

# Brief Physician Advice for Alcohol Problems in Older Adults

## A Randomized Community-Based Trial

Michael F. Fleming, MD, MPH; Linda Baier Manwell; Kristen Lawton Barry, PhD; Wendy Adams, MD, MPH; and Ellyn A. Stauffacher

**BACKGROUND.** Alcohol use in older adults is common. It is associated with depression, hypertension, diabetes, drug interactions, accidents, and increased rates of emergency department visits and hospitalizations.

**METHODS.** A controlled clinical trial (Project GOAL—Guiding Older Adult Lifestyles) tested the efficacy of brief physician advice in reducing the alcohol use and use of health care services of older adult problem drinkers. Twenty-four community-based primary care practices in Wisconsin (43 family physicians and internists) participated in the trial. Of the 6073 patients screened, 105 men and 53 women met inclusion criteria and were randomized into a control group ( $n = 71$ ) or an intervention group ( $n = 87$ ). Intervention group patients received two 10- to 15-minute physician-delivered counseling sessions that included advice, education, and contracting using a scripted workbook. A total of 146 patients (92.4%) participated in the 12-month follow-up procedure.

**RESULTS.** No significant differences were found between the control and intervention groups at baseline in alcohol use, age, socioeconomic status, depression, onset of alcohol use, smoking status, activity level, or use of mood-altering drugs. The older adults who received the physician intervention demonstrated a significant reduction in 7-day alcohol use, episodes of binge drinking, and frequency of excessive drinking ( $P < .005$ ) compared with the control group at 3, 6, and 12 months after the intervention. There was a 34% reduction in 7-day alcohol use, 74% reduction in mean number of binge-drinking episodes, and 62% reduction in the percentage of older adults drinking more than 21 drinks per week in the intervention group compared with the control group. There were no significant changes in health status. Patterns of health care utilization were not extensively analyzed because of the small number of events.

**CONCLUSIONS.** This study provides the first direct evidence that brief physician advice can decrease alcohol use by older adults in community-based primary care practices.

**KEY WORDS.** Alcohol drinking; counseling; health resources. (*J Fam Pract* 1999; 48:xxx-xxx)

The US population is aging. By the year 2020, 25% of the population will be older than 65 years. This population shift, coupled with the emergence of managed health care systems, has focused attention on prevention and health care cost containment. An important area of concern involves the prevention of alcohol-related health problems that are common in the elderly and associated with high rates of health care utilization. A recent study conducted in community clinics<sup>1</sup> found that 15% of men and 12% of women aged 60 years and older ( $N = 5065$ ) regularly drank in excess of the limits recommended by the National Institute on Alcohol Abuse and Alcoholism (NIAAA).<sup>2</sup> Alcohol use in older adults is associated with increased frequency of accidents,

injuries, cognitive impairment, heart arrhythmias, vascular events, and social problems.<sup>3</sup> Alcohol can be medically hazardous even if the frequency and amount of consumption do not warrant a formal diagnosis of alcohol abuse or dependence.<sup>4</sup>

One technique for addressing this problem is brief physician advice that incorporates assessment and direct feedback, contracting and goal setting, behavioral modification, and use of written materials.<sup>5,7</sup> Although not previously tested in older adults, this technique has been shown to reduce the alcohol use of people younger than 65 years.

Kristenson and colleagues<sup>8</sup> reported that patients who were advised to reduce their alcohol use in a series of health education visits subsequently demonstrated significant reductions in gamma-glutamyl transferase levels, mortality, and use of health care services. The Medical Research Council trial,<sup>9</sup> conducted with 47 general practitioners in Great Britain, found significant reductions in alcohol use by the intervention group. The World Health Organization trial,<sup>10</sup> conducted in 10 countries, found similar reductions in alcohol use. A Trial of Early Alcohol Treatment (Project TrEAT),<sup>11</sup> conducted

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From the Center for Addiction Research and Education, University of Wisconsin, Madison (M.F.F., L.B.M., E.A.S.); the Department of Psychiatry, University of Michigan, Ann Arbor (K.L.B.); and the Department of Internal Medicine, University of Nebraska, Omaha (W.A.). Requests for reprints should be addressed to Michael Fleming, MD, MPH, 777 S. Mills Street, Madison, WI 53715.  
E-mail: mfleming@fammed.wisc.edu.

in 64 community-based primary care practices in Wisconsin, found significant reductions in alcohol use, episodes of binge drinking, and frequency of excessive drinking in the intervention group. Meta-analyses conducted by Bien and coworkers,<sup>12</sup> Kahan and colleagues,<sup>13</sup> and Wilk and coworkers<sup>14</sup> found an overall effect size of 10% to 30% in studies conducted in health care settings.

