

Screening for Anxiety in Children and Adolescents

US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

IMPORTANCE Anxiety disorder, a common mental health condition in the US, comprises a group of related conditions characterized by excessive fear or worry that present as emotional and physical symptoms. The 2018-2019 National Survey of Children's Health found that 7.8% of children and adolescents aged 3 to 17 years had a current anxiety disorder. Anxiety disorders in childhood and adolescence are associated with an increased likelihood of a future anxiety disorder or depression.

OBJECTIVE The US Preventive Services Task Force (USPSTF) commissioned a systematic review to evaluate the benefits and harms of screening for anxiety disorders in children and adolescents. This is a new recommendation.

POPULATION Children and adolescents 18 years or younger who do not have a diagnosed anxiety disorder or are not showing recognized signs or symptoms of anxiety.

EVIDENCE ASSESSMENT The USPSTF concludes with moderate certainty that screening for anxiety in children and adolescents aged 8 to 18 years has a moderate net benefit. The USPSTF concludes that the evidence is insufficient on screening for anxiety in children 7 years or younger.

RECOMMENDATION The USPSTF recommends screening for anxiety in children and adolescents aged 8 to 18 years. (B recommendation) The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for anxiety in children 7 years or younger. (I statement)

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Group Information: A complete list of the members of the US Preventive Services Task Force appears at the end of this article.

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Summary of Recommendations

Population	Recommendation	Grade
Children and adolescents aged 8 to 18 years	The USPSTF recommends screening for anxiety in children and adolescents aged 8 to 18 years.	B
Children 7 years or younger	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for anxiety in children 7 years or younger.	I

See the Practice Considerations section for additional information regarding the I statement. USPSTF indicates US Preventive Services Task Force.

See the Summary of Recommendations figure.

Importance

Anxiety disorder, a common mental health condition in the US, comprises a group of related conditions characterized by excessive fear or worry that present as emotional and physical symptoms.¹⁻³ The 2018-2019 National Survey of Children's Health (NSCH) found that 7.8% of children and adolescents aged 3 to 17 years had a current anxiety disorder.⁴ Anxiety disorders in childhood and adolescence

are associated with an increased likelihood of a future anxiety disorder or depression.^{1,3}

USPSTF Assessment of Magnitude of Net Benefit

The US Preventive Services Task Force (USPSTF) concludes with moderate certainty that screening for anxiety in children and adolescents aged 8 to 18 years has a **moderate net benefit**.

Table. Summary of USPSTF Rationale

Rationale	Children (7 y or younger)	Children and adolescents (aged 8 to 18 y)
Detection	Inadequate evidence on screening instruments for anxiety in children 7 y or younger in primary care	Adequate evidence that accurate screening instruments are available to identify anxiety in children and adolescents aged 8 to 18 y
Benefits of early detection and intervention	<ul style="list-style-type: none"> No direct evidence on benefits of screening for anxiety on health outcomes owing to a lack of studies in children 7 years or younger Inadequate evidence on the benefits of treatment in children 7 years or younger with anxiety 	<ul style="list-style-type: none"> No direct evidence on benefits of screening for anxiety on health outcomes owing to a lack of studies Adequate evidence that treatment of anxiety with psychotherapy is associated with a moderate magnitude of benefit (eg, treatment response, disease remission, or resolution) Adequate evidence to link screening and early treatment of anxiety to a moderate benefit in improving health outcomes such as treatment response and disease remission
Harms of early detection and intervention	Inadequate evidence on the harms of screening for or treatment of anxiety in children 7 y or younger	<ul style="list-style-type: none"> No direct evidence on the harms of screening for anxiety owing to a lack of studies Adequate evidence to bound the magnitude of harms of screening and psychotherapy as no greater than small, based on the likely minimal harms of using screening tools, limited evidence of treatment harms, and the nature of the intervention. (When direct evidence is limited, absent, or restricted to select populations or clinical scenarios, the USPSTF may place conceptual upper or lower bounds on the magnitude of benefit or harms.)
USPSTF assessment	The benefits and harms of screening for anxiety in children 7 y or younger is uncertain, and the balance of benefits and harms cannot be determined	Moderate certainty that screening for anxiety in children and adolescents aged 8 to 18 y has a moderate net benefit in improving outcomes such as treatment response and disease remission

Abbreviation: USPSTF, US Preventive Services Task Force.

