JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Primary Care–Based Interventions to Prevent Illicit Drug Use in Children, Adolescents, and Young Adults

US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

IMPORTANCE In 2017, an estimated 7.9% of persons aged 12 to 17 years reported illicit drug use in the past month, and an estimated 50% of adolescents in the US had used an illicit drug by the time they graduated from high school. Young adults aged 18 to 25 years have a higher rate of current illicit drug use, with an estimated 23.2% currently using illicit drugs. Illicit drug use is associated with many negative health, social, and economic consequences and is a significant contributor to 3 of the leading causes of death among young persons (aged 10-24 years): unintentional injuries including motor vehicle crashes, suicide, and homicide.

OBJECTIVE To update its 2014 recommendation, the USPSTF commissioned a review of the evidence on the potential benefits and harms of interventions to prevent illicit drug use in children, adolescents, and young adults.

POPULATION This recommendation applies to children (11 years and younger), adolescents (aged 12-17 years), and young adults (aged 18-25 years), including pregnant persons.

EVIDENCE ASSESSMENT Because of limited and inadequate evidence, the USPSTF concludes that the benefits and harms of primary care–based interventions to prevent illicit drug use in children, adolescents, and young adults are uncertain and that the evidence is insufficient to assess the balance of benefits and harms. More research is needed.

RECOMMENDATION The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of primary care–based behavioral counseling interventions to prevent illicit drug use, including nonmedical use of prescription drugs, in children, adolescents, and young adults. (I statement)

JAMA. 2020;323(20):2060-2066. doi:10.1001/jama.2020.6774

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Supplemental content

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Group Information: The US Preventive Services Task Force (USPSTF) members are listed at the end of this article.

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Summary of Recommendation

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of primary care–based behavioral counseling interventions to prevent illicit drug use, including nonmedical use of prescription drugs, in children, adolescents, and young adults.	I

See the Figure for a more detailed summary of the recommendations for clinicians. See the Practice Considerations section for suggestions for practice regarding the I statement. USPSTF indicates US Preventive Services Task Force.

Importance

In 2017, an estimated 7.9% of persons aged 12 to 17 years reported illicit drug use in the past month,[1] and an estimated 50% of adolescents in the US had used an illicit drug by the time they graduated from high school.[2] Young adults aged 18 to 25 years have a higher rate of current illicit drug use, with an estimated 23.2% currently using illicit drugs. Similar to adolescents, the illicit drugs most commonly used by young adults are marijuana (20.8%) and prescription psychotherapeutics (4.6%).[1] Illicit drug use is associated with many negative health, social, and economic consequences and is a significant contributor to 3 of the leading causes of death among young persons (aged 10 to 24 years): unintentional injuries including motor vehicle crashes, suicide, and homicide.[3]

Figure. Clinician Summary

May 2020

What does the USPSTF recommend?	**For children, adolescents, and young adults: I statement** The USPSTF found that the evidence is insufficient to assess the balance of benefits and harms of primary care–based behavioral counseling interventions to prevent illicit drug use in children, adolescents, and young adults. More research is needed.
To whom does this recommendation apply?	Children (younger than 11 years), adolescents (aged 12 to 17 years), and young adults (aged 18 to 25 years), including pregnant persons. It does not apply to persons who have a history of regular or harmful illicit drug use or who have been diagnosed with a substance use disorder.
What's new?	This recommendation is consistent with the 2014 USPSTF statement.
How to implement this recommendation?	There is insufficient evidence to recommend for or against behavioral counseling interventions to prevent illicit drug use. Clinicians should remain alert to the signs and/or symptoms of illicit drug use and treat as appropriate.
What are other relevant USPSTF recommendations?	The USPSTF has issued other recommendation statements about substance use at https://www.uspreventiveservicestaskforce.org, including • Screening for illicit drug use in adolescents and adults, including nonmedical use of prescription drugs • Primary care interventions to prevent tobacco use in children and adolescents • Screening and behavioral counseling interventions for reducing unhealthy alcohol use in adolescents and adults • Interventions for tobacco smoking cessation in adults, including pregnant persons
Where to read the full recommendation statement?	Visit the USPSTF website (https://www.uspreventiveservicestaskforce.org) to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms; supporting evidence; and recommendations of others.

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.