This report presents the findings of the first randomized controlled clinical trial (Project GOAL—Guiding Older Adult Lifestyles) conducted in the United States in community-based primary care practices to test the efficacy of brief physician advice in reducing alcohol use in problem drinkers aged 65 years and older. The research procedures and measures were similar to those used in the Medical Research Council trial and Project TrEAT.

## METHODS

### PROTOCOL

**Physician/clinic site recruitment.** Physicians were recruited through the Wisconsin Research Network, community hospitals, managed care organizations, and personal contacts. A total of 43 physicians in 24 clinics conducted interventions. Physician participants were trained in internal or family medicine, practicing at least 50% of the time, based in a community primary care clinic, and amenable to training and to following the research protocol. They were paid a nominal \$250 fee for participating. The clinics, located in rural and urban areas in south central and southeastern Wisconsin, varied from solo sites to large managed care organizations.

**Study population.** All patients aged 65 and older with regularly scheduled appointments between April 1, 1993, and April 1, 1995, were asked to complete a modified version of the Health Screening Survey (HSS).<sup>15,16</sup> Subjects who had a positive survey result for problem drinking were invited to participate in a face-to-face research interview.

**Inclusion/exclusion criteria.** One standard US drink contains 12g to 14 g of alcohol. Patients were eligible if they met any of the following criteria: (1) men consuming more than 11 drinks per week (more than 132 g of alcohol) or women consuming more than 8 drinks per week (more than 96 g of alcohol); (2) 2 or more positive responses to the CAGE questionnaire<sup>17</sup>; or (3) binge drinking (4 or more drinks per occasion for men 2 or more times in the last 3 months or 3 or more drinks per occasion for women). Patients were excluded if they had attended an alcohol treatment program or reported symptoms of alcohol withdrawal in the previous year, received physician advice to change their alcohol use in the previous 3 months, drank more than 50 drinks per week, or reported thoughts of suicide. The University of Wisconsin Committee for the Protection of Human Subjects approved the research protocol. Patients completed 2 consent forms, one at the time of screening and another before the face-to-

face interview. Patients were paid a total of \$70 for completing the required study procedures.

**Outcome variables.** Primary outcome variables included changes in alcohol use, health status measures (eg, smoking, accidents, injuries), and use of health care services (eg, hospital days, emergency department visits). Alcohol use was measured in 3 ways: mean number of drinks in the past 7 days; number of binge-drinking episodes in the past 28 days (defined as more than 4 drinks per occasion for men or more than 3 drinks per occasion for women); and excessive drinking, with consumption of more than 20 drinks for men or more than 13 drinks for women in the past 7 days. These outcome variables, measured by subject interview and family member corroboration, were made on the basis of findings from previous trials.<sup>8-11</sup> Biological measures such as gamma-glutamyl-transferase were not included because of low sensitivity in this population.<sup>18</sup>

**Research procedures.** The 30-minute face-to-face research interview took place in the patient's primary care clinic and was conducted by 1 of 4 trained researchers. This assessment interview gathered information on 7-day alcohol use through Time Line Follow-Back (TLFB) procedures,<sup>19</sup> episodes of binge drinking in the past 28 days, weeks of abstinence in the past 3 months, symptoms of withdrawal (lifetime and previous year), and treatment for alcohol problems (lifetime and previous year). Additional questions covered over-the-counter and prescribed medications, injuries, depressive symptoms,<sup>20</sup> limitations of daily activities, age of onset of alcohol use, current support systems, family history,<sup>21</sup> emergency department visits, and hospitalizations. Patients who met inclusion criteria were randomized to a control or intervention group.

