

Screening and Behavioral Counseling Interventions in Primary Care to Reduce Alcohol Misuse: U.S. Preventive Services Task Force Recommendation Statement

Virginia A. Moyer, MD, MPH, on behalf of the U.S. Preventive Services Task Force*

Description: Update of the 2004 U.S. Preventive Services Task Force (USPSTF) recommendation statement on screening and behavioral counseling interventions in primary care to reduce alcohol misuse.

Methods: The USPSTF reviewed new evidence on the effectiveness of screening for alcohol misuse for improving health outcomes, the accuracy of various screening approaches, the effectiveness of various behavioral counseling interventions for improving intermediate or long-term health outcomes, the harms of screening and behavioral counseling interventions, and influences from the health care system that promote or detract from effective screening and counseling interventions for alcohol misuse.

Population: These recommendations apply to adolescents aged 12 to 17 years and adults aged 18 years or older. These recommendations do not apply to persons who are actively seeking evaluation or treatment of alcohol misuse.

Recommendation: The USPSTF recommends that clinicians screen adults aged 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse. (Grade B recommendation)

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening and behavioral counseling interventions in primary care settings to reduce alcohol misuse in adolescents. (I statement)

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For author affiliation, see end of text.

* For a list of USPSTF members, see the **Appendix** (available at www.annals.org).

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The U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific preventive care services for patients without related signs or symptoms.

It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.

SUMMARY OF RECOMMENDATIONS AND EVIDENCE

The USPSTF recommends that clinicians screen adults aged 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse. (B recommendation)

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening and behavioral counseling interventions in pri-

mary care settings to reduce alcohol misuse in adolescents. (I statement)

See the **Figure** for a summary of the recommendations and suggestions for clinical practice.

Appendix Table 1 describes the USPSTF grades, and **Appendix Table 2** describes the USPSTF classification of levels of certainty about net benefit (both tables are available at www.annals.org).

RATIONALE Importance

The USPSTF uses the term “alcohol misuse” to define a spectrum of behaviors, including risky or hazardous alcohol use (for example, harmful alcohol use and alcohol abuse or dependence). Risky or hazardous alcohol use

See also:

Print

Summary for Patients. I-32

Web-Only

- CME quiz
- Consumer Fact Sheet

Figure. Screening and behavioral counseling interventions in primary care to reduce alcohol misuse: clinical summary of U.S. Preventive Services Task Force recommendation statement.

Annals of Internal Medicine



SCREENING AND BEHAVIORAL COUNSELING INTERVENTIONS IN PRIMARY CARE TO REDUCE ALCOHOL MISUSE CLINICAL SUMMARY OF U.S. PREVENTIVE SERVICES TASK FORCE RECOMMENDATION

Population	Adults aged 18 y or older	Adolescents
Recommendation	Screen for alcohol misuse and provide brief behavioral counseling interventions to persons engaged in risky or hazardous drinking. Grade: B	No recommendation. Grade: I statement
Screening Tests	Numerous screening instruments can detect alcohol misuse in adults with acceptable sensitivity and specificity. The USPSTF prefers the following tools for alcohol misuse screening in the primary care setting: 1. AUDIT 2. Abbreviated AUDIT-C 3. Single-question screening, such as asking, "How many times in the past year have you had 5 (for men) or 4 (for women and all adults older than 65 y) or more drinks in a day?"	
Behavioral Counseling Interventions	Counseling interventions in the primary care setting can improve unhealthy alcohol consumption behaviors in adults engaging in risky or hazardous drinking. Behavioral counseling interventions for alcohol misuse vary in their specific components, administration, length, and number of interactions. Brief multicontact behavioral counseling seems to have the best evidence of effectiveness; very brief behavioral counseling has limited effect.	
Balance of Benefits and Harms	There is a moderate net benefit to alcohol misuse screening and brief behavioral counseling interventions in the primary care setting for adults aged 18 y or older.	The evidence on alcohol misuse screening and brief behavioral counseling interventions in the primary care setting for adolescents is insufficient, and the balance of benefits and harms cannot be determined.
Other Relevant USPSTF Recommendations	The USPSTF has made recommendations on screening for illicit drug use and counseling and interventions to prevent tobacco use. These recommendations are available at www.uspreventiveservicestaskforce.org .	

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to www.uspreventiveservicestaskforce.org.

AUDIT = Alcohol Use Disorders Identification Test; AUDIT-C = AUDIT-Consumption.

means drinking more than the recommended daily, weekly, or per-occasion amounts resulting in increased risk for health consequences. For example, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the U.S. Department of Agriculture define "risky use" as consuming more than 4 drinks on any day or 14 drinks per week for men, or more than 3 drinks on any day or 7 drinks per week for women (as well as any level of consumption under certain circumstances) (1, 2). "Harmful alcohol use" (defined by the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision) is a pattern of drinking that causes damage to physical or mental health (3).

"Alcohol abuse" (defined by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*) is drinking that leads an individual to recurrently fail in major home, work, or school responsibilities; use alcohol in physically hazardous situations (such as while operating heavy

machinery); or have alcohol-related legal or social problems (4). "Alcohol dependence" (or alcoholism) (defined by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*) includes physical cravings and withdrawal symptoms, frequent consumption of alcohol in larger amounts than intended over longer periods, and a need for markedly increased amounts of alcohol to achieve intoxication (4).

