

Primary Care Interventions to Prevent Tobacco Use in Children and Adolescents: Recommendation Statement

► See related Putting Prevention into Practice on page 723.

This summary is one in a series excerpted from the Recommendation Statements released by the USPSTF. These statements address preventive health services for use in primary care clinical settings, including screening tests, counseling, and preventive medications.

The complete version of this statement, including supporting scientific evidence, evidence tables, grading system, members of the USPSTF at the time this recommendation was finalized, and references, is available on the USPSTF website at <http://www.uspreventiveservicestaskforce.org/>.

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A collection of USPSTF recommendation statements published in *AFP* is available at <http://www.aafp.org/afp/uspstf>.

Summary of Recommendation and Evidence

The U.S. Preventive Services Task Force (USPSTF) recommends that primary care clinicians provide interventions, including education or brief counseling, to prevent initiation of tobacco use in school-aged children and adolescents (*Table 1*). **B recommendation.**

See the Clinical Considerations section for more information on effective interventions.

Rationale

IMPORTANCE

Tobacco use is the leading cause of preventable death in the United States. Each year, roughly 443,000 deaths are attributable to smoking, including nearly 161,000 from cancer, 128,000 from cardiovascular diseases, and 103,000 from respiratory diseases. Smoking costs reach approximately \$96 billion each year in direct medical costs and \$97 billion in productivity losses from premature death.¹

RECOGNITION OF BEHAVIOR

A person's path to daily smoking and nicotine dependence can be described in five stages: susceptible to smoking (never smoked); initiation (trying the first cigarette); experimentation (repeatedly trying cigarettes, may show signs of addiction); established smoking (regular smoking, likely to show signs of addiction); and nicotine dependence.

Children are susceptible to smoking experimentation and initiation. It can take up to two years to progress from early experimentation to addiction, although some children and adolescents progress more rapidly to nicotine dependence.²

EFFECTIVENESS OF INTERVENTIONS TO CHANGE BEHAVIOR

The USPSTF found adequate evidence that behavioral counseling interventions, such

as face-to-face or phone interaction with a health care professional, print materials, and computer applications, can reduce the risk of smoking initiation in school-aged children and adolescents.

HARMS OF INTERVENTIONS TO CHANGE BEHAVIOR

The USPSTF found no evidence on the harms of behavioral interventions to prevent tobacco use; however, the magnitude of these potential harms is probably small to none.

USPSTF ASSESSMENT

The USPSTF concludes with moderate certainty that primary care-relevant behavioral interventions to prevent tobacco use in school-aged children and adolescents have a moderate net benefit.

Clinical Considerations

PATIENT POPULATION

This recommendation applies to school-aged children and adolescents. The USPSTF has issued a separate recommendation statement on tobacco use counseling in adults and pregnant women.

ASSESSMENT OF RISK

In 2009, 8.2% of middle school students and 23.9% of high school students reported current use of any tobacco product.³ Although younger children may be susceptible to smoking, research indicates that adolescents may be especially vulnerable to nicotine addiction.

The prevalence of smoking in the United States is higher in male high school students (19.8%) than female students (19.1%).⁴ Two of the strongest factors associated with smoking initiation in children and adolescents are parental smoking and parental nicotine dependence. Other factors include low

Table 1. Primary Care Interventions to Prevent Tobacco Use in Children and Adolescents: Clinical Summary of the USPSTF Recommendation

Population	School-aged children and adolescents
Recommendation	Provide interventions to prevent initiation of tobacco use. Grade: B
Risk assessment	The strongest factors associated with smoking initiation in children and adolescents are parental smoking and parental nicotine dependence. Other factors include low levels of parental monitoring, easy access to cigarettes, perception that peers smoke, and exposure to tobacco promotions.
Behavioral counseling interventions	Behavioral counseling interventions, such as face-to-face or phone interaction with a health care professional, print materials, and computer applications, can reduce the risk of smoking initiation in school-aged children and adolescents. The type and intensity of effective behavioral interventions vary substantially.
Balance of benefits and harms	There is a moderate net benefit to providing primary care interventions to prevent tobacco use in school-aged children and adolescents.
Other relevant USPSTF recommendations	The USPSTF has made recommendations on counseling and interventions to prevent tobacco use and tobacco-caused disease in adults and pregnant women. These recommendations are available at http://www.uspreventiveservicestaskforce.org .

NOTE: For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, go to <http://www.uspreventiveservicestaskforce.org/>.

USPSTF = U.S. Preventive Services Task Force.

levels of parental monitoring, easy access to cigarettes, the perception that peers smoke, and exposure to tobacco promotions.

INTERVENTIONS TO PREVENT TOBACCO USE

The type and intensity of effective behavioral interventions substantially varied in the evidence review, ranging from no in-person interaction with a health care professional to seven group sessions totaling more than 15 hours.¹ In one intervention, families received a packet of materials for parents and children and a 28-minute video with a viewing guide. These families received one counseling call three to six weeks after receiving the written materials and a second call 14 months after enrollment. Another intervention consisted of creating a tobacco-free office and giving patients a series of antitobacco messages on preprinted prescription forms. The most intensive intervention focused on universal substance abuse and problem behavior prevention for families. In this intervention, the youth and at least one parent participated in seven group and family sessions over seven weeks (each session lasted two to 2.5 hours) and received workbooks with activities to complete at home.