Table. Summary of USPSTF Rationale[a]

Rationale	Assessment
Benefits of intervention	• Inadequate evidence that interventions to prevent or reduce illicit drug use improve health or other associated outcomes such as social or legal outcomes • Adequate evidence that interventions improve behavioral outcomes such as drug abstinence, frequency of drug use, or quantity of drug use
Harms of intervention	Inadequate evidence to determine the harms of interventions to prevent or reduce illicit drug use, with only 1 study reporting harms and 2 studies reporting an increase in illicit drug use after drug prevention interventions
USPSTF assessment	Evidence on the benefits and harms of primary care–based interventions to prevent or reduce illicit drug use are insufficient and the balance of benefits and harms cannot be determined

Abbreviation: USPSTF, US Preventive Services Task Force.

[a] See the eFigure in the Supplement for explanation of USPSTF grades and levels of evidence.

USPSTF Assessment of Magnitude of Net Benefit

Because of limited and inadequate evidence, the US Preventive Services Task Force (USPSTF) concludes that the benefits and harms of primary care–based interventions to prevent illicit drug use in children, adolescents, and young adults are uncertain and that the **evidence is insufficient** to assess the balance of benefits and harms. More research is needed.

See the **Figure** and **Table** for more information on the USPSTF recommendation rationale and assessment. For more details on the methods the USPSTF uses to determine the net benefit, see the USPSTF Procedure Manual.[4]

Practice Considerations

Patient Population Under Consideration

This recommendation applies to children (11 years and younger), adolescents (aged 12-17 years), and young adults (aged 18-25 years), including pregnant persons. The purpose of this recommendation is to assess the evidence on interventions to prevent the initiation of illicit drug use and thus does not apply to persons who already have a history of regular or harmful illicit drug use. Children, adolescents, and young persons who are regular users of illicit drugs (at least once per week) or have been diagnosed with a substance use disorder are outside the scope of this recommendation.

Screening for illicit drug use in adults and adolescents (aged 12-17 years) is covered in a separate recommendation statement.[5]

Definitions of Illicit Drug Use, Including Nonmedical Drug Use

The term "illicit drug use" is defined as the use of substances (not including alcohol or tobacco products) that are illegally obtained or involve nonmedical use of prescription medications; that is, drug use for reasons, for duration, in amounts, or with frequency other than prescribed, or use by persons other than the prescribed individual. Nonmedical drug use also includes the use of over-the-counter medications, such as cough suppressants. Other illicit drugs include household products such as glues, solvents, and

gasoline. These substances are ingested, inhaled, injected, or administered using other methods to affect cognition, affect, or other mental processes; to "get high"; or for other nonmedical reasons.

Interventions

The body of evidence to recommend specific interventions to prevent initiation of illicit drugs that can be provided or referred from the primary care setting is insufficient. Studied interventions include face-to-face or group counseling, print materials, interactive computer-based tools designed for patient use, and clinician training and quality improvement programs. Studies on these interventions provide inconsistent evidence on the net benefit to behavioral outcomes (drug abstinence or reduced frequency or quantity of illicit drug use) or health outcomes (morbidity, mortality, educational, or legal outcomes).

Other Related USPSTF Recommendations

The USPSTF has several recommendations on substance use–related services for young persons. The USPSTF is currently updating its recommendations on screening for illicit drug use in adults 18 years and older (B recommendation) and in adolescents aged 12 to 17 years (I statement).[5] The USPSTF also has recommendations on screening and behavioral counseling interventions to reduce unhealthy alcohol use in adults 18 years and older (B recommendation) and adolescents aged 12 to 17 years (I statement).[6] In addition, the USPSTF is currently updating its recommendations on education or brief counseling interventions to prevent initiation of tobacco use among school-aged children and adolescents (B recommendation) and interventions for the cessation of tobacco use among school-aged children and adolescents (I statement).[7]

Suggestions for Practice Regarding the I Statement

Potential Preventable Burden

Illicit drug use is associated with multiple negative health, social, and economic consequences. In 2011, the Drug Abuse Warning Network estimated that approximately 190 000 emergency department visits by persons aged 0 to 21 years involved illicit drug use (not including alcohol),[8] and more than 79 000 of those visits were related to nonmedical use of opioids in persons aged 12 to 25 years.[9] In 2015, drug overdose (both intentional and unintentional) accounted for 9.7 deaths per 100 000 persons aged 15 to 24 years.[10]

