Editorial

Screening and Brief Intervention for Alcohol Disorders

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The use of screening procedures and brief intervention methods for the identification and treatment of alcohol disorders is receiving increasing emphasis by health care professionals.[1,2] This change in clinical practice coincides with the development of similar methods to assist patients in changing other health behaviors such as nicotine addiction and hypercholesterolemia. A number of internationally based studies have demonstrated a reduction in alcohol use of 10% to 30% with the aid of these methods in primary care settings.[3–6] These intervention trials followed subjects for 1 to 5 years and demonstrated long-term changes in alcohol use and reductions in alcohol-related problems. These studies serve as the scientific basis for the current recommendations of the US Preventive Services Task Force[7]:

> All adolescents and adults should be asked to describe their use of alcohol. Routine measurements of biochemical markers are not recommended. Persons in whom alcohol abuse or dependence is confirmed should receive appropriate counseling, treatment and referral. All persons who use alcohol, especially pregnant women, should be encouraged to limit their consumption. Persons who drink should be warned not to engage in any potentially dangerous situations while intoxicated.

One of the difficulties that limits the implementation of the US Preventive Services Task Force's recommendations is the absence of a sensitive laboratory measure to screen patients for alcohol problems. In contrast to nicotine addiction and hypercholesterolemia, which have highly sensitive and specific laboratory measures, there is no similar marker for alcohol screening. Hoeksema and de Bock have summarized existing knowledge on laboratory screening for alcohol problems in the article that appears in this issue of the *Journal*.[8]

They reviewed the available literature from 1980 to 1993, and focused on four laboratory measures: gamma-glutamyl transferase (GGT), mean corpuscular volume (MCV), alanine aminotransferase (ALT), and aspartate aminotransferase (AST). These tests measured direct hepatic and hematopoietic cellular alcohol toxicity. Hoeksema and de Bock found that the sensitivity of the tests ranges from 20% to 90%. Although GGT levels were the most sensitive of the four tests, the positive predictive value was only about 25% in a typical primary care population with a prevalence of problem drinking of 10%. The authors of this review conclude that asking screening questions as a part of taking the patient's history is more effective than the available laboratory tests. They recommend that laboratory testing be limited to the assessment of alcohol toxicity in persons who have been identified as problem drinkers.

Although the article by Hoeksema and de Bock provides a comprehensive review of currently available laboratory tests, there are a few additional points that should be considered. There are a number of methodologic limitations in the studies reviewed: (1) the use of self-report estimates of alcohol use as a standard for calculations of sensitivity and specificity; (2) failure to use established research procedures to increase the accuracy of patient self-report; and (3) the absence of repeated measures of these laboratory tests over time.

Sensitivity and specificity were determined by self-report of alcohol use. Although self-report may be the best methodologic standard available, denial and mental status changes affect the accuracy of self-report, particularly in persons with chronic alcoholism. There are methods available to minimize the problems with self-reported alcohol use, but these do not appear to have been used in the studies reported. These strategies include the use of family member corroboration, self-report recall procedures such as the Time Line Back Follow-up methods,[9–11] and confirmatory alcohol levels through the use of saliva, urine, or blood tests. Although assessing GGT levels over time in a stable group of problem drinkers was not included in any of the studies reported in the review article, doing so may increase the predictive properties of this test.

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Additional laboratory measures not reported in this review that are being tested include acetaldehyde adducts,[11,12] methanol cogeners,[13] serotonin and its metabolite 5-hydroxyindol acetic acid,[12] and monoamine oxidase and adenylate cyclase.[15,16] The development of biological markers for alcohol problems is a high priority at the National Institute of Alcohol Abuse and Alcoholism (NIAAA), and dramatic breakthroughs are anticipated as we increase our understanding of the molecular biology of alcohol disorders.

If laboratory tests are not recommended, how should clinicians screen patients for alcohol problems? Screening for alcohol problems is not difficult. Sensitive and proven methods include the administration of a self-administered questionnaire as part of routine health maintenance procedures or direct questioning by a clinician or one of his or her staff. Self-administered screening instruments that have been well validated in primary care settings include the Alcohol Use Disorders Inventory Test (AUDIT), the Health Screening Survey (HSS), the CAGE (Cut down, Annoyed, Guilty, Eye-opener) questionnaire, and the Michigan Alcohol Screening Test (MAST).