Subjects randomized to the control group received a general health booklet and were followed up at 3, 6, and 12 months. Patients randomized to the intervention group were given the same booklet and were scheduled to see their personal physicians. The brief intervention protocol used by the participating physician included a workbook containing feedback on the patient's health behaviors, a review of problem-drinking prevalence, reasons for drinking, adverse effects of alcohol, drinking cues, a drinking agreement in the form of a prescription, and drinking diary cards. The intervention was developed according to protocols used by the Medical Research Council trial and Project TrEAT. Two 10- to 15-minute visits with the physician were scheduled 1 month apart (a brief intervention and a reinforcement session). Each patient received a follow-up phone call from the clinic nurse 2 weeks after each visit.

Physicians completed a form following each intervention visit to document that the patient had received the protocol and had contracted to reduce his or her alcohol use. Patient follow-up procedures included telephone interviews at 3, 6, and 12 months. Family mem-

bers were contacted at 12 months to corroborate the patients' self-reports.

**Assignment.** The unit of randomization was the individual patient. Randomization to the intervention and control groups was carried out separately for men and women in each physician's practice. Every physician had both control and intervention patients.

**Masking (blinding).** One of the goals was to blind subjects assigned to the control group, to minimize the intervention effect of the research procedures. Control subjects were told the trial focused on a number of health behaviors, including alcohol. All research procedures, including the follow-up patient and family member interviews, asked parallel questions on smoking, exercise, weight, and alcohol use. The physicians and their staff were not told which of their patients were randomized to the control group.

**Analysis.** Statistical analyses were conducted using Statistical Package for Social Scientists software (SPSS; Chicago, Illinois) to investigate changes in alcohol consumption and use of health care services. Changes in behavior were examined over time by comparing outcome measures at the baseline survey with 3-, 6-, and 12-month follow-up reports. We used *t* tests of mean differences, Pearson correlation coefficients, and chi-square tests of independence to determine statistical significance. Covariates of interest included sex, age, education, marital status, health behaviors, sedative or narcotic use, family history of alcohol or drug problems, age of onset of alcohol use, and current social support. We also estimated a linear regression model to examine the independent effect of treatment status on alcohol use after controlling for other variables.

## RESULTS

### PARTICIPANT FLOW AND FOLLOW-UP

A total of 6693 older adults were asked to complete the HSS. Of those, 620 did not do so because of incapacitation ( $n = 92$ ), inability to read or speak English ( $n = 14$ ), or refusal ( $n = 514$ ), for an overall survey response rate of 91%. Of the 6073 patients who completed the survey (Figure), 656 had a positive screen result and were invited to participate in the face-to-face interview. A total of 396 patients completed that interview. The 260 subjects who had a positive screen result but did not complete the interview were either not interested in participating in the research study or were unable to complete the research procedures. A total of 158 subjects were determined eligible and randomized into the control ( $n = 71$ ) or intervention group ( $n = 87$ ).

Most subjects who did not meet inclusion criteria did not because their alcohol use in the previous 7 days was below the cut-off limit. The TLFB procedure used in the face-to-face interview to assess daily alcohol use provided more accurate information than the HSS. Other reasons for exclusion included recent suicide ideation,

symptoms of alcohol dependence, alcohol treatment in the previous year, and severe medical problems. Of the 87 people randomized to the intervention group, 72 completed both intervention visits. Twelve subjects (14%) completed only 1 physician visit. Three participants did not keep any appointment with the physician and did not receive the intervention. The researchers scheduled these 3 subjects at least 3 times. Reasons given for not completing the scheduled intervention included family or personal illness and transportation problems. A total of 146 subjects (92.4%) participated in the 12-month follow-up procedures.