Frequent and heavy illicit drug use is associated with increased risk-taking behaviors while intoxicated, such as driving under the influence, unsafe sexual activity, and violence. In 2016, 73.6% of all deaths in young persons aged 10 to 24 years in the US resulted from 3 causes: unintentional injuries, including motor vehicle crashes (41.1%); suicide (17.3%); and homicide (14.9%).[3] Among the leading health risk behaviors, the use of alcohol and illicit drugs are the primary health risk behaviors that contribute to these causes of death.[11]

Illicit drug use can also have harmful long-term consequences. Children and adolescents who initiate marijuana use before age 17 years are more likely to progress to other drug use and drug abuse/dependence as adults compared with those who initiate use after age 18 years.[12] Studies have linked use of cannabis to poorer academic performance and lower education attainment (ie, dropping out of high school or not obtaining a college degree).[13-15] Persistent illicit drug use starting in adolescence has been associated with negative psychosocial and neurocognitive effects, including increased anxiety and impaired abstract thinking, attention, learning, and psychomotor functioning.[16,17]

Potential Benefits

The USPSTF found inconsistent evidence on potential benefits associated with interventions. There was a small, statistically significant improvement in cannabis use specifically. However, other drug use outcomes (such as any illicit drug use and the number of times used in the last 3 months) failed to demonstrate statistically significant improvement. There was little evidence that interventions to prevent illicit drug use improve health outcomes such as mortality, educational attainment, or legal outcomes.

Potential Harms

The USPSTF found limited evidence on potential harms associated with interventions. Only 1 study reported nonspecific "adverse events," with no difference between intervention and control groups.[18] Potential harms include a paradoxical increase in illicit drug use.[19,20]

Current Practice

The USPSTF found little evidence on the frequency of use of behavioral counseling in primary care to prevent initiation of illicit drug use among nonusers or the escalation of use among persons who do not use illicit drugs regularly.

Update of Previous USPSTF Recommendation

This recommendation replaces the 2014 USPSTF recommendation, which was also an I statement.[21] This recommendation statement incorporates new evidence since 2014 and now includes young adults (aged 18-25 years).

Supporting Evidence

Scope of Review

The USPSTF commissioned a systematic evidence review to evaluate the evidence on the potential benefits and harms of interventions to prevent illicit drug use in children, adolescents, and young adults.[22,23] This review was used to update the 2014 USPSTF recommendation statement.

The USPSTF uses the term "illicit drug use" to reflect a spectrum of behaviors that range from abstinence to severe substance use disorder. The scope of this recommendation includes interventions designed to prevent illicit drug use in children, adolescents, and young persons who have never used illicit drugs as well as stopping illicit drug use among those with experimental or limited use. Children, adolescents, and young persons who are regular users of illicit drugs (at least once per week) or have been diagnosed with a substance use disorder are outside the scope of this recommendation. Interventions included in the review were either conducted in a primary care setting or judged to be generalizable to a primary care setting.

Although alcohol and tobacco are both psychoactive drugs, they are not the focus of this recommendation. The USPSTF has made separate recommendations on screening and counseling for tobacco and alcohol use in adolescents.[6,24]

Benefits of Interventions

The USPSTF reviewed 29 studies (N = 18 353) of interventions to prevent illicit drug use.[22,23] The review included 26 general prevention trials and 3 trials of the Family Spirit program, an intensive home visitation program that targeted pregnant Native American/Alaska Native youth.[18,25,26] Ten of the studies targeted middle school–aged students (aged 10-14 years) and 2 targeted young adults (aged 17-24 years). The remaining studies focused on high school–aged youth or covered an age range inclusive of high school–aged youth. Most (22) of the studies were conducted in the US. Race/ethnicity data were not reported in all studies, although 10 studies included a majority of black and Hispanic youth, 3 were limited to Native American women or girls, and 1 was limited to Asian American women or girls.

