

Screening for Illicit Drug Use

U.S. Preventive Services Task Force Recommendation Statement

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about preventive care services for patients without recognized signs or symptoms of the target condition.
- It bases its recommendations on a systematic review of the evidence of the benefits and harms and an assessment of the net benefit of the service.
- The USPSTF recognizes that clinical or policy decisions involve more considerations than this body of evidence alone. Clinicians and policy-makers should understand the evidence but individualize decision-making to the specific patient or situation.

Summary of Recommendations and Evidence

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening adolescents, adults, and pregnant women for illicit drug use. (This is a grade I statement.)

Go to the **Figure** for a summary of this recommendation and its impact on clinical practice. Go to **Table 1** for a description of the USPSTF grades and **Table 2** for a description of the USPSTF classification of levels of certainty about net benefit.

Rationale

Importance: Illicit drug use and abuse are serious problems among adolescents, adults, and pregnant women in the United States, ranking among the 10 leading preventable risk factors for years of healthy life lost to death and disability in developed countries. (Please note that tobacco use and alcohol misuse are considered in separate screening recommendations of the USPSTF.)

Detection: While standardized questionnaires to screen adolescents and adults for drug use/misuse have been shown to be valid and reliable, there is insufficient evidence to assess the clinical utility of these instruments when applied widely in primary care settings.

Benefits of detection and early treatment: There is good evidence that various treatments are effective in reducing illicit drug use in the short term. Evidence is insufficient, however, either to demonstrate that treatment reliably improves social and legal outcomes for patients, or to link treatment directly to longer term improvements in morbidity or mortality. Since all but one published clinical trial of treatment interventions involved individuals who had already developed problems due to their drug use, it is not known whether the findings are generalizable to asymptomatic individuals whose illicit drug use is detected

through screening. There is fair evidence that, regardless of the patient's history of treatment, reducing or stopping drug use is associated with improvement in some health outcomes.

Harms of detection and early treatment: There is little evidence of harms associated with either screening for illicit drug use or behavioral interventions used in treatment. Several clinical trials of pharmacotherapy for drug misuse have reported mild to serious adverse events, although some of these events were likely related to underlying drug use. The specific adverse events noted to occur more frequently in the treatment arm of trials (compared to placebo) have been previously recognized as potential side effects of the treatment medication and cited on its product label.

USPSTF assessment: The USPSTF concludes that for adolescents, adults, and pregnant women, the evidence is insufficient to determine the benefits and harms of screening for illicit drug use.

Clinical Considerations

Patient population under consideration: While the rate of illicit drug use in the U.S. is highest between the ages of 18 to 20 years, more than 10% of adolescents aged 12 to 17 are known to use illicit drugs. The percentage of adults who regularly use illicit drugs decreases steadily with age. About 5% of pregnant women report using illicit drugs within the past month.

Patterns of drug use: Marijuana is the most commonly used illicit drug in the United States, with about 6% of the population age 12 and older admitting to use within the past month. While cocaine is the second most commonly used illicit drug, it is used by less than 1% of the population. Only a small minority of Americans use hallucinogens, inhalants, heroin, or illicitly manufactured methamphetamine, although the potential for abuse of or dependence on these substances is high. Illicit (non-medical) use of prescription-type drugs, categorized as pain relievers, tranquilizers, stimulants, and sedatives, is a growing health problem in the U.S.

Screening tests: While clinicians should be alert to the signs and symptoms of illicit drug use in patients, the added benefit of screening asymptomatic patients in primary care practice remains unclear. Toxicologic tests of blood or urine can provide objective evidence of drug use, but such tests do not distinguish between occasional users and those who are impaired by drug use. A few brief, standardized questionnaires have been shown to be valid and reliable in screening adolescent and adult patients for drug use/misuse. However, the clinical utility of these questionnaires is uncertain. The reported positive predictive values are variable and at best 83% when the questionnaires are applied in a general medical clinic. Moreover, the feasibility of routinely incorporating the questionnaires into busy primary care practices has yet to be

assessed. The validity, reliability, and clinical utility of standardized questionnaires in screening for illicit drug use during pregnancy have not been adequately evaluated.

