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SCREENING FOR ALCOHOL USE AND ALCOHOL-RELATED PROBLEMS

Screening for disease has become a mainstay of today's preventive health care, with roots in medical practice that extend back to the 1930s and 1940s (1). As screening's effectiveness continues to be demonstrated, the demand for these assessments also has increased. The result is double-edged. Increased screening enables clinicians to step in early to prevent and treat a wide range of public health problems before they become too serious. But the time available for conducting those screens has steadily declined. Deciding whether a particular screen is warranted, choosing the best one for an individual patient, and administering it in a cost-effective way are key issues for clinicians to address.

Routine screening for problems with alcohol is a relatively recent practice, but has a solid base of support. In 1990, the Institute of Medicine's landmark report (2) on broadening the base of alcohol and other drug abuse treatment recommended that patients in all medical settings be screened for the full spectrum of problems that can accompany alcohol use and, when necessary, be offered brief intervention or referral to treatment services.

This *Alcohol Alert* focuses on the use of routine alcohol screening in a variety of medical settings. The next issue of the *Alcohol Alert* will examine the role of brief interventions in these same settings.

“Screening enables clinicians to step in early to prevent and treat a wide range of public health problems.”



WHAT IS SCREENING?

Doctors routinely screen patients for an increasing number of conditions. The term “screening” refers to the testing of members of a certain population (such as all the patients in a physician's practice) to estimate the likelihood that they have a specific disorder, such as alcohol abuse or dependence (3).

Screening is not the same as diagnostic testing, which establishes a *definite* diagnosis of a disorder. Instead, screening is used to identify people who are *likely* to have a disorder, as determined by their responses to certain key questions. People with positive screening results may be advised to undergo more detailed diagnostic testing to definitively confirm or rule out the disorder. A clinician might initiate further assessment, provide a brief intervention, and/or arrange for clinical followup when a screening test indicates that a patient may have a problem with alcohol (4). There is good evidence that even patients who do not meet the criteria for

alcohol dependence or abuse, but who are drinking at levels that place them at risk for increased problems, can be helped through screening and brief intervention (5).

An Update—New Clinician’s Guide

In 2005, NIAAA released *Helping Patients Who Drink Too Much: A Clinician’s Guide*, featuring new guidelines on screening and brief intervention for primary care and mental health practitioners. It offers a simple screening method—a single question about heavy drinking days—and includes the AUDIT screening tool, both in English and Spanish, as a self-report option. To order, see page 8.

SCREENING IN DIFFERENT SETTINGS

In Primary Care—Screening for alcohol disorders in primary care can vary from one simple question to an extensive assessment using a standardized questionnaire. The level of screening used by a clinician typically depends on the patient’s characteristics, whether he or she has other medical or psychiatric problems, the physician’s skills and interest, and the amount of time available.

Clinicians under strict time constraints may have time to ask a patient only one screening question about his or her alcohol consumption. One study (6) has shown that a positive response to the question “On any single occasion during the past 3 months, have you had more than 5 drinks containing alcohol?” accurately identifies patients who meet either NIAAA’s criteria for at-risk drinking or the criteria for alcohol abuse or dependence specified in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM–IV)* (7).

Whenever possible, questions about alcohol use should be asked of all patients on an annual basis or in response to problems that may be alcohol related (8). The questions can be included in a pre-exam interview and conducted as part of the patient’s check-in process. If the patient appears to be at risk for alcohol-related medical problems, or if the clinician suspects that the patient is minimizing his or her alcohol use, more qualitative questions should be asked to better determine the nature and extent of the problem.

The CAGE questionnaire (9) is popular for screening in the primary care setting because it is short, simple, easy to remember, and because it has been proven effective for detecting a range of alcohol problems (see box, this page) (10).

Longer tests, such as the 25-question Michigan Alcoholism Screening Test (MAST) (11) or the 10-question Alcohol Use Disorders Identification Test (AUDIT) (12), may be used to obtain more qualitative information about a patient’s alcohol consumption.