An estimated 30% of the U.S. population is affected by alcohol misuse, and most of these persons engage in risky use. More than 85 000 deaths per year are attributable to alcohol misuse; it is the estimated third leading cause of preventable deaths in the United States (5, 6).

Detection

The USPSTF found adequate evidence that numerous screening instruments can detect alcohol misuse in adults with acceptable sensitivity and specificity.

Benefits of Detection and Behavioral Counseling Interventions

The USPSTF found adequate evidence that brief behavioral counseling interventions are effective in reducing heavy drinking episodes in adults engaging in risky or hazardous drinking. These interventions also reduce weekly alcohol consumption rates and increase adherence to recommended drinking limits. Direct evidence about the effectiveness of brief behavioral counseling interventions in pregnant women engaging in alcohol use is more limited. However, studies in the general adult population show that such interventions reduce alcohol consumption and increase adherence to recommended drinking limits among women of childbearing age.

The USPSTF found insufficient evidence on the effect of screening for alcohol misuse and brief behavioral counseling interventions on outcomes in adolescents.

Harms of Detection and Behavioral Counseling Interventions

There are minimal data to assess the magnitude of harms of screening for alcohol misuse or of consequent brief behavioral counseling interventions in any population. However, no studies have identified direct evidence of harms. Thus, given the noninvasive nature of the screening process and behavioral counseling interventions, the related harms are probably small to none.

USPSTF Assessment

The USPSTF concludes with moderate certainty that there is a moderate net benefit to screening for alcohol misuse and brief behavioral counseling interventions in the primary care setting for adults aged 18 years or older.

The evidence on screening for alcohol misuse and brief behavioral counseling interventions in the primary care setting for adolescents is insufficient, and the balance of benefits and harms cannot be determined.

CLINICAL CONSIDERATIONS

Patient Population Under Consideration

The B recommendation applies to adults aged 18 years or older, and the I statement applies to adolescents aged 12 to 17 years. Although pregnant women are included, this recommendation is related to decreasing risky or hazardous drinking, not to complete abstinence, which is recommended for all pregnant women. These recommendations do not apply to persons who are actively seeking evaluation or treatment for alcohol misuse.

Screening Tests

The USPSTF considers 3 tools as the instruments of choice for screening for alcohol misuse in the primary care setting: the Alcohol Use Disorders Identification Test (AUDIT), the abbreviated AUDIT-Consumption (AUDIT-C), and single-question screening (for example, the NIAAA recommends asking, “How many times in the past year

have you had 5 [for men] or 4 [for women and all adults older than 65 years] or more drinks in a day?”).

Of available screening tools, AUDIT is the most widely studied for detecting alcohol misuse in primary care settings; both AUDIT and the abbreviated AUDIT-C have good sensitivity and specificity for detecting the full spectrum of alcohol misuse across multiple populations. The AUDIT comprises 10 questions and requires approximately 2 to 5 minutes to administer; AUDIT-C comprises 3 questions and takes 1 to 2 minutes to complete. Single-question screening also has adequate sensitivity and specificity across the alcohol-misuse spectrum and requires less than 1 minute to administer.

Behavioral Counseling Interventions

Behavioral counseling interventions for alcohol misuse vary in their specific components, administration, length, and number of interactions. They may include cognitive behavioral strategies, such as action plans, drinking diaries, stress management, or problem solving. Interventions may be delivered by face-to-face sessions, written self-help materials, computer- or Web-based programs, or telephone counseling. For the purposes of this recommendation statement, the USPSTF uses the following definitions of intervention intensity: very brief single contact (≤ 5 minutes), brief single contact (6 to 15 minutes), brief multicontact (each contact is 6 to 15 minutes), and extended multicontact (≥ 1 contact, each > 15 minutes). Brief multicontact behavioral counseling seems to have the best evidence of effectiveness; very brief behavioral counseling has limited effect (5, 6).

The USPSTF found that counseling interventions in the primary care setting can positively affect unhealthy drinking behaviors in adults engaging in risky or hazardous drinking. Positive outcomes include reducing weekly alcohol consumption and long-term adherence to recommended drinking limits. Because brief behavioral counseling interventions decrease the proportion of persons who engage in episodes of heavy drinking (which results in high blood alcohol concentration [BAC]), indirect evidence supports the effect of screening and brief behavioral counseling interventions on important health outcomes, such as the probability of traumatic injury or death, especially that related to motor vehicles.

Although screening detects persons along the entire spectrum of alcohol misuse, trials of behavioral counseling interventions in primary care settings largely focused on risky or hazardous drinking rather than alcohol abuse or dependence. Limited evidence suggests that brief behavioral counseling interventions are generally ineffective as singular treatments for alcohol abuse or dependence. The USPSTF did not formally evaluate other interventions (such as pharmacotherapy or outpatient treatment programs) for alcohol abuse or dependence, but the benefits of specialty treatment are well-established and recommended

for persons meeting the diagnostic criteria for alcohol dependence.

Screening Intervals

Evidence is lacking to determine the optimal interval for screening for alcohol misuse in adults.

Suggestions for Practice Regarding the I Statement

In deciding whether to screen adolescents for alcohol misuse and provide behavioral counseling interventions, primary care providers should consider the following factors.

