-based. The primary care trials recruited patients from community medical practices, demonstrating that brief interventions are feasible in this setting. The population-based studies identified heavy drinkers from population surveys and invited them to attend a screening clinic. The generalizability of the trials in other settings is uncertain. The hospital-based trial and the specialist clinic trials had a greater proportion of subjects with alcohol-related medical problems; it is possible that this group was likely to respond differently to physician counselling than patients with no known alcohol-related problems.

Only the DRAMS (Drinking Reasonably and Moderately with Self-Control) trial[18] relied on physicians to identify and recruit heavy drinkers from their own practices. In the other trials heavy drinkers were screened, assessed and recruited for the study by the research team. It seems that the latter selection process tended to exclude poorly motivated patients who were unwilling to attend an appointment for comprehensive assessment. For example, in the MRC trial, only 909 of 4203 patients who were identified by a screening questionnaire as having a drinking problem were ultimately enrolled in the trial.

Several trials[20,21,23,25,28] excluded patients who had previously received advice or treatment for a drinking problem. One can hypothesize that heavy drinkers who had previously been advised to quit had a poorer prognosis than those not so advised; however, in the treatment group of the Oxford men-only trial the magnitude of the reduction in alcohol consumption was the same among subjects who had previously received advice as among those who had not. The proportion of subjects excluded for this reason was very small.[23,24]

### Interventions

In general, the physician interventions used in the trials were feasible and practical. Training sessions for physicians (where described) generally lasted 1 hour or less, and sessions with patients lasted 30 minutes or less. Only five of the trials[18,23–25,26] relied solely on physicians in primary care settings to deliver the interventions. In the other trials, the interventions were delivered by physicians in screening or specialty clinics[20–22,28] or by a team of physician and nonphysician therapists.[19] Physicians may differ from nonphysician therapists in several respects, such as compliance with the research protocol, interviewing style and the amount of time spent with each patient. It is not known whether such differences affected outcomes.

In most of the trials heavy drinkers were identified before the subjects were referred to their physician for intervention. Thus, the aspect of treatment that requires, perhaps, the greatest clinical judgement and skill — identifying problem drinkers and motivating them to attend for treatment — was not tested in these trials. Furthermore, although many of the studies were ambiguous on this point, it appears that they generally constrained physicians to follow a research protocol that specified the techniques to be used to counsel the study subjects. There is little evidence that physicians will voluntarily employ such techniques after receiving a training session. The literature on tobacco addiction suggests that educational seminars and simple office systems (such as the use of sticker charts) give rise to modest improvements in physician performance of smoking cessation counselling;[29] physician response to training in alcohol-dependence counselling may be similar.

## Outcomes

### Men

The outcomes of the trials are summarized in Table 6. The studies are arranged in descending order of their validity scores as assigned by the two reviewers. In the seven studies that calculated weekly alcohol intake, con-

sumption tended to decrease in both the intervention and control groups. Five of the studies showed significantly greater declines in alcohol consumption among men in the intervention group, by 5,[24] 6.7,[23] 7,[28] 12[27] and 20[20] standard drinks per week. In three of the five studies that reported this statistic, the proportion of men in the intervention group who decreased their consumption to moderate levels was greater than that in the control group by 18%,[23] 13%[24] and 7%;[28] moderate drinking was defined as 13 to 16 drinks per week. Most of the studies showing a positive result had relatively strong methods and received high validity scores. The DRAMS[18] and Stockholm[26] studies, which showed nonsignificant improvements in the intervention group relative to the control group, had small samples and did not provide power analyses that would allow us to comment on the possibility of a type II error. In addition, both of these trials included men and women in their analyses, leading to the possibility that a positive effect among the men may have been obscured by a negative effect among the women.

Four of the eight studies that measured the serum GGT level before and after the intervention showed significantly greater declines among the patients in the intervention group; three of these studies also found declines in self-reported alcohol consumption. Three studies showed nonsignificant changes, and in one[24] the GGT levels in the intervention group actually increased. Two studies showed a significant decrease in systolic blood pressure,[20,23] and one (which was among the weakest methodologically) showed no change.