We attempted to interview a family member of each subject at the time of the 12-month follow-up to obtain corroborative reports on alcohol use and other variables. This interview was completed by family members of 136 patients (86%). Kappa statistics calculated to assess agreement between family and subject self-reports provide a chance-corrected measure of agreement for dichotomous variables involving 2 raters or sources of information.<sup>22,23</sup> We obtained high levels of agreement for emergency department visits ( $\kappa = 0.62$ ), hospitalizations ( $\kappa = 0.63$ ), and use of tobacco products ( $\kappa = 0.89$ ). Levels of agreement were lower for accidents ( $\kappa = 0.33$ ) and physician office visits ( $\kappa = 0.26$ ). Family members reported less alcohol use than subjects (average 10.5 vs 12.8 drinks per week) and slightly fewer episodes of binge drinking in the past 30 days (2.31 vs 2.96).

## ANALYSIS

**Patient characteristics.** There were no significant differences between the intervention and control groups on several potentially confounding variables, such as age, marital status, education, frequency of depression, family history of alcohol problems, early onset of alcohol use, frequency of use of cigarettes and mood-altering drugs, and illness-related activity limitations. The randomization procedure appeared to distribute these variables equally across both groups. The sample included 105 men and 53 women, most of whom were "young-old" adults aged 65 to 75 years. Approximately 75% were married at the time or living with a partner; most of the remaining patients were widows or widowers. The population was well educated, with almost 20% of women and 30% of men having completed 4 or more years of college and higher proportions having some schooling beyond high school. A family history of alcohol or drug problems was noticeably higher among women; however, the number of cases was very small. Smoking was reported by 10% of the sample ( $n = 16$ ) at baseline, and approximately 15% used mood-altering drugs (sedatives or narcotic medications) during the 6 months before the baseline measurement.

The intervention group appeared to be slightly healthier than the control group. Illnesses limited the daily activities of 30% of the control group but only 18% of the intervention group, although this difference reflects the experiences of only 5 patients. Prior alcohol use was

## FIGURE

## Participation and Follow-Up Flow for Study of Intervention for Alcohol Problems in Older Adults

## Health Screening Survey (HSS)

Self-administered screening test given to patients ages 65-85 entering clinic waiting rooms

6073 patients completed HSS

656 scored positive  
(Women >8 drinks/week,  
Men >11 drinks/week,  
binge drinking, or 2 or  
more positive CAGE replies)

496 patients willing to participate

## Researcher Lifestyle Interview (RLI)

Baseline face-to-face interview with researcher to determine eligibility

97 patients refused RLI  
2 not able to contact  
1 changed provider

396 patients completed RLI

216 ineligible by RLI

180 eligible

16 ineligible by chart audit  
5 refused further participation  
1 patient dropped by physician

158 patients randomized

87 intervention group

71 control group

## Physician Intervention

3 refused/failed to show for appointment

## 3-Month Follow-up Telephone Interview

7 refused

77 completed

70 completed

1 refused

## 6-Month Follow-up Telephone Interview

1 refused

76 completed

68 completed

2 deceased

## 12-Month Follow-up Telephone Interview

79 completed  
(76 plus 3 who refused/failed at intervention stage)

67 completed

1 refused

age weekly alcohol use decreased 40% in the intervention group but only 6% in the control group. Participants in the intervention group maintained lower levels of alcohol consumption throughout the observation period. At the 12-month follow-up, the intervention group had reduced its baseline weekly alcohol consumption by 36% or roughly 5 fewer drinks per week. In contrast, alcohol use in the control group did not follow a consistent pattern. For some outcome variables, alcohol use decreased slightly while other measures of consumption increased over time. Weekly alcohol use among subjects in the control group had dropped, on average, less than 1 drink per week between baseline and the 12-month follow-up. These differences are statistically significant ( $P < .001$ ).

Other measures of alcohol use show similar reductions for the intervention group. The proportion of individuals who drank excessively (more than 20 drinks per week for men or more than 13 drinks per week for women) decreased by 52% within 3 months after the intervention, levels of binge drinking declined by 47% during this period, and binge episodes became less frequent (Table 1). All of these reductions remained at the end of the 12-month observation period, suggesting that the effects of physician counseling persist over time.

In contrast, control group subjects showed no reductions when other measures of consumption are examined. Although average drinks

similar between the groups. Approximately 90% of men and 55% to 60% of women reported that they began drinking alcohol before age 41 years and had been alcohol users since that time.