Potential Preventable Burden

In 2010, approximately 14% of adolescents in the 8th grade and 41% in the 12th grade reported using alcohol at least once within the past 30 days; 7% and 23%, respectively, reported consuming at least 5 or more drinks on a single occasion (an episode of heavy use) within the previous 2 weeks (7). Motor vehicle crashes are the leading cause of death for adolescents (8); according to the Substance Abuse and Mental Health Services Administration, about 4% of 16-year-olds and 9% of 17-year-olds in 2009 drove under the influence of alcohol at least once during the previous year (9). Thirty-seven percent of traffic deaths among youth aged 16 to 20 years involve alcohol, and these deaths frequently involve alcohol-impaired drivers with lower BACs than other age groups (10).

Costs

Behavioral counseling interventions are associated with a time commitment ranging from 5 minutes to 2 hours, spread over multiple contacts. There are potential financial costs for parents and caregivers from lost work hours and travel to and from the provider.

Potential Harms

Potential harms associated with screening for alcohol misuse include anxiety, stigma or labeling, and interference with the clinician–patient relationship. Although evidence is very limited, no direct harms were identified for any population in available studies.

Current Practice

Research suggests that although most pediatricians and family practice clinicians report providing some alcohol prevention services to adolescent patients, they do not universally or consistently screen and counsel for alcohol misuse (11). Barriers to screening and counseling include a perceived lack of time, familiarity with screening tools, training in managing positive results, and available treatment resources (12).

Useful Resources

The AUDIT and AUDIT-C screening instruments for alcohol misuse are available from the Substance Abuse and

Mental Health Services Administration–Health Resources and Services Administration Center for Integrated Health Solutions (www.integration.samhsa.gov/clinical-practice/screening-tools). Further details about the single-question screening method, as well as resources on primary care–feasible behavioral interventions, are available from the NIAAA (<http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/guide.pdf>).

The Community Preventive Services Task Force recommends electronic screening and brief intervention to reduce excessive alcohol consumption. Electronic screening and brief intervention uses electronic devices (for example, computers, telephones, or mobile devices) to facilitate screening persons for excessive drinking and delivering a brief intervention, which provides personalized feedback about the risks and consequences of excessive drinking. Delivery of personalized feedback can range from being fully automated (computer-based) to interactive (provided by a person over the telephone). At least 1 part of the brief intervention must be delivered by an electronic device. Electronic screening and brief intervention can be delivered in various settings, such as health care systems, universities, or communities. The Community Preventive Services Task Force found limited information on the effectiveness of electronic screening and brief intervention among adolescents.

The Community Preventive Services Task Force has also evaluated public health interventions (those that occur outside of the clinical practice setting) to prevent excessive alcohol consumption. It recommends instituting liability laws for establishments that sell or serve alcohol, increasing taxes on alcohol, maintaining limits on days and hours of the sale of alcohol, and regulating alcohol outlet density in communities as effective in preventing or reducing alcohol-related harms. It also recommends enhanced enforcement of laws prohibiting the sale of alcohol to minors. More information about the Community Preventive Services Task Force's recommendations on alcohol misuse is available at www.thecommunityguide.org/alcohol/index.html.

The Cochrane Collaboration has performed 2 systematic reviews to evaluate the effects of universal school- and family-based prevention programs to prevent or reduce alcohol misuse in young people. Although not entirely consistent across studies, evidence generally supported the effectiveness of certain school-based psychosocial and developmental programs, such as the Life Skills Training Program, the Unplugged Program, and the Good Behavior Game (13). Similarly, evidence generally supported small but positive effects from family-based interventions in preventing alcohol misuse in young people (14).

The USPSTF has made recommendations on screening for and interventions to decrease the unhealthy use of other substances, including illicit drugs and tobacco. More information is at www.uspreventiveservicetaskforce.org.

OTHER CONSIDERATIONS**Research Needs and Gaps**

Alcohol misuse among adolescents is an important public health problem. Limited evidence is available to assess the effects of screening and behavioral counseling in adolescents, and high-quality studies specifically addressing this population are needed. Although there is adequate evidence that brief behavioral counseling interventions improve several intermediate outcomes for persons engaging in risky or hazardous drinking, there is little direct evidence describing the ultimate effect of these interventions on longer-term morbidity, mortality, or quality of life. Most trials of behavioral counseling for screening-detected alcohol misuse focused on risky or hazardous alcohol use; future research is needed to help explain whether persons engaging in harmful drinking or alcohol abuse might benefit from behavioral counseling interventions in the primary care setting. Finally, detailed information about the relative comparative effectiveness of specific behavioral counseling components or approaches is largely lacking, as is focused guidance on how to individualize treatment decisions for a given subpopulation.

DISCUSSION**Burden of Disease**

Alcohol misuse is a common issue across U.S. primary care populations; approximately 21% of adults report engaging in risky or hazardous drinking (15), and the prevalence of current alcohol dependence is about 4% (16). Alcohol misuse contributes to a wide range of health conditions, such as hypertension, gastritis, liver disease and cirrhosis, pancreatitis, certain types of cancer (for example, breast and esophageal), cognitive impairment, anxiety, and depression (17). It has also been implicated as a major factor in morbidity and mortality as a result of trauma, including falls, drownings, fires, motor vehicle crashes, homicide, and suicide (18). Alcohol use in pregnancy is linked to a pattern of developmental abnormalities known as the fetal alcohol syndrome, which occurs in about 0.2 to 1.5 per 1000 live births in the United States (19).