Treatment: Although drug-specific pharmacotherapy (e.g., buprenorphine for opiate abuse) and/or behavioral interventions (e.g., brief motivational counseling for cannabis misuse) have been proven effective in reducing illicit drug use in the short term, the longer-term effects of treatment on morbidity and mortality have been inadequately evaluated. Moreover, these treatments have been studied almost exclusively in individuals who have already developed medical, social, or legal problems due to drug use, and their effectiveness in individuals identified through screening remains unclear. In all but one trial, treatment was delivered outside the primary care setting, often in specialized treatment facilities. More evidence is needed on the effectiveness of office-based treatments for illicit drug use/dependence.

Other approaches to prevention: While interventions to prevent or reduce illicit drug use have been proposed for use in schools and sites of employment, evidence assessing preventive measures delivered in settings other than primary care practice was outside the scope of the USPSTF review. However, the Centers for Disease Control and Prevention's (CDC) Task Force on Community Preventive Services has announced plans to assess the effectiveness of selected population-based interventions for preventing or reducing abuse of drugs (other than tobacco and alcohol) and to make recommendations based on these findings.

Other Considerations

Research needs/gaps: The most significant research gap identified by the USPSTF is the lack of studies to determine if interventions found effective for treatment-seeking individuals with symptoms of drug misuse are equally effective when applied to asymptomatic individuals identified through screening. In addition, observational studies are needed to establish more clearly the effect of treatment on social/legal problems and longer-term health outcomes, including morbidity/mortality. More trials are needed that specifically assess treatment outcomes for adolescents and pregnant women.

Further research is needed to assess the clinical utility of validated standardized questionnaires designed to screen for illicit drug use/misuse when they are applied in busy primary care practice settings.

Discussion

Burden of disease: The adverse health effects of illicit drug use can be significant, but vary greatly depending on the type(s) of drug used and the mode, amount, and frequency of use. Mortality among injection drug users is high due

to overdose and medical complications (e.g., HIV, hepatitis, bacterial endocarditis) of injecting contaminated materials. Cocaine use can produce acute cardiovascular and other complications (e.g., arrhythmias, myocardial infarction, seizures).(1) In addition, chronic use of marijuana has been associated with respiratory inflammation and increased risk of airway cancers.(2)

The indirect legal, social, and economic consequences of illicit drug use are equally important. Violence and other criminal activities related to illegal drugs take a tremendous toll in many communities, and illicit drug use is a major factor in the spread of HIV infection. Most of the total economic burden of illicit drug use is related to the costs of crime and incarceration. Deaths and illness account for 17% of these costs, with almost 10% of the total being associated with HIV/AIDS. Workplaces also suffer economically due to reduced productivity.(3)

Illicit drug use by pregnant women has been shown to adversely affect both mother and fetus in multiple ways, including decreased likelihood of seeking adequate prenatal care and reduced gestational length and birth weight.(4) In addition, illicit drug use increases the risk for child abuse and family violence. Living as a child with someone who abuses drugs is associated with long-term negative outcomes, including an increased likelihood of illicit drug use. (5) The age at which drug use was initiated predicts subsequent abuse and dependence, with higher rates observed among persons who initiate use at younger ages. This trend has been observed in all demographic groups.(6)

Scope of review: In 1996, the USPSTF concluded that there was insufficient evidence to recommend for or against routine screening for drug abuse with standardized questionnaires or biologic assays (a grade C recommendation). To update this conclusion, the USPSTF conducted a staged review of literature published on this topic between 1994 and January 2006.(7) The review first sought to determine the sufficiency of evidence to establish links between screening for illicit drug use, treatment, and clinically meaningful health benefits. Since sufficient evidence to support these critical linkages was lacking, a full systematic review of the topic was not undertaken. The review targeted the four categories of illicit drugs whose use has been studied most extensively: heroin, cocaine, marijuana, and multiple substances. While misuse of prescription-type medications has been recognized as a growing public health problem in the United States, there was insufficient published research on detection or treatment of the problem to warrant a systematic review of this topic. AHRQ staff conducted a separate review of recent literature on the accuracy, reliability, and clinical utility of instruments designed to screen for drug use among adolescents, adults and pregnant women.(8)