**Alcohol use outcome measures.** Drinks per week, binge drinking, and excessive drinking were the major alcohol-use outcome variables. Alcohol consumption at baseline, as measured by average weekly alcohol use (Table 1), did not differ significantly by treatment status. Subjects in both groups consumed approximately 16 to 17 drinks per week on average. However, significant differences emerged within 3 months of the physician intervention, as alcohol consumption dropped substantially in the intervention group. At the 3-month follow-up, aver-

per week decreased modestly among subjects in the control group, their levels of excessive drinking and binge drinking, as well as the frequency of binge-drinking episodes, tended to increase over time. At baseline, 30% of subjects in the control group drank excessively, and this figure increased to 35% at the 3-month follow-up, remaining at that level 12 months after the initial assessment. Similar increases occur when consumption is measured in terms of binge drinking or the frequency of binge episodes.

We investigated the possibility that changes in alcohol consumption were due to other social or behavioral characteristics by estimating a multivariate regression model of weekly alcohol consumption at 12 months (Table

2). The results of this analysis demonstrated that the effects of treatment status persisted and could not be attributed to other behaviors or characteristics. Controlling for the effects of other variables associated with alcohol use, exposure to physician counseling significantly reduced individuals' consumption. Subjects in the intervention group consumed 5 fewer drinks per week than those in the control group. The 95% confidence interval suggests the actual difference between the 2 groups was as large as 7 or as small as 2 drinks per week.

Age, early onset of drinking, and baseline consumption also had significant effects on weekly alcohol use at 12 months. Subjects who reported drinking alcohol earlier in life (no later than age 41 years) consumed 3 more drinks per week at the 12-month follow-up than those who did not start drinking until later in life. Participants who drank more heavily at the time of the baseline survey continued to have higher weekly alcohol use. Individuals aged 76 years or older consumed, on average, 6 fewer drinks per week than persons aged 65 to 75 years. However, our estimate of the effect of age is made on the basis of a small number of "older-old" individuals.

Initial bivariate analyses indicated significant sex-based differences in alcohol consumption at 12 months; however, the effect of sex became non-significant after controlling for baseline consumption. Other covariates did not significantly affect alcohol use, including exercise, smoking, family history of alcohol or drug problems, use of sedatives or narcotic pain medications, and weak social support networks. No variables interacted significantly with treatment status, either reducing or enhancing its effect on alcohol use.

**Health status measures.** We found no significant changes in tobacco use or the incidence of accidents or injuries for either group. Bivariate statistics indicated that tobacco use was significantly correlated with exercise and drinking behavior. Patients who exercised regularly were less likely to use tobacco products, and higher levels of alcohol consumption were associat-

TABLE 1

## Alcohol Consumption at Baseline and Follow-up by Treatment Status

Consumption	Treatment Group (n = 78)		Control Group (n = 67)		t	P
<b>Number of drinks in previous 7 days</b>						
	Mean	(SD)	Mean	(SD)		
Baseline	15.54	(7.65)	16.58	(11.49)	0.63	n.s.
3 months	9.31	(6.50)	15.51	(11.37)	3.94	<.001
6 months	10.05	(7.49)	16.09	(12.71)	3.41	<.001
12 months	9.92	(6.97)	16.27	(12.17)	3.77	<.001
<i>Change, % (clinical effect)</i>					<i>Difference between groups, %</i>	
Base to 3 months	-40.10		-6.48			33.62
Base to 6 months	-35.31		-2.97			32.34
Base to 12 months	-36.14		-1.89			34.25
<b>Number of binge drinking episodes in previous 30 days</b>						
	Mean	(SD)	Mean	(SD)		
Baseline	3.38	(7.05)	4.15	(8.47)	0.58	n.s.
3 months	2.05	(7.01)	4.61	(9.08)	1.88	<.05
6 months	2.47	(6.96)	4.79	(9.36)	1.67	<.05
12 months	1.83	(5.94)	5.36	(9.25)	2.68	<.005
<i>Change, % (clinical effect)</i>					<i>Difference between groups, %</i>	
Base to 3 months	-39.39		+11.15			50.55
Base to 6 months	-26.89		+15.47			42.36
Base to 12 months	-45.83		+29.14			74.97
<b>Binge drinking in previous 30 days</b>						
	%	(n)	%	(n)		
Baseline	48.72	(38)	40.30	(27)	1.01	n.s.
3 months	25.64	(20)	43.28	(29)	2.24	<.025
6 months	32.05	(25)	41.79	(28)	1.21	n.s.
12 months	30.77	(24)	49.25	(33)	2.28	<.025
<i>Change, % (clinical effect)</i>					<i>Difference between groups, %</i>	
Base to 3 months	-47.37		+7.41			54.78
Base to 6 months	-34.21		+3.70			37.91
Base to 12 months	-36.84		+22.22			59.06
<b>Drinking excessively in previous 7 days</b>						
	%	(n)	%	(n)		
Baseline	29.49	(23)	29.85	(20)	0.05	n.s.
3 months	14.10	(11)	35.82	(24)	3.05	<.005
6 months	15.38	(12)	31.34	(21)	2.27	<.025
12 months	15.38	(12)	34.33	(23)	2.65	<.005
<i>Change, % (clinical effect)</i>					<i>Difference between groups</i>	
Base to 3 months	-52.17		+20.00			72.17
Base to 6 months	-47.83		+5.00			52.83
Base to 12 months	-47.83		+15.00			62.83