Scope of Review

The USPSTF commissioned a systematic evidence review of randomized, controlled trials and nonrandomized trials with controls or comparators published between 1985 and 2011 on screening and behavioral counseling interventions for alcohol misuse in adults, adolescents, and pregnant women. The review also included individual systematic evidence reviews with or without meta-analyses done between 2006 and 2011. The following topics were examined: direct evidence of the effectiveness of screening for improving health outcomes, the accuracy of various screening approaches, the effectiveness of various behavioral counseling interventions for improving intermediate (such as rate of alcohol consumption or number of heavy drinking episodes) or long-term (such as alcohol-associated

morbidity or mortality) health outcomes, the harms of screening and behavioral counseling interventions, and influences on the health care system that promote or detract from effective screening and counseling interventions for alcohol misuse.

Accuracy of Screening Tests

Numerous screening instruments can detect some or all of the drinking categories included in the spectrum of alcohol misuse. Tests include single-question screening; AUDIT; the Cut-Down, Annoyed, Guilty, and Eye-Opener (CAGE) questionnaire and related tests designed specifically for pregnant women, such as the Tolerance, Annoyed, Cut-Down, and Eye-Opener (T-ACE) and Tolerance, Worried, Eye-Openers, Amnesia, K/Cut-Down (TWEAK); the Michigan Alcoholism Screening Test; the Rapid Alcohol Problems Screen; and the Alcohol-Related Problems Survey, among others. Several of these tests also have abbreviated versions.

Five fair- to good-quality systematic reviews compared different screening test characteristics in primary care populations (5, 6). Overall, the full AUDIT instrument, the abbreviated AUDIT-C, and single-question screening (asking, “How many times in the past year have you had 5 [for men] or 4 [for women and all adults older than 65 years] or more drinks in a day?”) have the best performance characteristics for detecting the full spectrum of alcohol misuse in adults, young adults, and pregnant women; therefore, the USPSTF prefers these screening approaches.

The AUDIT shows an optimal balance of sensitivity and specificity for detecting all forms of alcohol misuse when cutoff points of 4 or more (sensitivity, 84% to 85%; specificity, 77% to 84%) or 5 or more (sensitivity, 70% to 92%; specificity, 73% to 94%) are used; use of higher cutoff points increases specificity to an extent but reduces sensitivity. The sensitivity and specificity of AUDIT-C are best balanced at cutoff points of 4 or more (74% to 76% and 80% to 83%, respectively) and 3 or more (74% to 88% and 64% to 83%, respectively). Single-question screening has a reported sensitivity of 82% to 87% and specificity of 61% to 79% (5, 6). However, the sensitivity of these screening tests varies by sex and achieving similar sensitivity for women requires a cutoff 1 point lower than that for men. Although the CAGE questionnaire has frequently been used in primary care settings as a low-burden screening tool for alcohol disorders, it has comparatively poor sensitivity for identifying risky or hazardous drinking, particularly among older adults (14% to 39%) and pregnant women (38% to 49%) (5).

None of the identified systematic reviews provided information about the use of screening tests in adolescents.

Effectiveness of Screening and Behavioral Counseling Interventions

None of the published studies directly evaluated the effect of screening and consequent behavioral counseling interventions for alcohol misuse compared with no screen-

ing on alcohol-related morbidity or mortality in any population. However, the USPSTF did find adequate evidence that brief counseling interventions in adults with screening-detected risky or hazardous drinking positively affect several unhealthy drinking behaviors, including heavy episodic (binge) drinking, high average weekly intake of alcohol, and consumption above recommended intake limits.

Twenty-three randomized, controlled trials (11 of which were performed in the United States) compared the effects of behavioral counseling interventions with usual care in adults with screening-detected alcohol misuse. Most interventions evaluated were either brief or brief multicontact behavioral counseling interventions that were directly provided by primary care physicians. The mean age of participants was generally between 30 and 50 years (5, 6).

Studies show that behavioral counseling interventions reduce binge drinking. "Binge drinking" is heavy per-occasion alcohol use; the NIAAA defines it as a pattern of drinking that results in a BAC of 0.08% or higher, generally when men consume 5 or more drinks and women consume 4 or more drinks on 1 occasion within about 2 hours (20). Meta-analysis from 7 trials showed that behavioral counseling interventions resulted in a 12% absolute increase in the proportion of adult participants with screening-detected risky or hazardous drinking who reported no heavy drinking episodes after 1 year compared with the control group (95% CI, 7% to 16%). Subgroup analyses suggest that single-contact interventions may be less effective or ineffective compared with multicontact approaches (5, 6).

In younger adults (such as college age), 3 trials provided evidence that behavioral counseling interventions reduced the frequency of heavy drinking episodes by about 1 day per month (average baseline, 6 to 7 heavy drinking days per month) at 6 months of follow-up (21–23). The evidence was insufficient to evaluate whether there are relative differences in the effect for older adults (aged 65 years or older).

Behavioral counseling interventions also reduce the total number of drinks per week consumed by adults with screening-detected risky or hazardous drinking. A standard drink is defined as 12.0 oz of beer, 5.0 oz of wine, or 1.5 oz of liquor. Meta-analysis of 10 trials reporting on this outcome showed that adults receiving behavioral counseling interventions reduced their average weekly consumption of alcohol from a baseline of 23 drinks to approximately 19 drinks per week at 12-month follow-up compared with the control group (absolute difference, 3.6 fewer drinks per week [CI, 2.4 to 4.8]) (5, 6). Among younger adults, data from 3 trials conducted in the United States showed that average consumption decreased from a baseline of about 15 drinks to 13 drinks per week at 6-month follow-up (21–23). Two studies provided information about the effect of behavioral counseling on weekly alcohol consumption rates in older adults; pooled analysis showed that consumption

decreased from an average of about 16 drinks to about 14 drinks per week at 12-month follow-up (24, 25).