The MAST includes questions about drinking behavior and alcohol-related problems; it is particularly useful for identifying alcohol dependence (13). The AUDIT includes questions about the quantity and frequency of alcohol use, as well as binge drinking, dependence symptoms, and alcohol-related problems (see box, page 4). Its strength lies in its ability to identify people who have problems with alcohol but who may not be dependent (10).

Research shows that the AUDIT may be especially useful when screening women and minorities (14). This screening tool also has shown promising results when tested in adolescents and young adults; it is less accurate in older patients, though further research is needed with these populations (14,15).

Computerized versions of the AUDIT and other screening instruments now are available and can be used in conjunction with other health assessment questionnaires.

Screening in the Emergency Department—Many of the estimated 110 million emergency department (ED) visits in the United States each year are related to alcohol use. Up to 31 percent of patients treated in EDs and 50 percent of severely injured trauma patients (i.e., those requiring hospital admission, usually to an intensive care unit) screen positive for alcohol problems (16). Patients treated in EDs also are 1.5 to 3 times more likely than those treated in primary care clinics to report heavy drinking, to experience the adverse effects of drinking (e.g., alcohol-related injuries, illnesses, and legal or social problems), and to have been treated previously for an alcohol problem (17).

Degutis (18) demonstrated that screening using such tools as quantity/frequency questions and the four-item CAGE questionnaire is feasible in a real-world

CAGE

- C** Have you ever felt you should cut down on your drinking?
- A** Have people annoyed you by criticizing your drinking?
- G** Have you ever felt bad or guilty about your drinking?
- E** **Eye opener:** Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover?

The CAGE can identify alcohol problems over the lifetime. Two positive responses are considered a positive test and indicate further assessment is warranted.

ED setting. Likewise, Hungerford and colleagues (19) screened a sample of young adults ages 18 to 39 while they were waiting for treatment in the ED. Most of these patients (87 percent) consented to the screening. Of these, a large portion (43 percent) screened positive for alcohol problems on the AUDIT,¹ and of those with positive screens, 94 percent received counseling. The high prevalence of alcohol problems and the broad acceptance of screening and brief intervention in this sample show that screening is indeed feasible in an ED setting (20).

Yet barriers to screening in an ED setting are clear. This environment typically is chaotic and time is precious. Emergency practitioners and trauma physicians may believe that interventions for alcoholism are ineffective, or they may lack confidence in their ability or the ability of their staffs to screen patients effectively. And resources may not be available for conducting screening and brief interventions in the ED (20).

In some cases, ethical and insurance issues also present obstacles to screening. For example, because of existing laws, third-party payers (i.e., insurers) may deny reimbursement for medical services if a patient has a positive blood alcohol level at the time of the ED visit. This can place a large financial burden on the patient or on the treating hospital (if it does not receive payment from the patient or the insurance company).

Another legal issue related to screening for alcohol use in the ED is the possible denial of benefits because the patient was injured while committing a crime. In many States, driving while impaired (DWI) is a felony,

especially if a crash is severe enough to result in the need for medical attention.² Many insurance policies will not pay benefits for injuries sustained during the commission of a felony (but will provide for injuries sustained in the commission of a lesser crime). Other policies, however, exclude benefits for injuries sustained in the commission of any criminal act; in these cases, lesser offenses such as public intoxication or illegal consumption of an alcoholic beverage could be used as justification to deny benefits (21).

An increase in screening has occurred in trauma centers in recent years, but the practice still is not routine (22). To make screening, intervention, and referral as easy as possible and thereby to promote their use, the American College of Emergency Physicians (23) developed the *Alcohol Screening and Brief Intervention Resource Kit* for their members. The kit is available via the Internet and contains an explanation of brief interventions, samples of patient handouts, and information on developing resource lists for individual communities.

Screening in Prenatal Care Settings—Women who drink during pregnancy come from all walks of life (24). Anywhere from 14 to 22.5 percent of women report drinking some alcohol while pregnant (25).