Note: Excessive drinking is defined as more than 20 drinks per week for men and more than 13 drinks per week for women. Binge drinking is consuming more than 4 drinks per occasion for men and 3 drinks per occasion for women. SD denotes standard deviation.

TABLE 2

## Linear Regression Analysis of Alcohol Consumption at 12 Months (N = 127)

Variable	b	SE(b)	95% CI	
Women	0.63	(1.60)	-2.51,	3.77
Aged 76 years or older	-5.70	(2.89)*	-11.36,	-0.04
Married	1.64	(1.49)	-1.29,	4.56
Education				
High school or less	-1.25	(1.58)	-4.34,	1.84
Some college	0.37	(1.78)	-3.12,	3.85
Prior alcohol use				
Drinks per week at baseline	0.64	(0.07)†	0.51,	0.77
Early onset of drinking	3.12	(1.66)‡	-0.14,	6.38
Experimental status	-4.94	(1.33)‡	-7.54,	-2.34
Constant	2.29	(2.59)	-2.80,	7.37

Note:  $R^2 = 0.52$ ;  $F = 15.94$ ; if not otherwise noted,  $P = .0001$ .

\* $P < .05$ ; † $P < .01$ ; ‡ $P < .10$ .

SE denotes standard error; CI, confidence interval.

ed with tobacco use ( $r = 0.25$ ). However, treatment status was not significantly related to tobacco use. Similar relationships hold for the occurrence of accidents and injuries. Heavier use of alcohol, being unmarried, and living alone were associated with higher risk of accidents or injuries, but exposure to brief physician intervention did not significantly alter this risk.

**Utilization events.** Patterns of health care utilization were not extensively analyzed because of the small number of events. At the 12-month follow-up, only 20 subjects reported hospitalizations during the previous 6 months, and a similar number had visited emergency departments. Cross-classified by treatment status and time point, these sparse cell frequencies preclude a meaningful descriptive analysis. Holder and Blose<sup>24</sup> suggest that a 3- to 5-year follow-up is necessary to obtain stable estimates of use changes for alcohol treatment studies. A long-term follow-up of Project GOAL is in progress.

## DISCUSSION

Problem drinking in older adults is a major public health concern<sup>1,25</sup> and a common problem encountered in clinical settings. It is associated with a wide range of medical, family, social, and economic consequences.<sup>26</sup> Project GOAL provides the first direct evidence that older adults respond to brief counseling and significantly reduce their alcohol use. The 34% reduction by the intervention group is larger than that found in brief intervention trials conducted with persons younger than 65 years.<sup>13,14</sup>

In contrast to other brief intervention trials,<sup>8-11</sup> there were minimal changes in alcohol use by the control group. Consumption for all measures of use remained stable or increased across all time points. This may reflect more stable drinking patterns in this age group or an absence of a treatment effect associated with the research procedures.