The USPSTF concludes that the **evidence is insufficient** on screening for anxiety in children 7 years or younger. Evidence on the accuracy of screening tools and the effects of screening and treatment in this younger age group is lacking, and the balance of benefits and harms cannot be determined.

See the **Table** for more information on the USPSTF recommendation rationale and assessment and the **eFigure** in the Supplement for information on the recommendation grade. See the **Figure** for a summary of the recommendation for clinicians. For more details on the methods the USPSTF uses to determine the net benefit, see the USPSTF Procedure Manual.⁵

Practice Considerations

Patient Population Under Consideration

This recommendation applies to children and adolescents 18 years or younger who do not have a diagnosed anxiety disorder or are not showing recognized signs or symptoms of anxiety.

Condition Definitions

Anxiety disorders are characterized by greater duration or intensity of impairment of a stress response. The *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) recognizes 7 different types of anxiety disorders in children and adolescents: generalized anxiety disorder (GAD), social anxiety disorder, panic disorder, agoraphobia, specific phobias, separation anxiety disorder, and selective mutism.²

Assessment of Risk

Risk factors for anxiety disorders include genetic, personality, and environmental factors, such as attachment difficulties, interparental conflict, parental overprotection, early parental separation, and child maltreatment. Demographic factors such as poverty and low socioeconomic status are also associated with higher rates of anxiety disorders.^{1,3,6-13} The National Survey on LGBTQ

Youth Mental Health reported that 72% of lesbian, gay, bisexual, transgender, and queer youth and 77% of transgender and nonbinary youth described GAD symptoms.¹⁴ According to the 2016 NSCH, anxiety conditions were most common in older children and adolescents (aged 12 to 17 years) compared with younger children (11 years or younger).¹⁵

Previous studies suggested that Black youth may have lower rates of mental health disorders compared with White youth. The 2016 NSCH also found that anxiety conditions were more common in non-Hispanic White children compared with children of other racial or ethnic backgrounds.¹⁵ However, recent cohorts of Black children or adolescents have reported a higher prevalence of anxiety disorders than in the past.¹⁶ Multiple factors, ranging from socioeconomic status, childhood adversity, family structure, and neighborhood effects, may influence patterns of prevalence by race or ethnicity.^{1,3} Adverse childhood experiences influence the likelihood of experiencing mental health conditions such as anxiety. Adverse childhood experiences may result from a complex interaction of familial, peer, or societal factors, including racial discrimination. These adverse childhood experiences may be blatant or subtle (eg, microaggressions) but are potentially traumatic events that, in the context of historic trauma, structural racism, and biopsychological vulnerability, can worsen mental health outcomes.^{1,3,17} Combined with lower engagement with mental health services, adverse childhood experiences can result in high levels of unmet mental health needs in Black youth.^{1,3,18-22} Similar patterns of historic trauma, adverse childhood experiences, and substance abuse may also explain higher rates of mental health disorders in Native American/Alaska Native youth.^{1,3}

Screening Tests

Anxiety screening instruments that have been assessed by the USPSTF are heterogeneous. Some screening instruments are designed to assess for a specific anxiety disorder (eg, the Social Phobia and Anxiety Inventory for Children, which screens for social phobia and anxiety disorder), while others are designed to