The U.S. Surgeon General recently issued an advisory warning pregnant women and women who might become pregnant to abstain from *any* alcohol use to eliminate the chance of giving birth to a baby with Fetal Alcohol Spectrum Disorders (FASD)—a range of preventable birth defects caused by prenatal alcohol exposure (26). This current advisory is an update of the 1981 Surgeon General's Advisory.

Identifying women who are drinking during pregnancy clearly is important (27). Yet determining a woman's prenatal alcohol consumption can be difficult (28). Many women alter their drinking once they learn they are pregnant (29). But a woman may have been drinking harmful levels of alcohol prior to learning about her pregnancy, and some injury already could have been done to the fetus. The standard questions about a woman's current quantity and frequency of alcohol use may not show her true risk for problems. Asking her about her drinking patterns *before* she became pregnant would solicit more accurate measures of her first-trimester consumption (28).

T-ACE

T	Tolerance: How many drinks does it take to make you feel high?
A	Have people annoyed you by criticizing your drinking?
C	Have you ever felt you ought to cut down on your drinking?
E	Eye opener: Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?

The T-ACE, which is based on the CAGE, is valuable for identifying a range of use, including lifetime use and prenatal use, based on the DSM-III-R criteria. A score of 2 or more is considered positive. Affirmative answers to questions A, C, or E = 1 point each. Reporting tolerance to more than two drinks (the T question) = 2 points.

¹In this study, a score of ≥ 6 points was considered a positive screen.

²The classification of DWI offenses depends entirely on the law of each State. Many States classify them as misdemeanors. A number of States, however, classify DWI offenses as felonies under the following circumstances: when they are repeat offenses, when they cause death or serious bodily injury, or when they involve a blood alcohol concentration over 0.15 percent, or when there is a combination of previous traffic offenses.

Alcohol Use Disorders Identification Test (AUDIT)

Please circle the answer that is correct for you.

1. How often do you have a drink containing alcohol?

Never	Monthly or less	Two to four times a month	Two to three times per week	Four or more times a week
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2. How many drinks containing alcohol do you have on a typical day when you are drinking?

1 or 2	3 or 4	5 or 6	7 to 9	10 or more
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3. How often do you have six or more drinks on one occasion?

Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
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4. How often during the last year have you found that you were not able to stop drinking once you had started?

Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
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5. How often during the last year have you failed to do what was normally expected from you because of drinking?

Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
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6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
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7. How often during the last year have you had a feeling of guilt or remorse after drinking?

Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
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8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
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9. Have you or someone else been injured as a result of your drinking?

No	Yes, but not in the last year	Yes, during the last year
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10. Has a relative or friend, or a doctor or other health worker, been concerned about your drinking or suggested you cut down?

No	Yes, but not in the last year	Yes, during the last year
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The Alcohol Use Disorders Identification Test (AUDIT) can detect alcohol problems experienced in the last year. A score of 8+ on the AUDIT generally indicates harmful or hazardous drinking. Questions 1–8 = 0, 1, 2, 3, or 4 points. Questions 9 and 10 are scored 0, 2, or 4 only.

A woman also may not report her alcohol consumption accurately because she is embarrassed or afraid to admit to drinking while pregnant (30). And popular screening instruments, such as the CAGE, although effective in other populations, may not identify harmful drinking by pregnant women (31).

The T-ACE, a four-item questionnaire based on the CAGE, is a simple screening instrument that can identify women's prenatal consumption (see box, page 3). T-ACE has been tested in a wide variety of obstetric practices (32,33) and has proven to be a valuable and efficient tool for identifying a range of alcohol use, including any current prenatal alcohol consumption, prepregnancy risk drinking (defined as more than two drinks per drinking day), and lifetime alcohol diagnoses based on the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised* (33).

Women who screen positive using the T-ACE or another screening questionnaire, such as the AUDIT, should receive further assessment and brief intervention to help reduce the risk to the developing fetus and to maximize pregnancy outcome.