Sex, social support networks, use of sedative drugs or tobacco, exercise, and family history did not effect changes in alcohol use. There were no statistically significant changes in health status or use of health care services during the follow-up period; however, 12 months may be too short a time period to expect differences.

This trial has a number of strengths, including participation by a diverse sample of community-based primary care practices from rural and urban settings, a high physician retention rate, a patient follow-up rate of 92.4% at 12 months, and participation by managed care organizations. Corroborative family member interviews suggest patient self-report was a valid estimate of alcohol

use. Control procedures were maintained throughout the trial, with only 15% of the control patients receiving alcohol-consumption advice from their physicians during the 12-month follow-up period.

## LIMITATIONS

Several methodologic issues should be considered when interpreting the results of this trial. Reliance on self-report of alcohol consumption is one issue.<sup>27</sup> Patients may underestimate alcohol use in an effort to please their physicians. Several techniques were used to ensure that patients' self-reports were as accurate as possible: (1) reassuring them that the information provided to researchers was confidential; (2) using follow-up questionnaires containing parallel questions about other health habits to lessen the impact of the alcohol questions; (3) using multiple measures of alcohol use; and (4) obtaining corroborative family member reports.

## CONCLUSIONS

This study suggests that physicians can help older adults who drink too much. The Institute of Medicine<sup>28</sup> reports that most alcohol-related problems occur in nondependent drinkers and supports the application of a public health paradigm for problem alcohol use. Health care professionals need to identify and intervene, not just with alcohol-dependent patients, but also with those who are drinking an amount of alcohol that is above recommended limits.

Most common public health strategies fail to identify and treat older adults who are retired, isolated, or have mobility problems. Public health interventions established in the workplace, schools, and community have limited applicability. However, most older adults see a primary care provider on a regular basis, affording a unique opportunity to identify and treat older adults who drink too much.

Brief intervention protocols can be incorporated into routine clinical practice by nursing staff, counselors, psychologists, social workers, physicians, and other professionals. These protocols are much less costly than a single emergency department visit for an alcohol-related injury. The implementation of brief intervention protocols, however, must be approached as a systems issue. Health care settings are complex systems with multiple competing agendas. Implementation strategies include convincing payers (eg, employers and governmental agencies) and payees (eg, insurance companies and health maintenance organizations) to provide financial support and leadership.

Clinicians require training workshops to make brief intervention treatment an essential clinical activity. Workshops should focus on skills training by using role play and standardized patients. The NIAAA *Physicians' Guide* and training materials are excellent resources for information regarding screening and brief intervention.\* Incentives are also necessary to encourage providers to include brief intervention treatment as a regular clinical activity. Potential incentives include financial reimbursement for this clinical activity, paid education time to attend training workshops, and quality improvement peer review programs. This study clearly demonstrates that full-time clinicians can, and will, learn the skills necessary to successfully help older adult patients reduce their alcohol use and risk for alcohol-related problems.