On the basis of a meta-analysis of 9 relevant trials, the absolute proportion of adults with screening-detected risky or hazardous drinking who reported not exceeding recommended drinking limits over 12 months increased by 11% (CI, 8% to 13%) in participants receiving behavioral counseling interventions compared with the control group (5, 6). The definition and rationale of a given recommended limit of alcohol consumption may vary to some degree across guidelines, making this outcome slightly more subjective than the others evaluated by the USPSTF.

A commonly cited standard developed by the NIAAA recommends that healthy adult men aged 65 years or younger have no more than 4 drinks per day and no more than 14 drinks per week and healthy adult women and all adults older than 65 years have no more than 3 drinks per day and no more than 7 drinks per week. The NIAAA also recommends lower levels of consumption or abstinence for adults who receive medications that interact with alcohol, have a health condition exacerbated by alcohol, or are pregnant (26). For older adults (aged 65 years or older), 2 studies showed an absolute increase of 9% (CI, 2% to 16%) in the proportion of risky or hazardous drinkers who adhered to recommended drinking limits after behavioral counseling at 1-year follow-up (24, 25). There was not enough evidence to assess whether there are relative differences in the effect for younger adults.

A single study meeting inclusion criteria was identified for pregnant women. In this trial, 250 pregnant women with a gestational age of 28 weeks or less were randomly assigned to comprehensive assessment only or assessment and a 45-minute behavioral counseling intervention. The study found a sustained reduction in the daily consumption of alcohol in both groups (with no significant difference between them); it also found that women who abstained from alcohol at baseline in the behavioral intervention group were more likely to do so than women in the control group (86% vs. 72%; $P = 0.04$) (27). Only 1 study meeting inclusion criteria included women who were breastfeeding (28), and they made up less than 30% of the total population. However, as previously described, multiple studies in the general adult population showed that behavioral counseling interventions reduce alcohol consumption and increase adherence to recommended drinking limits among women of childbearing age.

No studies meeting inclusion criteria were identified for the effects of brief behavioral counseling interventions on screening-detected alcohol misuse in adolescents.

Few studies of behavioral counseling interventions for alcohol misuse have rigorously examined longer-term health outcomes, such as alcohol-related morbidity or mortality. Meta-analysis of 6 studies did not find a significant effect of behavioral counseling interventions on all-cause mortality (rate ratio, 0.52 [CI, 0.22 to 1.2]), although findings generally trended favorably for the intervention

groups. However, because none of the studies was designed or powered to detect a difference in mortality, it is difficult to draw any firm conclusions about the true effect (5, 6). A sizable body of observational evidence does show a link between increasing alcohol consumption levels and risk for traumatic injury or death.

A 2010 systematic review and meta-analysis of case-control and case-crossover studies evaluating the association between level of acute alcohol consumption and probability of an injury related to a motor vehicle crash found a rapidly increasing dose-response relationship between the 2 variables. For the consumption of 24 g of alcohol (or about 2 standard drinks) within a 6-hour period, the odds ratio of being injured in a motor vehicle crash is 2.20 compared with no alcohol intake; at 4 to 5 drinks consumed (a rough proxy for the NIAAA definition of a heavy drinking episode), the odds ratio is about 5.00 to 10.00, and after 10 drinks, the odds ratio is 52.00 (29). A review of case-control roadside surveys evaluating the relationship between BAC in drivers involved in motor vehicle crashes compared with those not involved in incidents found that the relative probability of a motor vehicle crash resulting in injury or death increased sharply after attainment of a BAC of about 0.08% (relative risk ranged from about 2 to 4 at a BAC of 0.08% compared with a BAC of 0.00%, with sharper increases at higher BACs) (30).

Screening for alcohol misuse will detect persons engaging in a spectrum of unhealthy drinking behaviors, not just risky or hazardous drinking. However, most available studies of behavioral counseling interventions focused on risky or hazardous drinking and either specifically excluded persons with alcohol dependence or used enrollment criteria that necessarily restricted participation by such persons. The limited evidence available for persons with alcohol dependence suggests that brief behavioral counseling interventions may be ineffective in this population (5, 6). The effectiveness of behavioral counseling in primary care settings for persons engaging in harmful alcohol use or alcohol abuse is uncertain.

Although the USPSTF did not formally assess the evidence on interventions for alcohol dependence, a range of treatment options with established efficacy exists, including 12-step programs (such as Alcoholics Anonymous), intensive outpatient or inpatient treatment programs, and pharmacotherapy. However, the relative effectiveness of the various treatment approaches has not been systematically examined in randomized trials and the USPSTF was unable to identify any trials of pharmacotherapy in the primary care setting.

Potential Harms of Screening and Behavioral Counseling

Very limited evidence is available on the harms of screening and behavioral counseling for alcohol misuse. Possible harms include anxiety, labeling, discrimination, or interference with the doctor-patient relationship. An additional effect might be a consequent increase in smoking or

illicit substance use, if persons receiving screening or behavioral counseling interventions for risky drinking replace 1 harmful substance with another.