Accuracy of screening tests: Numerous standardized questionnaires, many of them adaptations of instruments initially designed to detect alcohol problems, have been developed and examined for validity and reliability in identifying drug use/misuse. Most of these instruments, however, are too lengthy to be

considered for routine use as a screening tool in primary care settings. Four questionnaires described in the literature appear potentially useful for screening for illicit drug use in primary care. They range in length from 4 to 20 items and their administration requires less than 5 minutes when used by clinicians or self-administered by patients. There is good evidence that the CRAFFT (9) test can accurately and reliably detect drug use/misuse among adolescents, and fair-to-good evidence for the accuracy and reliability of the ASSIST (10), CAGE-AID (11) and DAST (12) in detecting adults with drug misuse. There is, however, insufficient evidence to assess the clinical utility of these instruments when applied in primary care practice settings. Variability in reported positive predictive values is of concern, with PPVs of 12 to 83% noted when the questionnaires were assessed in a general medical care clinic. The USPSTF found no assessment of the validity, reliability, or clinical utility of any questionnaire for screening pregnant women for drug use.

Effectiveness of early detection and treatment: Many advances have been made since 1996 in treating illicit drug use. Trials have found various pharmacotherapies and/or behavioral interventions to be effective in reducing opiate, cocaine, and cannabis misuse; however, follow-up periods for these studies have rarely been more than six months in duration. In most trials, health outcomes were measured by indices of mental or physical health symptoms (e.g., depressive symptoms) rather than diagnosed health conditions (e.g., disability or STDs). Evidence of the effect of treatment on social or legal outcomes is sparse and inconsistent, although behavioral counseling interventions for cannabis misuse appear to reduce cannabis-related problems. With one exception (13), the various treatments have been studied in patients who have already developed medical, social, or legal problems due to their drug use. It is uncertain how relevant these findings are to asymptomatic populations identified through screening, as these individuals may be less motivated to undergo treatment than more severely impaired drug users.

Despite the expectation that stopping or reducing drug use will translate into improved health outcomes, there is only fair evidence of such an association. Changes in drug misuse or injection practices among heroin or cocaine users have been associated with improved adherence to needed medical treatment [e.g., use of highly active antiretroviral therapy (HAART) by HIV-infected individuals] and slower disease progression. Studies of birth outcomes, however, have yielded mixed results with regard to the benefits of reducing or stopping cocaine and marijuana use during pregnancy. There is limited evidence that treatment has a direct effect on long-term morbidity and mortality. On the other hand, observational studies conducted outside the United States have demonstrated an association, regardless of the patient's history of treatment, between stopping opiate (usually heroin) misuse and long-term improvement in mortality rates.

Potential harms of screening and treatment: The USPSTF found no evidence of harms associated with screening for illicit drug use, although failure to protect the confidentiality of positive results could potentially affect a patient's employment, insurance coverage, or personal relationships. There was also no evidence found of harms of behavioral interventions to treat drug abuse problems. Adverse events ranging from mild (e.g., elevated liver function tests) to serious (e.g., seizures) have been reported in trials of individuals being treated for illicit drug use with opiate agonists, opiate antagonists, and antidepressants. Some of the reported events appear to be associated with the underlying drug use. The adverse events reported more frequently in the treatment arm of trials (compared to placebo) have been those already cited on product labels of the treatment medication.

Estimate of magnitude of net benefit: In the absence of adequate evidence that standardized instruments for identifying asymptomatic illicit drug users are clinically useful in primary care settings, and that those identified through screening will benefit from treatments known to be effective, the USPSTF was unable to determine the balance of benefits and harms of screening for illicit drug use.