The Oxford trials and the WHO trial revealed that the severity of the subject's alcohol problem at baseline was not related to outcome. However, it is not clear whether these trials had enough patients with severe dependence to address this question. The DRAMS, Tromso and WHO trials showed no significant differences between interventions of differing intensity; in the WHO trial, for example, a 15-minute counselling session was no more effective than 5 minutes of advice.

### Women

Results of the interventions among women were much less impressive (Table 6) than the results for men.

**Table 6: Outcomes of trials of physician interventions with problem drinkers***

| Trial | Change in alcohol intake, drinks/wk† | Change from heavy to moderate, %‡ | GGT level | Morbidity | Validity score | Generalizability score |
|---|---|---|---|---|---|---|
| **Men** | | | | | | |
| Oxford (men) | 5§ | 13§ | NS | None | 24 | 8 |
| MRC | 6.7‖ | 18.2‖ | Lower | ND | 21 | 6 |
| WHO | 7¶ | 7§ | ND | NS | 18 | 5 |
| DRAMS | NS | NS | Lower | NS | 16 | 9 |
| HT | 20§ | ND | Lower | ND | 15 | 4 |
| Stockholm | NS | NS | NS | NS | 13 | 6 |
| Lund | ND | ND | NS | Fewer sick days | 13 | 4 |
| Tromso | 12** | ND | Lower | ND | 12 | 3 |
| Malmo | ND | ND | NS | Fewer hospital days and less absenteeism | 11 | 5 |
| GI | NS | % sober NS | ND | ND | 10 | 4 |
| **Women** | | | | | | |
| Oxford (women) | NS | NS | NS | NS | 21 | 10 |
| MRC | 3.4§ | 18.5§ | NS | ND | 21 | 6 |
| WHO | NS | NS | ND | NS | 18 | 5 |
| Lund | ND | ND | NS | Fewer sick days | 13 | 4 |

*Trials are presented in decreasing order of validity scores. NS = no significant change.
†Difference between changes before and after intervention for intervention group v. control.
‡Difference in proportion of subjects whose consumption changed from heavy to moderate (intervention group v. control group).
§$p < 0.05$.
‖$p < 0.001$.
¶$p < 0.01$.
**Difference at follow-up. Baseline alcohol consumption was not measured for control and intervention groups.

Only the MRC trial showed statistically significant improvements in the serum GGT level and in alcohol intake (by four drinks per week on average). The Oxford women-only trial and the WHO trial both had negative results. In the Lund trial women, like men, were found to have significantly fewer sick days following intervention.

### Alcohol-related morbidity

None of the studies that used questionnaires or consultation rates to assess alcohol-related morbidity were able to attribute any significant differences in morbidity to the intervention. The 5-year Malmo study and the Tromso study showed marked reductions in hospital days and absenteeism.

## Conclusion

The trials with the highest validity scores showed greater declines in alcohol consumption among men in the intervention group than among men in the control group, by five to seven standard drinks per week. The results for women were inconsistent. The trials did not provide convincing evidence of reductions in alcohol-related morbidity.

Although brief interventions may yield only modest reductions in alcohol consumption, their public health impact is potentially enormous. As the MRC trial investigators noted, "If the results of this study were applied to the United Kingdom, intervention by general practitioners could each year reduce to moderate levels the alcohol consumption of some 250 000 men and 67 500 women who currently drink to excess."[23]

Further research is needed to determine the optimal intensity of treatment, which components of brief interventions are most effective and which patients are best suited for brief interventions; in particular, the utility of brief interventions with women with drinking problems needs to be established. Research is also needed to determine which strategies (e.g., continuing medical education, office systems and payment mechanisms) are most effective in inducing physicians to use brief interventions.

Given the evidence for the effectiveness of brief interventions and the minimal amount of time and effort they require, physicians are advised to implement these strategies in their practice. To facilitate this, physicians can refer to the Alcohol Risk Assessment and Intervention package recently developed by the College of Family Physicians of Canada.[30]

We thank Dr. Mark Sobell for critically reviewing a draft of this article and Michael Tucker for providing technical assistance.