No studies directly evaluated the harms of screening; few studies reported information about harms resulting from behavioral counseling interventions. Two studies found no changes in anxiety levels among adults with screening-detected alcohol misuse receiving behavioral counseling, and 5 studies qualitatively described that cigarette consumption seemed unchanged among adults receiving counseling interventions (5, 6). No specific information was available for the adolescent population. No direct evidence of harm from screening or behavioral counseling for alcohol misuse was identified in any study; given the noninvasive nature of these practices, the adverse effects are likely to be small to none.

Estimate of Magnitude of Net Benefit

Adequate evidence supports a moderate beneficial effect of screening for alcohol misuse followed by brief behavioral counseling interventions in adults engaged in risky or hazardous drinking. Unhealthy drinking behaviors in this population, including heavy episodic drinking, high daily or weekly levels of alcohol consumption, and exceeding recommended drinking limits, can all be reduced through screening and behavioral counseling in the primary care setting. Although limited specific evidence for pregnant women was found, the USPSTF determined that available studies of behavioral counseling interventions for alcohol misuse in the general adult population apply to pregnant adult women.

Available studies have not focused on the effect of screening and behavioral counseling on longer-term health outcomes, such as alcohol-related disease or death. However, epidemiologic evidence supports an association between increasing alcohol consumption and increased risk for morbidity and mortality related to a motor vehicle crash, providing indirect support that counseling interventions—which reduce acute and sustained alcohol intake levels—can help improve some health outcomes in alcohol misuse (29, 30). A large body of observational evidence also links alcohol use in pregnant women with an increased risk for subsequent birth defects (31, 32).

Given the noninvasive nature of screening and counseling interventions for alcohol misuse, the USPSTF assessed the range of probable harms to be small to none. Therefore, given moderate benefit and little to no associated harm, the USPSTF concludes with moderate certainty that the net benefit of screening adults, including younger adults, for alcohol misuse and providing brief behavioral counseling interventions for those engaged in risky or hazardous drinking is moderate.

No studies were identified that addressed screening and behavioral counseling interventions for alcohol misuse in adolescents. As such, the USPSTF concludes that the evidence is insufficient to assess the balance of benefits and

harms of screening and behavioral counseling for alcohol misuse in this population.

Response to Public Comments

A draft version of this recommendation statement was posted on the USPSTF Web site from 24 September 2012 to 22 October 2012. Several comments indicated that the USPSTF should more clearly emphasize the need for more research on screening and counseling interventions for alcohol misuse in the adolescent population; this was added to the Research Needs and Gaps section. Some comments requested the inclusion of recommended screening instruments; links to these tools were added to the Useful Resources section. Several comments indicated that there was insufficient explanation of the distinctions between risky drinking and alcohol dependence, as well as what constitutes “binge” drinking or a “drink”; expanded definitions and examples were added to the Rationale and Discussion sections.

UPDATE OF PREVIOUS RECOMMENDATION

This recommendation replaces the 2004 recommendation. In this update, the USPSTF has clarified that it defines alcohol misuse as encompassing the full spectrum of unhealthy drinking behaviors, from risky drinking to alcohol dependence, rather than limiting its meaning to just risky, hazardous, or harmful drinking (because screening will detect a broad range of unhealthy drinking behaviors). However, the USPSTF emphasizes that evidence on the effectiveness of brief behavioral counseling interventions in the primary care setting remains largely restricted to persons engaging in risky or hazardous drinking.

RECOMMENDATIONS OF OTHERS

The American Society of Addiction Medicine recommends that primary care providers routinely screen for the presence of alcohol use problems in patients, screen for risk factors for development of alcohol dependence, and provide appropriate interventions (33). The NIAAA encourages primary care clinicians to incorporate alcohol screening and interventions into their practices and provides specific tools to implement these activities (26).

The American College of Obstetricians and Gynecologists states that obstetrician-gynecologists have a key role in screening and providing brief intervention, patient education, and treatment referral for their patients who drink alcohol at risk levels. For pregnant women and those at risk for pregnancy, it is important that obstetrician-gynecologists give compelling and clear advice to avoid alcohol use or provide assistance for achieving abstinence or effective contraception to women who require help (34).

The American Academy of Pediatrics recommends that clinicians screen all adolescent patients for alcohol use with a formal, validated screening tool, such as the Car, Relax, Alone, Forget, Friends, Trouble (CRAFT) sub-

stance abuse screening test, at every health supervision visit and appropriate acute care visits and respond to screening results with the appropriate brief intervention (35).

From the U.S. Preventive Services Task Force, Rockville, Maryland.

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Requests for Single Reprints: Reprints are available from the USPSTF Web site (www.uspreventiveservicestaskforce.org).