Screening in the Criminal Justice System—By the end of 2003, about 1.47 million people were incarcerated in U.S. Federal and State prisons, and an additional 4.85 million were on probation or parole (34,35). Approximately 18 percent of Federal prison inmates and about 25 percent of State prison inmates reported having experienced problems consistent with a history of alcohol abuse or dependence (36). Alcohol misuse plays a particularly large role in domestic violence and DWI³ offenses—29 percent of Federal and 40 percent of State prisoners reported a previous domestic violence dispute involving alcohol (36), and almost two-thirds of convicted DWI offenders are alcohol dependent (37). Routine alcohol screening of all offenders in the criminal justice system would help to identify people at greatest risk for problems with alcohol (38).

Most States mandate screening and assessment of DWI offenders to evaluate the extent of their problem with alcohol and their need for treatment (39). Current sentencing guidelines also recommend that all DWI offenders be screened for alcohol use problems and recidivism risk (40), but the existing screening programs for DWI offenders differ in how they evaluate clients. Some programs conduct a simple screening—typically, a brief questionnaire—to determine whether the client should be transferred either to an education program

or to treatment. Other programs combine screening with assessment and provide referral guidelines and specific treatment recommendations.

Screening for alcohol disorders in the criminal justice setting poses specific challenges. One factor that may limit the effectiveness of current screening procedures is that most instruments, such as the commonly used MAST, were developed in populations other than DWI offenders or other criminal justice populations and were not designed specifically for use in court-mandated screening (39). These instruments rely on the offenders' reports of their own alcohol use (that is, self-reports), without considering other information

How Much Is Too Much

► Men may be at risk for alcohol-related problems if their alcohol consumption exceeds 14 standard drinks* per week or 4 drinks per day, and women may be at risk if they have more than 7 standard drinks per week or 3 drinks per day.

SOURCE: National Institute on Alcohol Abuse and Alcoholism. *Helping Patients Who Drink Too Much: A Clinician's Guide*. NIH Pub No. 05-3769. Bethesda, MD: the Institute, 2005.

*A standard drink is defined as one 12-ounce bottle of beer, one 5-ounce glass of wine, or 1.5 ounces of distilled spirits.

(such as court records for previous alcohol-related offenses, statements from the offender's family or others, or data obtained from biochemical tests to detect alcohol consumption), making it more difficult to truly gauge alcohol consumption.

Offenders also may feel coerced into screening and treatment, fearing that they may be penalized if they admit to alcohol use, perhaps losing custody of their children or receiving unfavorable probation conditions (36). Issues of confidentiality also may come into play (41).

These factors can make it difficult to assess the true nature and severity of an offender's alcohol problems (42) and underscore the need for adequately trained personnel to conduct screening in criminal justice populations so that any under-reporting of problems can be avoided. Many programs, however, cannot afford specially trained staff to conduct these evaluations (36).

Financial constraints are an issue in community and State criminal justice systems. Yet the costs to society of failing to properly identify and treat alcohol abusers in the criminal justice system also are substantial. Appropriately delivered treatment can be effective in changing behavior and reducing re-arrests—the result is a cost that's much less than incarceration (41).

³ "DWI" is used generically as a reference to the impaired driving offense and includes impairment by alcohol and/or other drugs.

Screening in College Populations—Alcohol use among college students is a serious cause for concern. Many students are under the legal drinking age. Moreover, many engage in heavy episodic, or binge, drinking. NIAAA defines binge drinking as consuming enough alcohol to result in a blood alcohol content (BAC) of .08, which, for most adults, would be five drinks for men or four for women over a 2-hour period (43).

Approximately 39 to 44 percent of college students reported binge drinking at least once in the 2 weeks prior to taking a survey (44,45). Additionally, according to one study, nearly one-third of college students met DSM-IV criteria for alcohol abuse, and 6 percent met DSM-IV criteria for alcohol dependence (36).

Identifying those students at greatest risk for alcohol problems is the first step in prevention. Screening instruments must be selected that will accurately detect the problem within the population of interest, and be feasible to implement.