Half of the interventions (50%) were individual counseling sessions (in person or by telephone), 21% were group sessions or a combination of group and individual sessions, and 35% were primarily computer based. Trials in middle school–aged youth tended to be more intensive, with an average of 7 to 12 sessions, compared with 1 to 3 sessions in older groups. Most interventions involved the youth alone (68%) or the youth and the parent (23%). Common components of interventions targeted to youth were education about illicit drugs, other substances, or both; correction of normative thoughts or beliefs; and development of social skills, stress management skills, positive peer relationships, refusal skills, and self-esteem. Interventions targeted to parents included information on youth development, communication, monitoring, establishing rules, and positive parenting.[22,23]

The majority of trials addressed outcomes in addition to illicit drug use, with 9 trials focusing broadly on substance use (including alcohol, tobacco, or both). Other outcomes included family functioning (8 trials), risky sexual behavior (5 trials), mental health and emotional well-being (6 trials), truancy and delinquent behaviors (1 trial), and breastfeeding and infant care (3 trials).[22,23] Behavioral outcomes included illicit drug use (either any illicit drug use or frequency of use), associated alcohol and tobacco use, delinquent behavior, risky sexual behavior, and unsafe driving.

Findings were inconsistent for illicit drug use outcomes across all studies. For the general prevention trials (ie, those other than the Family Spirit trials), the pooled effect of interventions on illicit drug use (including any drug use and number of times used) was not statistically significant (pooled standard mean difference, −0.08 [95% CI, −0.16 to 0.0001]; 24 trials; n = 12 801; I^2 = 57.0%).[22] The pooled odds ratio for using any illicit drug was also nonstatistically significant (0.82 [95% CI, 0.67 to 1.04]; 12 trials; n = 9031; I^2 = 38.2%); however, there was a statistically significant improvement in cannabis use specifically (pooled odds ratio, 0.78 [95% CI, 0.64 to 0.95]; 7 trials; n = 6520; I^2 = 1.3%).[22,23] For continuous outcomes (number of times used in the last 3 months), the pooled mean difference between groups was statistically nonsignificant (0.21 times fewer in the intervention group [95% CI, −0.44 to 0.02]; 11 trials; n = 3651; I^2 = 51.0%).[22,23] Only 4 trials reported on outcomes specifically related to misuse of prescription medications. All were computer-based interventions and reported greater reductions of misuse, ranging from 0.1 to 11.3 times fewer over the previous 3 months and up to 24 months of follow-up.[21] Although some interventions reported positive findings at 1 or more follow-ups, nearly half of the trials reported no clear benefit, and 2 trials reported statistically significant *increases* in illicit drug use for at least 1 drug use outcome in the intervention group compared with the control group.[22]

For the Family Spirit home visitation trials, only 1 found statistically significant reductions in illicit drug use, although only at the final time point (38-month follow-up).[22,23] Other behavioral outcomes, including delinquent behavior, risky sexual behavior, and unsafe driving, were not reported.[22,23]

Nineteen studies (n = 9042) (16 of the general prevention trials and all 3 of the Family Spirit trials) reported on health or related outcomes.[18,19,25-41] Mental health and family functioning were the most common type of outcomes reported, although no outcome was widely reported. Mental health outcomes were reported in 12 trials and included global mental health functioning (5 trials), depression symptoms (7 trials), externalizing (3 trials), internalizing (1 trial), and anxiety symptoms (1 trial). Most of the general prevention trials found no group-to-group differences on mental health symptom scales after 3 to 24 months, and results were mixed for the Family Spirit trials. Family functioning (family communication, parental monitoring, and maternal closeness) was reported in 5 trials. Three of these trials reported statistically significant improvements in family functioning (0.3 to 0.6 on a 5-point scale for up to 24 months), although the clinical significance of this finding is uncertain.[22,23] Other reported health or related outcomes, such as consequences of illicit drug use (3 trials), health-related quality of life (1 trial), and arrests (1 trial) failed to demonstrate consistent benefit. No trials reported mortality.

Evidence on Harms of Interventions

No studies directly reported harms related to interventions, although one trial reported no difference in "adverse events" between intervention and control groups.[18] Two studies reported paradoxical and statistically significant increased illicit drug use in intervention groups compared with control groups.[19,20] Seven other studies reported statistically nonsignificant increases in illicit drug, alcohol, or tobacco use in intervention groups.[25,26,29,34,40,42,43]

Response to Public Comment

A draft version of this Recommendation Statement was posted for public comment on the USPSTF website from October 1 through October 28, 2019. Several comments noted that the term "prevent or reduce" could be interpreted as applying only to persons who have never used illicit drugs or only to those currently using drugs. The primary focus of this recommendation is the prevention of illicit drug use in children, adolescents, and young adults who are not regular drug users (defined as drug use less than 1 time per week). This includes persons who have never used drugs as well as those with early or experimental use. Changes were made to clarify this point.