References

1. National Institute on Alcohol Abuse and Alcoholism. Rethinking Drinking: Alcohol and Your Health. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism; 2010. Accessed at http://pubs.niaaa.nih.gov/publications/RethinkingDrinking/Rethinking_Drinking.pdf on 16 April 2013.
2. U.S. Department of Agriculture, U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th ed. Washington, DC: U.S. Government Printing Office; 2010. Accessed at www.cnpp.usda.gov/publications/dietaryguidelines/2010/policydoc/policydoc.pdf on 16 April 2013.
3. Janca A, Ustun TB, van Drimmelen J, Dittmann V, Isaac M. ICD-10 Symptom Checklist for Mental Disorders, Version 1.1. Geneva: World Health Organization; 1994. Accessed at www.who.int/substance_abuse/research_tools/en/english_icd10.pdf on 29 April 2013.
4. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Arlington, VA: American Psychiatric Assoc; 2000.
5. Jonas DE, Garbutt JC, Brown JM, Amick HR, Brownley KA, Council CL, et al. Screening, Behavioral Counseling, and Referral in Primary Care to Reduce Alcohol Misuse. Comparative Effectiveness Review No. 64. Rockville, MD: Agency for Healthcare Research and Quality; July 2012. Accessed at www.ncbi.nlm.nih.gov/books/NBK99199/ on 16 April 2013.
6. Jonas DE, Garbutt JC, Amick HR, Brown JM, Brownley KA, Council CL, et al. Behavioral counseling after screening for alcohol misuse in primary care: a systematic review and meta-analysis for the U.S. Preventive Services Task Force. *Ann Intern Med.* 2012;157:645-54. [PMID: 23007881]
7. Johnston LD, O'Malley PM, Bachman JG, Schulenberg JE. Monitoring the Future: National Survey Results on Drug Use, 1975–2011. Volume I: Secondary School Students. Ann Arbor: Univ of Michigan; 2012.
8. Centers for Disease Control and Prevention. 10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States—2008. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2012.
9. Substance Abuse and Mental Health Services Administration. Report to Congress on the Prevention and Reduction of Underage Drinking. Rockville, MD: Substance Abuse and Mental Health Services Administration; May 2011.
10. Hingson R, Heeren T, Levenson S, Jamanka A, Voas R. Age of drinking onset, driving after drinking, and involvement in alcohol related motor-vehicle crashes. *Accid Anal Prev.* 2002;34:85-92. [PMID: 11789578]
11. Millstein SG, Marcell AV. Screening and counseling for adolescent alcohol use among primary care physicians in the United States. *Pediatrics.* 2003;111:114-22. [PMID: 12509563]
12. Van Hook S, Harris SK, Brooks T, Carey P, Kossack R, Kulig J, et al; New England Partnership for Substance Abuse Research. The “Six T’s”: barriers to

- screening teens for substance abuse in primary care. *J Adolesc Health*. 2007;40:456-61. [PMID: 17448404]
13. **Foxcroft DR, Tsertsvadze A.** Universal school-based prevention programs for alcohol misuse in young people. *Cochrane Database Syst Rev*. 2011:CD009113. [PMID: 21563171]
14. **Foxcroft DR, Tsertsvadze A.** Universal family-based prevention programs for alcohol misuse in young people. *Cochrane Database Syst Rev*. 2011:CD009308. [PMID: 21901733]
15. **Vinson DC, Manning BK, Galliher JM, Dickinson LM, Pace WD, Turner BJ.** Alcohol and sleep problems in primary care patients: a report from the AAFP National Research Network. *Ann Fam Med*. 2010;8:484-92. [PMID: 21060117]
16. **Hasin DS, Stinson FS, Ogburn E, Grant BF.** Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Arch Gen Psychiatry*. 2007;64:830-42. [PMID: 17606817]
17. **Corrao G, Bagnardi V, Zambon A, La Vecchia C.** A meta-analysis of alcohol consumption and the risk of 15 diseases. *Prev Med*. 2004;38:613-9. [PMID: 15066364]
18. **Cherpitel CJ, Ye Y.** Alcohol-attributable fraction for injury in the U.S. general population: data from the 2005 National Alcohol Survey. *J Stud Alcohol Drugs*. 2008;69:535-8. [PMID: 18612569]
19. **Centers for Disease Control and Prevention (CDC).** Update: trends in fetal alcohol syndrome—United States, 1979-1993. *MMWR Morb Mortal Wkly Rep*. 1995;44:249-51. [PMID: 7898419]
20. NIAAA council approves definition of binge drinking. NIAAA Newsletter. 2004;3:3. Accessed at http://pubs.niaaa.nih.gov/publications/Newsletter/winter2004/Newsletter_Number3.pdf on 16 April 2013.
21. **Fleming MF, Balousek SL, Grossberg PM, Mundt MP, Brown D, Wiegel JR, et al.** Brief physician advice for heavy drinking college students: a randomized controlled trial in college health clinics. *J Stud Alcohol Drugs*. 2010;71:23-31. [PMID: 20105410]
22. **Grossberg PM, Brown DD, Fleming MF.** Brief physician advice for high-risk drinking among young adults. *Ann Fam Med*. 2004;2:474-80. [PMID: 15506584]
23. **Schaus JF, Sole ML, McCoy TP, Mullett N, O'Brien MC.** Alcohol screening and brief intervention in a college student health center: a randomized controlled trial. *J Stud Alcohol Drugs Suppl*. 2009:131-41. [PMID: 19538921]
24. **Fleming MF, Manwell LB, Barry KL, Adams W, Stauffacher EA.** Brief physician advice for alcohol problems in older adults: a randomized community-based trial. *J Fam Pract*. 1999;48:378-84. [PMID: 10334615]
25. **Moore AA, Blow FC, Hoffing M, Welgreen S, Davis JW, Lin JC, et al.** Primary care-based intervention to reduce at-risk drinking in older adults: a randomized controlled trial. *Addiction*. 2011;106:111-20. [PMID: 21143686]
26. **National Institute on Alcohol Abuse and Alcoholism.** Helping Patients Who Drink Too Much: A Clinician's Guide. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism; 2007.
27. **Chang G, Wilkins-Haug L, Berman S, Goetz MA.** Brief intervention for alcohol use in pregnancy: a randomized trial. *Addiction*. 1999;94:1499-508. [PMID: 10790902]
28. **Fleming MF, Lund MR, Wilton G, Landry M, Scheets D.** The Healthy Moms Study: the efficacy of brief alcohol intervention in postpartum women. *Alcohol Clin Exp Res*. 2008;32:1600-6. [PMID: 18627361]
29. **Taylor B, Irving HM, Kanteres F, Room R, Borges G, Cherpitel C, et al.** The more you drink, the harder you fall: a systematic review and meta-analysis of how acute alcohol consumption and injury or collision risk increase together. *Drug Alcohol Depend*. 2010;110:108-16. [PMID: 20236774]
30. **Perrine MW, Peck RC, Fell JC.** Epidemiologic perspectives on drunk driving. In: Surgeon General's Workshop on Drunk Driving: Background Papers. Washington, DC: Office of Surgeon General; 1989.
31. **National Institute on Alcohol Abuse and Alcoholism.** 10th Special Report to the U.S. Congress on Alcohol and Health: Highlights From Current Research. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism; June 2000.
32. **Stratton K, Howe C, Battaglia F, eds.** Fetal Alcohol Syndrome: Diagnosis, Epidemiology, Prevention, and Treatment. Washington, DC: National Academies Pr; 1996.
33. **American Society of Addiction Medicine.** Public Policy Statement on Screening for Addiction in Primary Care Settings. Chevy Chase, MD: American Soc of Addiction Medicine; 1997.
34. **American College of Obstetricians and Gynecologists.** Committee on Health Care for Underserved Women. Committee opinion no. 496: At-risk drinking and alcohol dependence: obstetric and gynecologic implications. *Obstet Gynecol*. 2011;118:383-8. [PMID: 21775870]
35. **Levy SJ, Kokotailo PK; Committee on Substance Abuse.** Substance use screening, brief intervention, and referral to treatment for pediatricians. *Pediatrics*. 2011;128:e1330-40. [PMID: 22042818]