The AUDIT is a 10-question instrument developed for the World Health Organization that assesses alcohol use and problems in the last 12 months.[17] The HSS is a 9-item lifestyle questionnaire and asks parallel questions on exercise, weight control, smoking, and alcohol use during the previous 3 months.[18,19] The two questionnaires that are most familiar to clinicians are the CAGE and the MAST. The CAGE is a four-question test that focuses on drinking history. The MAST is a 25-question instrument on lifetime alcohol use.

There are a number of limitations with the CAGE and the MAST that restrict their applicability to primary care settings. The first is their focus on lifetime problems. Over one half of the persons who screen positive on either one of these tests do not have a current alcohol problem.[20] Although identification of past problems may be important, an office-based screening system should probably focus resources on screening patients for current problems. The second problem with the MAST and CAGE is the absence of any alcohol-use questions. Most of the intervention trials designated "alcohol use" as the primary inclusion criterion as well as the major outcome variable. Physicians also base their use of brief advice on level of alcohol use. The third problem is the focus on identification of alcoholics as opposed to early problem drinkers. More than two thirds of the persons experiencing alcohol problems do not meet DSM-III-R criteria for alcohol dependence.[1] As a result of these limitations with the CAGE and the MAST, some researchers[21,22] recommend the use of the AUDIT or a lifestyle questionnaire such as the HSS.

In addition to the use of alcohol screening questionnaires, clinicians may want to ask questions that determine frequency of drinking, quantity of use, and episodes of binge drinking. These questions are suggested for three reasons: (1) they are already commonly used by clinicians; (2) almost all of the current epidemiological health data and intervention trials are based on quantity and frequency questions; and (3) they identify the majority of current at-risk drinkers.[23] Indirect questions such as those posed by the CAGE questionnaire are not recommended as the initial set of screening questions for the reasons discussed previously.

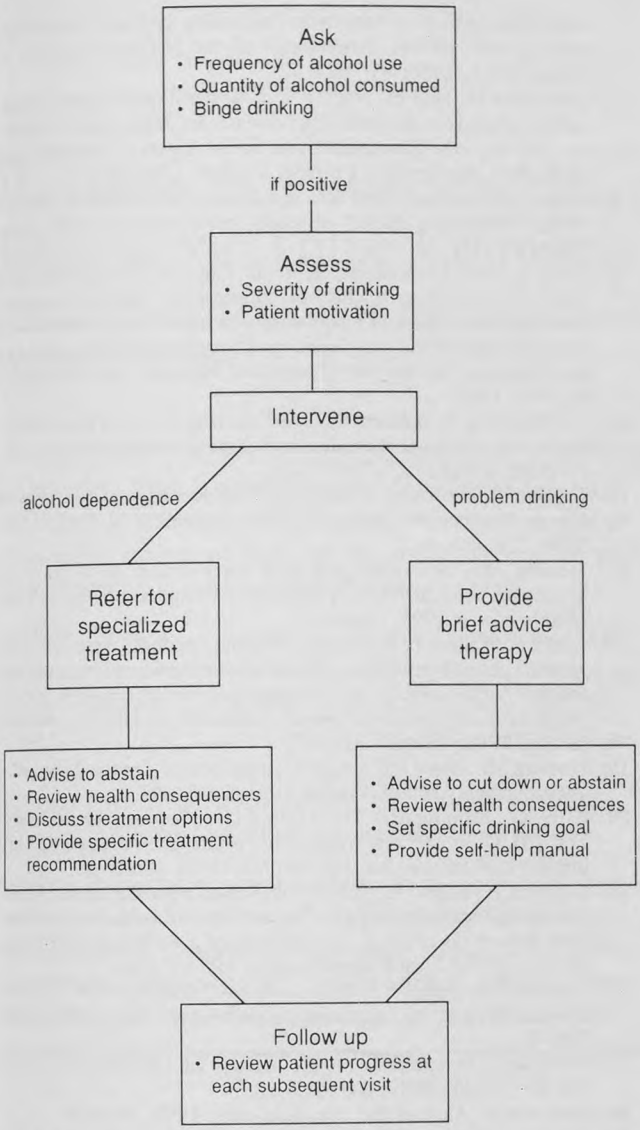
The questions I recommend are modifications of the first three questions of the AUDIT:

1. "How many days per week do you drink?" (frequency)
2. "On a day when you drink alcohol, how many drinks do you have?" (quantity)
3. "How many times in the last month did you drink more than 5 drinks?" (binge drinking).