Figure. Clinician Summary: Screening for Anxiety in Children and Adolescents

What does the USPSTF recommend?	Children and adolescents aged 8 to 18 years: Screen for anxiety. Grade: B
	Children 7 years or younger: The evidence is insufficient to assess the balance of benefits and harms of screening for anxiety. I statement
To whom does this recommendation apply?	This recommendation applies to children and adolescents 18 years or younger who do not have a diagnosed anxiety disorder and who are not showing recognized signs or symptoms of anxiety.
What's new?	This is a new USPSTF recommendation.
How to implement this recommendation?	<ul style="list-style-type: none"> • There are multiple treatment options available, including medications, counseling, a combination of these approaches, and collaborative care, which is a team approach where the primary care clinician works with a behavioral health care manager and psychiatrist to ensure patients receive the best care. • Clinicians should be aware of the risk factors, signs, and symptoms of anxiety, listen to any patient concerns, and make sure that persons who need help get it. Youth diagnosed with anxiety and their health care professional should decide together with the parents or guardians what treatment is right for them.
What additional information should clinicians know about this recommendation?	<ul style="list-style-type: none"> • Although all youth aged 8 to 18 years are at risk for anxiety and should be screened, there are factors that increase the risk. Risk factors for anxiety disorders include genetic, personality, and environmental factors, such as attachment difficulties, conflict between parents, parental overprotection, early parental separation, and child mistreatment. Certain groups are also at increased risk, including LGBTQ youth, transgender youth, and older adolescents aged 12 to 17 years. • In the absence of evidence, health care professionals should use their judgment based on individual patient circumstances when determining whether to screen for anxiety in youth 7 years or younger.
Why is this recommendation and topic important?	Anxiety disorder is a common mental health condition in the US. According to the 2018-2019 National Survey of Children's Health, 7.8% of children and adolescents aged 3 to 17 years had a current anxiety disorder. Anxiety disorders in childhood and adolescence are associated with an increased likelihood of a future anxiety disorder or depression.
What are other relevant USPSTF recommendations?	<ul style="list-style-type: none"> • Screening for depression and suicide risk in children and adolescents • Primary care-based interventions for illicit drug use in children, adolescents, and young adults • Information on additional mental health recommendations in children and adolescents from the USPSTF are available at https://www.uspreventiveservicestaskforce.org/.
What are additional tools and resources?	<p>The Community Preventive Services Task Force recommends:</p> <ul style="list-style-type: none"> • Targeted school-based cognitive behavioral therapy programs to reduce depression and anxiety symptoms (https://www.thecommunityguide.org/findings/mental-health-targeted-school-based-cognitive-behavioral-therapy-programs-reduce-depression-anxiety-symptoms) • Individual cognitive behavioral therapy for symptomatic youth who have been exposed to traumatic events (https://www.thecommunityguide.org/findings/violence-psychological-harm-traumatic-events-among-children-and-adolescents-cognitive-individual) • Group cognitive behavioral therapy for symptomatic youth who have been exposed to traumatic events (https://www.thecommunityguide.org/findings/violence-psychological-harm-traumatic-events-among-children-and-adolescents-cognitive-group) <p>The Centers for Disease Control and Prevention has information on anxiety in childhood (https://www.cdc.gov/childrenmentalhealth/depression.html)</p>
Where to read the full recommendation statement?	Visit the USPSTF website (https://www.uspreventiveservicestaskforce.org/) or the JAMA website (https://jamanetwork.com/collections/44068/united-states-preventive-services-task-force) 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.

LGBTQ indicates lesbian, gay, bisexual, transgender, queer; USPSTF, US Preventive Services Task Force.

assess several anxiety disorders. Broader screening instruments used to identify children with several different anxiety disorders include the Screen for Child Anxiety Related Disorders (SCARED) (global anxiety and any anxiety disorder) and the Patient Health Questionnaire-Adolescent (GAD and panic disorder).

Many instruments that screen for anxiety were initially developed for epidemiologic studies for surveillance or to evaluate response to treatment. Not all of the screening instruments are feasible for use in primary care settings because of length.^{1,3} Currently,

only 2 screening instruments are widely used in clinical practice for detecting anxiety: SCARED and Social Phobia Inventory.

Anxiety screening tools alone are not sufficient to diagnose anxiety. If the screening test is positive for anxiety, a confirmatory diagnostic assessment and follow-up is required.

Screening Intervals

The USPSTF found no evidence on appropriate or recommended screening intervals, and the optimal interval is unknown. Repeated

screening may be most productive in adolescents with risk factors for anxiety. Opportunistic screening may be appropriate for adolescents, who may have infrequent health care visits.

Treatment or Interventions

Treatment for anxiety disorders can include psychotherapy, pharmacotherapy, a combination of both, or collaborative care.¹⁵ Several psychotherapy approaches have been used to treat anxiety; however, cognitive behavioral therapy is the most commonly used approach.¹⁶⁻¹⁸ Duloxetine, a serotonin-norepinephrine reuptake inhibitor, is the only medication approved by the US Food and Drug Administration for treatment of GAD in children 7 years or older. Other medications have also been reported as being prescribed off-label for treatment of anxiety in youth.^{1,3}

Additional Tools and Resources

The Community Preventive Services Task Force recommends targeted school-based cognitive behavioral therapy programs to reduce depression and anxiety symptoms (<https://www.thecommunityguide.org/findings/mental-health-targeted-school-based-cognitive-behavioral-therapy-programs-reduce-depression-anxiety-symptoms>).