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#### REFERENCES

- Adams WL, Barry, KL, Fleming MF. Screening for problem drinking in older primary care patients. *JAMA* 1996; 276:1964-7.
- National Institute on Alcohol Abuse and Alcoholism. The physicians' guide to helping patients with alcohol problems. NIH publication no. 95-3769. Rockville, Md: US Department of Health and Human Services, Public Health Service, National Institutes of Health, NIAAA, 1995.
- Adams WL. Alcohol-related hospitalizations of elderly people: prevalence and geographic variation in the United States. *JAMA* 1993; 270:1222-5.
- DuFour M, Fuller RK. Alcohol in the elderly. *Ann Rev Med* 1995; 46:123-32.
- Babor TF. Brief intervention strategies for harmful drinkers: new directions for medical education. *Can Med Assoc J* 1990; 143:1070-6.
- Heather N, Campion PD, Neville RG, MacCabe D. Evaluation of a controlled drinking minimal intervention for problem drinkers in general practice (the DRAMS scheme). *J R Coll Gen Pract* 1987; 37:358-63.
- Miller WR. Techniques to modify hazardous drinking patterns. *Recent Dev Alcohol* 1987; 5:425-38.
- Kristenson H, Ohlin H, Hulten-Nosslin MB, Trelle E, Hood B. Identification and intervention of heavy drinking in middle-aged men: results and follow-up of 24-60 months of long-term study with randomized controls. *Alcohol Clin Exp Res* 1983; 7:203-9.
- Wallace P, Cutler S, Haines A. Randomized controlled trial of general practitioner intervention in patients with excessive alcohol consumption. *BMJ* 1988; 297:663-8.
- World Health Organization Brief Intervention Study group. A cross national trial of brief intervention with heavy drinkers. *Am J Public Health* 1996; 86:948-55.
- Fleming MF, Barry KL, Manwell LB, Johnson C, London RL. Brief physician advice for problem alcohol drinkers: a randomized controlled trial in community based primary care practices. *JAMA* 1997; 277:1039-45.
- Bien TH, Miller WR, Tonigan JS. Brief interventions for alcohol problems: a review. *Addiction* 1993; 88:315-35.
- Kahan M, Wilson L, Becker L. Effectiveness of physician-based interventions with problem drinkers: a review. *Can Med Assoc J* 1995; 152:851-9.
- Wilk A, Jensen NM, Havighurst TC. Meta analysis of randomized control trials addressing brief interventions in heavy alcohol drinkers. *J Gen Intern Med* 1997; 12:274-83.
- Fleming M, Barry K. A three-sample test of a masked alcohol screening questionnaire. *Alcohol Alcohol* 1991; 26:81-91.
- Wallace P, Haines A. The use of a questionnaire in general practice to increase the recognition of patients with excessive alcohol consumption. *BMJ* 1985; 290:1949-53.
- Ewing JA. Detecting alcoholism: the CAGE questionnaire. *JAMA* 1984; 252:1905-7.
- Fleming MF. Screening and brief intervention. In: The eighth special report to the US Congress on alcohol and health from the Secretary of Health and Human Services, September 1993. NIH Publication No. 94-3699. Washington, DC: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, 1994.
- Sobell LC, Sobell MB. Problem drinkers: guided self-change. New York, NY: Guilford Press, 1993.
- Robins LN, Helzer JE, Croughan J, Ratcliff KS. National Institute of Mental Health Diagnostic Interview Schedule: its history, characteristics, and validity. *Arch Gen Psychiatry* 1981; 38:381-9.
- Andreasen NC, Endicott J, Spitzer RL, Winokur G. The family history method using diagnostic criteria: reliability and validity. *Arch Gen Psychiatry* 1977; 34:1229-35.
- Maclure M, Willet WC. Misinterpretation and misuse of the Kappa statistic (review). *Am J Epidemiol* 1987; 126:161-9.
- Bartko JJ, Carpenter WT Jr. On the methods and theory of reliability. *J Nerv Ment Dis* 1976; 163:307-17.
- Holder HD, Blose JO. The reduction of health care costs associated with alcoholism treatment: a 14+ year longitudinal study. *J Stud Alcohol* 1992; 53:293-302.
- Fleming MF. Management of special populations. In: Fleming MF, Murray PL. A medical education model for the prevention and treatment of alcohol use disorders. Bethesda, Md: Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, 1998. REP014.
- Finch J, Barry KL. Substance use in older adults. In: Fleming MF, Barry KL, eds. *Addictive disorders*. St. Louis, Mo: Mosby-Year Book, 1992:270-86.
- Maisto SA, McKay JR, Connors JJ. Self-report issues in substance abuse: state of the art and future directions. *Behav Assess* 1990; 12:117-34.
- Institute of Medicine, Division of Mental Health and Behavioral Medicine. Broadening the base of treatment for alcohol problems. Washington, DC: National Academy Press, 1990.

\*The NIAAA Physicians' Guide and training materials can be ordered through the National Clearinghouse for Alcohol and Drug Information by calling (800) 729-6686. The full text of the physician's guide is also available on the NIAAA's Web site at [silk.nih.gov/silk/niaaa1/publication/physicn.htm](http://silk.nih.gov/silk/niaaa1/publication/physicn.htm). The training materials can also be ordered from the Web site at [silk.nih.gov/silk/niaaa1/publication/catalog.htm](http://silk.nih.gov/silk/niaaa1/publication/catalog.htm).