Men who report drinking three or more drinks per day (>14 drinks per week [180 g]), women who drink two or more drinks per day (>11 drinks per week [144 g]), and persons who binge drink one or more times per week are considered at-risk drinkers. This cut-off limit is based on the best available data on alcohol use and health effects.[23–25] Although persons who drink less than these cut-off amounts may be at risk, the health effects for men who drink 8 to 14 drinks per week and women who drink 8 to 11 drinks per week has not been established. If clinicians use the three questions recommended above, they can expect that 10% to 20% of male patients and 5% to 10% of female patients will screen positive for problem drinking. These prevalence estimates are based on two large studies in primary care settings, one by the Medical Research Council in Great Britain, reported in 1988,[4] and the other currently in progress in the United States (Fleming MF, Barry KL, eds. Project TrEAT. A trial of early alcohol treatment. NIAAA funded study).

Once the screening questions have elicited a positive result, what then? One approach is outlined in the Figure, which is a modification of similar flow diagrams developed by Skinner et al[22] and Brown.[26]

Assessing the severity of a potential alcohol problem is based on evidence of loss of control, consequences of use, and physical dependence. Loss of control can be assessed by asking questions such as the following: "Do you ever make rules about your drinking? How many times have you tried to stop drinking just to prove you



Flow chart for the detection and management of patients with alcohol dependence.

could do it? Do you ever drink more than you intended?" Consequences of excessive alcohol use that are commonly found in primary care populations include blackouts, hypertension, chronic pain, anxiety and depression, asymptomatic elevation of liver function tests, headaches, sleep problems, family stress, legal problems such as driving under the influence (DUI), and changes in work performance. Physical dependence is based on symptoms of alcohol withdrawal (eg, "Do you ever drink in the morning to get over a bad hangover?") and evidence of tolerance ("How many pints of liquor or six-packs of beer can you drink in a day?"). Patients who have evidence of loss of control, negative consequences, and physical dependence are considered alcohol dependent and should be *referred* to a specialized treatment program.

As indicated in the flow chart, persons who screen positive but do not appear to meet criteria for dependence often respond to *brief advice*. Brief intervention techniques include procedures such as assessment and direct feedback; contracting and goal setting; behavioral modification techniques; and self-help directed bibliotherapy.[27,28] Although the effectiveness of brief advice in changing the drinking behavior of nondependent problem drinkers remains an active area of research through the NIAAA,[29] the clinical trial conducted by the Medical Research Council in Great Britain provides solid evidence that brief advice can work in primary care practices.[4]

The British study was conducted in 47 practices and followed 909 heavy drinkers (greater than 350 g per week [10 g equals one drink in Britain]) for 12 months. The intervention included brief physician advice to reduce or stop alcohol use, a self-help booklet, weekly diary cards to record alcohol use, and a written contract in the form of a prescription signed by the physician. The study found significant differences between the control and intervention groups. There was a twofold reduction in alcohol use, fewer episodes of binge drinking, and decreased GGT levels. The differences were less marked among women but were still significant.

A second study that is applicable to primary care settings in the United States was conducted by Scott and Anderson,[5] who used a design similar to the British study. One hundred fifty-four men and 72 women who drank between 210 and 700 g per week participated in the trial. The intervention was conducted by the research subjects' general practitioner and tested the effectiveness of a single 10-minute brief advice session. A 12-month face-to-face interview was conducted to assess alcohol use in the previous 7 days, frequency of binge drinking, consultation rates, and laboratory test results. There was a significant reduction in alcohol use by the men (65 g per week), but no difference in use by women. Clinical trials are in progress in the United States but have yet to be reported in the medical literature.

There are a number of reasons why screening procedures and brief intervention programs should be expanded on a national scale. First, they can be applied to whole communities and large populations with minimal resources.[30] Since the focus of brief intervention programs is on nondependent drinkers, they have the potential to significantly decrease alcohol use and associated problems in 15 to 20 million heavy drinkers in the United States who have experienced or are at risk for serious alcohol-related adverse effects. These strategies can be implemented by a number of health care profes-

sionals including nurses' aides, staff nurses, counselors, psychologists, social workers, physicians, and other professionals, and can be incorporated into routine clinical practice. Brief interventions are inexpensive and are much less costly than a single emergency department visit for an alcohol-related injury. A number of countries, including England, Canada, and Australia, have begun to implement screening and brief intervention programs for alcohol problems into their health care systems.

Family physicians have a unique opportunity to make a difference. Alcohol disorders are among the most common problems that affect our patients, their families, and the communities in which they live. Problem drinkers do respond to a simple physician message. "John, I am concerned about your drinking. It is affecting your health and your family. You need to cut down on your drinking." If every family physician conveyed that simple message to every problem drinker in their practice, we could significantly improve the lives of many of our patients and their families.

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