*Also in this issue are an editorial on the question of whether physicians can identify and help problem drinkers (see pages 825 to 828) and an original research article on physicians' motivations for and perceived barriers to early intervention for alcohol use (see pages 863 to 869).*

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**Appendix 1: Criteria for validity scores assigned to trials of physician intervention with problem drinkers**

1. Randomization
   - 2 No differences between groups found.
   - 1 Groups showed clinically significant differences in only one baseline characteristic.
   - 0 Groups showed clinically significant differences in two or more baseline characteristics.
2. Control for prognostic factors
   - 2 Control for both demographic and drinking variables.
   - 1 Control for either demographic or drinking variables.
   - 0 No control for either variable.
3. Exclusion of patients with severe alcohol dependence
   - 2 Patients with alcohol dependence excluded.
   - 1 Patients previously treated for an alcohol problem excluded.
   - 0 Neither of above.
4. Inclusion of withdrawals as relapses
   - 2 Withdrawals considered as relapses.
   - 0 Withdrawals excluded from analysis.
5. Analysis of intention to treat
   - 2 Subjects randomly assigned to the intervention group but not given intervention included in analysis with intervention group.
   - 0 These subjects excluded from analysis or included in control group.
6. Follow-up
   - 2 Less than 10% of subjects lost to follow-up.
   - 1 10% to 20% of subjects lost to follow-up.
   - 0 More than 20% of subjects lost to follow-up.
7. Trial duration
   - 2 1 year or more.
   - 1 6 months to less than a year.
   - 0 Less than 6 months.
8. Completeness of alcohol intake data
   - 2 Data obtained on mean weekly alcohol intake for baseline and on follow-up for intervention and control groups.
   - 0 Data missing for any of above.
9. Verification of self-reported alcohol intake
   - 2 Two or more measures (e.g., relatives, GGT level).
   - 1 Single measure.
   - 0 No measure.
10. Inclusion of data on morbidity and mortality
    - 2 Measures of at least two of health status, psychosocial adjustment or severity of alcohol dependence included.
    - 1 Measure of one of above included.
    - 0 No measure of above included.
11. Blinding of assessor to treatment allocation of subjects
    - 2 Yes.
    - 0 No.
12. Control-group contamination
    - 2 Control group received no counselling on alcohol beyond that specified in protocol.
    - 0 Control group received counselling, or the issue was not addressed.
13. Co-intervention
    - 2 Intervention group received fewer than four extra nursing or medical visits.
    - 1 Intervention group received four to six visits.
    - 0 Intervention group received seven or more visits.
14. Adequacy of sample size (for trials with negative results)
    - 2 Power analysis included, sample target reached.
    - 0 Sample size target not reached or power analysis not included.

**Appendix 2: Criteria for generalizability scores assigned to trials**

1. Sample source
   - 2 Community family practice, screening clinic or population survey
   - 1 Specialty practice.
   - 0 Hospital.
2. Intervener
   - 2 Community family physician.
   - 1 Specialist.
   - 0 Nonphysician.
3. Length of training program for interveners
   - 2 1 hour or less.
   - 1 More than 1 hour but less than 4 hours.
   - 0 More than 4 hours.
4. Length of time for intervention
   - 2 Less than 20 minutes per session.
   - 1 20 to 30 minutes per session.
   - 0 More than 30 minutes per session.
5. Exclusion criteria
   - 2 No exclusion of patients who had previously received advice or treatment for drinking problem.
   - 1 Those who had previously received treatment were excluded.
   - 0 Those who had previously received advice or treatment were excluded.
6. Recruitment
   - 2 Physicians recruited subjects from their own practices.
   - 1 Nonphysician staff recruited subjects from physicians' offices.
   - 0 Research team recruited subjects.
7. Inclusion of women
   - 2 Women were included and analysed separately.
   - 1 Women were included but not analysed separately.
   - 0 Women were not included.