Recommendations of others: Several professional groups have recommended screening adolescents for drug use. The American Academy of Pediatrics recommends that pediatricians incorporate substance-abuse prevention into daily practice, acquire the skills necessary to identify young people at risk of substance abuse, and provide or facilitate assessment, intervention and treatment as necessary. (14) The American Medical Association's (AMA) Guidelines for Adolescent Preventive Services (GAPS) recommends that providers screen adolescents for substance abuse during annual preventive services visits, using age-specific questionnaires that include items related to drug use in the previous six months. www.ama-assn.org/ama/pub/category/1980.html In addition, the Bright Futures initiative includes a recommendation that all adolescents be screened for substance use as part of an overall psychosocial history. It suggests that practices use the CRAFFT questionnaire or the patient self-administered Drug and Alcohol Problem Quick Screen (DAP). www.brightfutures.org

The American College of Obstetrics and Gynecology (ACOG) recommends direct questioning by clinicians of all patients about their use of drugs (as well as tobacco and alcohol) as part of periodic assessments. The use of screening instruments adapted from questionnaires initially developed for use in detecting alcohol abuse is suggested, although no specific instrument is specified. (15)

References

- (1) National Institute on Drug Abuse. Research Report Series. Cocaine abuse and addiction, 2004. Accessed at: <http://www.nida.nih.gov/PDF/RRCocain.pdf> on January 15, 2008.
- (2) Kalant H. Adverse effects of cannabis on health: an update of the literature since 1996. *Prog Neuropsychopharmacol Biol Psychiatry* 2004;28(5):849-63.
- (3) Hogan C. Substance Abuse: The Nation's Number One Health Problem. Princeton, NJ, Robert Wood Johnson Foundation, 2001.
- (4) Rayburn WF, Bogenschultz MP. Pharmacotherapy for pregnant women with addictions. *Am J Obstet Gynecol* 2004;6:1885-1897.
- (5) Dube SR, Felitti VJ, Dong M, Chapman DP, Giles WH, Anda RF. Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. *Pediatrics* 2003;111(3):564-572.
- (6) Substance Abuse and Mental Health Services Administration. Results from the 2004 National Survey on Drug Use and Health: National Findings. NSDUH series H-28, DHHS Publication No. SMA 05-4062. 2005. Rockville, MD.
- (7) Polen MR, Whitlock EP, Wisdom JP, Nygren P, Bougatsos C. Screening in Primary Care Settings for Illicit Drug Use: Staged Systematic Review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 58, Part 1. (Prepared by the Oregon Evidence-based Practice Center under Contract No. 290-02-0024.) AHRQ Publication No. 08-05108-EF-1. Rockville, MD, Agency for Healthcare Research and Quality, January 2008. www.preventiveservices.ahrq.gov/clinic/uspstf08/druguse/drugsys.pdf
- (8) Lanier D, Ko S. Screening in Primary Care Settings for Illicit Drug Use: Assessment of Screening Instruments — A Supplemental Evidence Update for the U.S. Preventive Services Task Force. Evidence Synthesis No. 58, Part 2. AHRQ Publication No. 08-05108-EF-2. Rockville, Maryland: Agency for Healthcare Research and Quality, January 2008. www.preventiveservice.ahrq.gov/clinic/uspstf08/druguse/drugevup.pdf.
- (9) Knight JR, Sherritt L, Shrier LA, Harris SK, Chang G. Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. *Arch Pediatr Adolesc Med* 2002;156:607-614.
- (10) Newcombe DL, Humeniuk RE, Ali R. Validation of the World Health Organization Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): report of results from the Australian site. *Drug Alcohol Review* 2005;24:217-226.

- (11) Brown RL, Rounds LA. Conjoint screening questionnaires for alcohol and other drug abuse: criterion validity in a primary care practice. *Wis Med J* 1995;94:135-140.
- (12) Staley D, El-Guebaly N. Psychometric properties of the Drug Abuse Screening Test in a psychiatric patient population. *Addictive Behaviors* 1990;15:257-264.
- (13) Bernstein J, Bernstein E, Tassiopoulos K, Heeren T, Levenson S, Hingson R. Brief motivational intervention at a clinic visit reduces cocaine and heroin use. *Drug Alcohol Depend* 2005;77(1):49-59.
- (14) Kulig JW and the Committee on Substance Abuse. Tobacco, alcohol and other drugs: the role of the pediatrician in prevention, identification and management of substance abuse. *Pediatrics* 2005;115(3):816-821.
- (15) American College of Obstetrics and Gynecology. Guidelines for Women's Health Care, 2nd edition, 2002. Washington, D.C.