Comments also suggested that research on interventions that can be carried out in schools should be included. These comments also noted that the term "primary care–based" is confusing, since many of the reviewed interventions were not carried out in

a clinical setting. The USPSTF makes recommendations on interventions that can be conducted in or referred from a clinical setting. As such, only studies that are conducted in or are judged to be generalizable to a primary care setting were included in the review. Language was added to clarify this. The USPSTF wishes to emphasize that screening for drug use in adolescents and young adults is covered in a separate recommendation. As such, evidence on screening interventions was not reviewed in this recommendation. In addition, the USPSTF updated the recommendation to include data from a recent trial[44] that evaluated the effect of a computer-based intervention for the prevention of youth substance use and associated risky behaviors.

Research Needs and Gaps

The USPSTF identified several gaps in the evidence where more research is needed:

- There was promising evidence that interventions could be effective in preventing cannabis use specifically; however, the benefit to harm ratio could not be determined because of a lack of studies reporting harms. Future research on cannabis prevention that deliberately addresses both benefits and harms is needed.
- There was minimal reporting on health, social, or legal outcomes and significant heterogeneity in reporting on drug use outcomes. Standardization of outcome measurement across trials would greatly strengthen the evidence base and improve the ability to pool data.
- Several interventions such as the Familias Unidas program (a family-based intervention program focusing on Hispanic youth) and interventions that included clinician training, education, personal coaching, and continuous quality improvement components showed promise in reducing illicit drug use. More studies are needed that replicate and further refine these interventions.
- There was no evidence on preventing or reducing illicit drug use in children younger than 10 years and limited evidence in young adults (aged 18-25 years). More data are needed on the benefits and harms of interventions in these age groups.
- Technology-based interventions such as text-based messaging, smartphone apps, games, web-based interventions, and social media have the potential for wide reach, although there are limited data about their effectiveness. More studies of implementation of these types of interventions is needed, specifically among families referred from primary care, to determine their uptake and effectiveness.

Recommendations of Others

The Substance Abuse and Mental Health Services Administration recommends that universal screening for substance use, brief intervention, and/or referral to treatment (SBIRT) be part of routine health care.[45] In children and adolescents, "brief interventions" include a wide spectrum of actions intended to prevent, delay, or reduce substance use.[22] The American Academy of Pediatrics recommends that all adolescents be screened for alcohol and illicit drug use and that, based on the results, clinicians conduct further assessment, provide guidance and brief counseling interventions, and, if appropriate, refer for treatment.[46] For patients reporting no substance use, it recommends positive reinforcement. The Canadian Paediatric Society recommends screening and education for risky behaviors, including substance use.[47] The UK National Institute for Health Care Excellence recommends that clinicians consider providing preventive drug misuse activities and assess persons at risk of illicit drug misuse. Clinicians should consider providing skills training to young persons who are assessed as vulnerable to illicit and nonmedical drug use.[48]

ARTICLE INFORMATION

Accepted for Publication: April 16, 2020.

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Author Contributions: Dr Krist had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. The USPSTF members contributed equally to the recommendation statement.

Conflict of Interest Disclosures: Authors followed the policy regarding conflicts of interest described at https://www.uspreventiveservicestaskforce.org/Page/Name/conflict-of-interest-disclosures. All members of the USPSTF receive travel reimbursement and an honorarium for participating in USPSTF meetings. Dr Barry reported receiving grants and personal fees from Healthwise.

Funding/Support: The USPSTF is an independent, voluntary body. The US Congress mandates that the Agency for Healthcare Research and Quality (AHRQ) support the operations of the USPSTF.

Role of the Funder/Sponsor: AHRQ staff assisted in the following: development and review of the research plan, commission of the systematic evidence review from an Evidence-based Practice Center, coordination of expert review and public comment of the draft evidence report and draft recommendation statement, and the writing and preparation of the final recommendation statement and its submission for publication. AHRQ staff had no role in the approval of the final recommendation statement or the decision to submit for publication.

Disclaimer: Recommendations made by the USPSTF are independent of the US government. They should not be construed as an official position of AHRQ or the US Department of Health and Human Services.

Additional Contributions: We thank Justin Mills, MD, MPH (AHRQ), who contributed to the writing of the manuscript, and Lisa Nicolella, MA (AHRQ), who assisted with coordination and editing.

Additional Information: The USPSTF makes recommendations about the effectiveness of specific preventive care services for patients without obvious 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.

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