APPENDIX: U.S. PREVENTIVE SERVICES TASK FORCE

Members of the U.S. Preventive Services Task Force at the time this recommendation was finalized† are Virginia A. Moyer, MD, MPH, *Chair* (American Board of Pediatrics, Chapel Hill, North Carolina); Michael L. LeFevre, MD, MSPH, *Co-Vice Chair* (University of Missouri School of Medicine, Columbia, Missouri); Albert L. Siu, MD, MSPH, *Co-Vice Chair* (Mount Sinai School of Medicine, New York, and James J. Peters Veterans Affairs Medical Center, Bronx, New York); Linda Ciofu Baumann, PhD, RN (University of Wisconsin, Madison, Wisconsin); Kirsten Bibbins-Domingo, PhD, MD (University of California, San Francisco, San Francisco, California); Susan J. Curry, PhD (University of Iowa College of Public Health, Iowa City, Iowa); Mark Ebell, MD, MS (University of Georgia, Athens, Georgia); Glenn Flores, MD (University of Texas Southwestern, Dallas, Texas); Francisco A.R. García, MD, MPH

(Pima County Department of Health, Tucson, Arizona); Adelita Gonzales Cantu, RN, PhD (University of Texas Health Science Center, San Antonio, Texas); David C. Grossman, MD, MPH (Group Health Cooperative, Seattle, Washington); Jessica Herzstein, MD, MPH (Air Products, Allentown, Pennsylvania); Wanda K. Nicholson, MD, MPH, MBA (University of North Carolina School of Medicine, Chapel Hill, North Carolina); Douglas K. Owens, MD, MS (Veteran Affairs Palo Alto Health Care System, Palo Alto, and Stanford University, Stanford, California); William R. Phillips, MD, MPH (University of Washington, Seattle, Washington); and Michael P. Pignone, MD, MPH (University of North Carolina, Chapel Hill, North Carolina). Joy Melnikow, MD, MPH, a former USPSTF member, also contributed to the development of this recommendation.

† For a list of current Task Force members, go to www.uspreventiveservicestaskforce.org/members.htm.

Appendix Table 1. What the USPSTF Grades Mean and Suggestions for Practice

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer/provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer/provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer/provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the Clinical Considerations section of the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

Appendix Table 2. USPSTF Levels of Certainty Regarding Net Benefit

Level of Certainty*	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as: the number, size, or quality of individual studies; inconsistency of findings across individual studies; limited generalizability of findings to routine primary care practice; and lack of coherence in the chain of evidence. As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: the limited number or size of studies; important flaws in study design or methods; inconsistency of findings across individual studies; gaps in the chain of evidence; findings that are not generalizable to routine primary care practice; and a lack of information on important health outcomes. More information may allow an estimation of effects on health outcomes.

* The USPSTF defines *certainty* as “likelihood that the USPSTF assessment of the net benefit of a preventive service is correct.” The net benefit is defined as benefit minus harm of the preventive service as implemented in a general primary care population. The USPSTF assigns a certainty level on the basis of the nature of the overall evidence available to assess the net benefit of a preventive service.