U.S. Preventive Services Task Force

Members of the U.S. Preventive Services Task Force* are Ned Calonge, MD, MPH, Chair, USPSTF (Chief Medical Officer and State Epidemiologist, Colorado Department of Public Health and Environment, Denver, CO); Diana B. Petitti, MD, MPH, Vice-chair, USPSTF (Keck School of Medicine, University of Southern California, Sierra Madre, CA); Thomas G. DeWitt, MD (Carl Weihl Professor of Pediatrics and Director of the Division of General and Community Pediatrics, Department of Pediatrics, Children's Hospital Medical Center, Cincinnati, OH); Leon Gordis, MD, MPH, DrPH (Professor, Epidemiology Department, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD); Kimberly D. Gregory, MD, MPH (Director, Women's Health Services Research and Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, Cedars-Sinai Medical Center, Los Angeles, CA); Russell Harris, MD, MPH (Professor of Medicine, Sheps Center for Health Services Research, University of North Carolina School of Medicine, Chapel Hill, NC); George J. Isham, MD, MS, (Medical Director and Chief Health Officer, HealthPartners, Inc., Minneapolis, MN); Michael L. LeFevre, MD, MSPH (Professor, Department of Family and Community Medicine, University of Missouri School of Medicine, Columbia, MO); Carol Loveland-Cherry, PhD, RN (Executive Associate Dean, Office of Academic Affairs, University of Michigan School of Nursing, Ann Arbor, MI); Lucy N. Marion, PhD, RN (Dean and Professor, School of Nursing, Medical College of Georgia, Augusta, GA); Virginia A. Moyer, MD, MPH (Professor, Department of Pediatrics, University of Texas Health Science Center, Houston, TX); Judith K. Ockene, PhD (Professor of Medicine and Chief of Division of Preventive and Behavioral Medicine, University of Massachusetts Medical School, Worcester, MA); George F. Sawaya, MD (Associate Professor, Department of Obstetrics, Gynecology, and Reproductive Sciences and Department of Epidemiology and Biostatistics, University of California, San Francisco, CA); Albert L. Siu, MD, MSPH (Professor and Chairman, Brookdale Department of Geriatrics and Adult Development, Mount Sinai Medical Center, New York, NY); Steven M. Teutsch, MD, MPH (Executive Director, Outcomes Research and Management, Merck & Company, Inc., West Point, PA); and Barbara P. Yawn, MD, MSPH, MSc (Director of Research, Olmstead Medical Center, Rochester, MN).

*Members of the Task Force at the time this recommendation was finalized. For a list of current Task Force members, go to www.ahrq.gov/clinic/uspstfab.htm.

TABLE 1

What the USPSTF Grades Mean and Suggestions for Practice

Grade	Grade Definitions	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 against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is moderate or high certainty that the net benefit is small.	Offer/provide this service only if there are other considerations in support of the offering/providing the service in an individual patient.
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 "Clinical Considerations" section of USPSTF Recommendation Statement. If offered, patients should understand the uncertainty about the balance of benefits and harms.

TABLE 2

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force 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 based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	<p>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.</p>
Moderate	<p>The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as:</p> <ul style="list-style-type: none"> - the number, size, or quality of individual studies; - inconsistency of findings across individual studies; - limited generalizability of findings to routine primary care practice; or - lack of coherence in the chain of evidence. <p>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.</p>
Low	<p>The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:</p> <ul style="list-style-type: none"> - 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 not generalizable to routine primary care practice; or - a lack of information on important health outcomes. <p>More information may allow an estimation of effects on health outcomes.</p>

--	--

AHRQ Publication Number 08-05108-EF-3
January 2008