Even minimal interventions, such as mailing materials to a youth's home, had substantial effects on reducing smoking initiation. One intervention mailed tailored newsletters addressed to the student every three weeks; another intervention sent age-related materials four times over 12 months. In a third intervention, participants were mailed five core activity guides with newsletters and tip sheets approximately every two weeks, with one booster guide at one year.¹

Many interventions had similar content, such as the participant's attitudes, beliefs, and knowledge about smoking; the consequences of smoking; the influence of the social environment, including tobacco marketing; and skills to decline cigarettes. Several interventions targeted parental attitudes and beliefs about smoking and parent-child communication.

INTERVENTIONS FOR TOBACCO CESSATION

Evidence on the effectiveness of cessation interventions delivered in primary care settings to school-aged children and adolescents who have experimented with smoking or are regular smokers is limited. The USPSTF examined the evidence on behavioral

interventions to promote smoking cessation in children and adolescents who were classified as smokers.¹ Few studies targeted regular, established smokers or stratified findings by length or amount of smoking (such as experimenters vs. established smokers). A pooled meta-analysis of seven trials, which included 2,328 children and adolescents and examined interventions to promote smoking cessation, found a small but statistically insignificant effect at six- to 12-month follow-up favoring the intervention (risk ratio = 0.96; 95% confidence interval, 0.90 to 1.02).¹

Although evidence on the effectiveness of primary care-relevant interventions in reducing smoking in children and adolescents is limited, some evidence from other literature shows that school- and community-based behavioral counseling programs can promote smoking cessation in adolescent smokers. A meta-analysis of 64 trials, 40 of which were school-based, found a 4% difference in smoking cessation rates between the intervention and control groups (11.8% vs. 7.5%, respectively).⁵ A longitudinal evaluation of 41 community-based programs reported biochemically validated cessation rates similar to those in randomized trials (averaging 14% at the end of the program and 12% at 12-month follow-up).⁶

No medications are currently approved by the U.S. Food and Drug Administration for tobacco cessation in children and adolescents. Two studies that evaluated behavioral interventions plus medication (sustained-release bupropion alone or combined with nicotine replacement therapy) showed no statistically significant benefit from the medication.¹ Evidence on complementary and alternative medicine, such as acupuncture, for smoking cessation in children and adolescents is not available,¹ and such interventions have demonstrated no long-term benefits in adults.⁷

OTHER APPROACHES TO PREVENTION AND CESSATION

The Community Preventive Services Task Force has made the following four recommendations for school-aged children and adolescents.⁸

(1) Mobile phone-based interventions for tobacco cessation, on the basis of sufficient

evidence of their effectiveness in increasing abstinence from tobacco among persons interested in quitting, as well as community-wide, proactive telephone support (proactive follow-up) combined with patient education materials, on the basis of strong evidence of their effectiveness in increasing tobacco cessation in clinical and community settings. However, the Community Preventive Services Task Force noted that the evidence on the effectiveness of both of these interventions for school-aged children and adolescents is limited.

(2) Interventions that increase the price of tobacco products, on the basis of strong evidence of their effectiveness in reducing tobacco use in adolescents and adults, reducing population consumption of tobacco products, and increasing tobacco use cessation.

(3) Mass media campaigns, on the basis of strong evidence of their effectiveness in reducing tobacco use in adolescents when combined with increases in tobacco prices, school-based education, and other community education programs.

(4) Community mobilization combined with additional interventions (such as stronger local laws directed at retailers, active enforcement of retailer sales laws, and retailer education with reinforcement), on the basis of sufficient evidence of their effectiveness in reducing youth tobacco use and access to tobacco products from commercial sources.

The Community Preventive Services Task Force also recommends provider reminder systems, whether used alone or as part of a multicomponent intervention, across a range of intervention characteristics (such as chart stickers, checklists, and flowcharts) and in various clinical settings and populations.

USEFUL RESOURCES

Primary care clinicians may find the following resources useful in talking with children and adolescents about the harms of smoking and other reasons not to start smoking: Centers for Disease Control and Prevention's Smoking & Tobacco Use: Information Sheet (http://www.cdc.gov/tobacco/youth/information_sheet/index.htm); U.S. Department of Health and Human Services' BeTobaccoFree.gov (<http://betobaccofree.hhs.gov/dont-start/index.html>); Public Health Service's

Treating Tobacco Use and Dependence: 2008 Update (<http://www.ncbi.nlm.nih.gov/books/NBK63952/>); and American Academy of Pediatrics' Tobacco Prevention Policy Tool (http://www2.aap.org/richmondcenter/TobaccoPreventionPolicyTool/TPPT_PracticeCessation.html). The USPSTF recommends that clinicians ask all adults about tobacco use and provide tobacco cessation interventions for those who use tobacco products (A recommendation). It also recommends that clinicians ask all pregnant women about tobacco use and provide augmented, pregnancy-tailored counseling for those who smoke (A recommendation).⁹

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The "Other Considerations," "Discussion," "Update of Previous Recommendation," and "Recommendations of Others" sections of this recommendation statement are available at <http://www.uspreventiveservicestaskforce.org/Page/Topic/recommendation-summary/primary-care-interventions-to-prevent-tobacco-use-in-children-and-adolescents>.

The USPSTF recommendations are independent of the U.S. government. They do not represent the views of the Agency for Healthcare Research and Quality, the U.S. Department of Health and Human Services, or the U.S. Public Health Service.

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