A number of screening tests have been evaluated. The CAGE has been used in college student populations but has been criticized for its inability to detect the full range of drinking problems experienced by people in this age group (46). Another test, the MAST, includes 9 to 25 questions; the longest version takes less than 10 minutes to complete. The MAST is particularly useful in detecting more advanced problems with alcohol (such as dependence), but this may limit its usefulness within a college population (47). The Young Adult Alcohol Problems Screening Test (YAAPST), which consists of 27 items, takes less than 10 minutes to complete and has demonstrated good sensitivity (see textbox “Screening Watchwords”). Other screening tools—the College Alcohol Problems Scale—revised (CAPS-r), the Rutgers Alcohol Problem Index (RAPI), and the AUDIT—can be used to detect alcohol problems experienced in the past year, making them good candidates for use with students.

With the AUDIT, the proper cutoff score to use for screening college students has been disputed, however. A recent study (48) using high-risk drinking as the criterion⁴ suggests that a cutoff score of 8 results in levels of sensitivity and specificity comparable to those of earlier studies.

Screening may occur in the campus health center, counseling center, or local hospital emergency department (for example, students may answer questions as part of normal intake procedures). Incorporating screening into campus judicial systems has several advantages. Many campuses already have policies in place that mandate students cited for alcohol policy violations to complete

Screening Watchwords

► Sensitivity

The term “sensitivity” refers to the ability of a test to correctly identify those people in a population who actually have the disorder. A highly sensitive test is desirable when the cost of missing people who do have the condition (i.e., who have a false negative screening result) is high. For example, failure of a screening test to correctly identify a commercial airline pilot who exhibits “harmful drinking” could have potentially catastrophic results.

► Specificity

Specificity is a test’s ability to identify people in a group who do not have the disorder under investigation. A highly specific screening test is desirable when the cost of false positive misclassification is high (e.g., when a person could be unjustly denied life insurance or other benefits because of having a false positive screening result for current alcohol dependence).

assessment and interventions (49), and trained staff typically are available to respond to these policy violators.

Larimer and colleagues (50) suggest that administrators also consider retaining an on-campus specialist—that is, a health care or counseling professional responsible for direct access to services—to reduce the need for off-campus providers. This specialist could coordinate the full range of alcohol-screening services, including those in the health or counseling center and mandated or campus judicial settings, as well as any universal screening efforts, thus solving some of the confidentiality issues raised by the involvement of academic affairs offices in screening.

SUMMARY

Screening tests are a first-line defense in the prevention of disease. Screening for alcohol problems can take place in a wide variety of populations and settings. Research shows that a number of good screening instruments are available that can be tailored to specific audiences and needs. Detecting alcohol abuse and dependence early in the course of disease enables clinicians to get people the help they need, either by initiating a brief intervention or by referring the patient to treatment. Even patients who do not have an alcohol disorder, but who are drinking in ways that are harmful, can benefit from screening and brief intervention (5).

⁴ High-risk drinking was defined, for men, as consuming 5 or more consecutive drinks on 4 or more occasions, or 57 or more drinks total during the preceding 28-day period; and for women, consuming 4 or more consecutive drinks on 4 or more occasions, or 29 or more drinks total during the preceding 28-day period.

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Resources

Source material for this *Alcohol Alert* originally appeared in *Alcohol Research & Health*, Volume 28, Numbers 1 and 2, 2004/2005.

For more information on screening patients for alcohol abuse and alcoholism, see also:

- ▶ ***Assessing Alcohol Problems: A Guide for Clinicians and Researchers.* Second Edition, Revised 2003, NIH Publication No. 03-3745. Describes a range of screening instruments, including their target audiences, reliability, clinical utility, and research applications.**
- ▶ ***Helping Patients Who Drink Too Much: A Clinician's Guide.* 2005 Edition. NIH Publication No. 05-3769. Provides useful materials for screening, assessing, and administering brief interventions. Includes medication information and handy pocket guide.**
- ▶ **For these and other resources, visit NIAAA's Web site, www.niaaa.nih.gov**



Full text of this publication is available on NIAAA's World Wide Web site at <http://www.niaaa.nih.gov>

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