The Community Preventive Services Task Force recommends individual cognitive behavioral therapy for symptomatic youth who have been exposed to traumatic events, based on strong evidence of effectiveness in reducing psychological harm (<https://www.thecommunityguide.org/findings/violence-psychological-harm-traumatic-events-among-children-and-adolescents-cognitive-individual>).

The Community Preventive Services Task Force recommends group cognitive behavioral therapy for symptomatic youth who have been exposed to traumatic events, based on strong evidence of effectiveness in reducing psychological harm (<https://www.thecommunityguide.org/findings/violence-psychological-harm-traumatic-events-among-children-and-adolescents-cognitive-group>).

The Centers for Disease Control and Prevention has additional information on anxiety in childhood (<https://www.cdc.gov/childrensmentalhealth/depression.html>).

Implementation

Various questionnaires have been evaluated as screening tools for anxiety in children and adolescents. Some may target specific anxiety disorders, while others may screen for various disorders. The length of questionnaires can also vary. Clinicians are encouraged to consider which anxiety disorders may be most common in their practice and which screening tools may be most feasible to use in their practice settings. For patients to benefit from screening, positive screening results should be confirmed by diagnostic assessment and patients should be linked with appropriate care.

Suggestions for Practice Regarding the I Statement

Potential Preventable Burden

Developing an anxiety disorder during childhood or adolescence increases the likelihood of a future anxiety disorder (the same dis-

order or another anxiety disorder) or secondary depression.¹⁹⁻²² These mental health conditions have long-term effects that may include chronic mental and physical or somatic health conditions, psychosocial functional impairment, increased risk for substance abuse, and premature mortality.²³⁻²⁶ Anxiety problems are more common in older children (aged 12 to 17 years) compared with younger children (aged 3 to 11 years).¹⁵ Separation anxiety, selective mutism, and GAD tend to appear earlier in childhood (preschool and early school years), whereas social anxiety and specific phobias generally appear in later school years.^{1,3} Although younger children may experience anxiety, limited evidence was available on accuracy of screening questionnaires and effectiveness of anxiety treatments in younger children.

Potential Harms

Potential harms of screening questionnaires include false-positive screening results that lead to unnecessary referrals (and associated time and economic burden), treatment, labeling, anxiety, and stigma. Pharmacologic interventions may result in adverse events, while psychological interventions are likely to have minimal harms.^{1,3} Evidence on harms of screening and treatment in younger age groups is limited.

Current Practice

Evidence is limited on the implementation of routine mental health screening in the US. A survey of primary care physicians found that 76% reported believing in the importance of talking to adolescent patients about their mental health; however, only 46% said that they always asked their patients about their mental health.²⁷ Information on screening for anxiety in younger children is lacking.

Other Related USPSTF Recommendations

The USPSTF has recommendations on mental health topics pertaining to children and adolescents, including screening for depression,²⁸ suicide risk,²⁸ and illicit drug²⁹ and alcohol³⁰ use.

Supporting Evidence

Scope of Review

The USPSTF commissioned a systematic review^{1,3} to evaluate the benefits and harms of screening for anxiety disorders in children and adolescents. The USPSTF has not previously made a recommendation on this topic. Conditions that are no longer included as part of the *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) anxiety disorders (such as obsessive-compulsive disorder, acute stress disorder, and posttraumatic stress disorder) were not a focus of this review.

Accuracy of Screening Tests

Ten fair-quality studies (n = 3260) evaluated accuracy of screening instruments. Most studies included primarily adolescents (aged 12 to 18 years; mean age, 14.8 years); 4 studies included children as young as 7 years (mean age, 10.5 years). There were no studies that included children younger than 7 years, and there is limited evidence available on screening accuracy for the anxiety conditions that are more common in younger children. One study of children and adolescents with social anxiety disorder provided

data separately for children aged 8 to 12 years and adolescents aged 13 to 17 years, with similar results in both age groups.^{1,3} In studies that reported sex, the percentage of female participants ranged from 43% to 63%. Four studies reported race or ethnicity, with the percentage of youth from underrepresented groups ranging from 1% to 58%.

Studies used 12 screening instruments to screen for 6 anxiety conditions (global anxiety, GAD, panic disorder, separation anxiety, social anxiety disorder, and any anxiety disorder). Some screening instruments with subscales screened for more than 1 anxiety disorder. Only 1 or 2 studies used each screening instrument for a given disorder. Although a variety of different screening instruments were assessed, 2 are widely used in practice for detecting anxiety: SCARED and the Social Phobia Inventory. The reference standard was a structured clinical interview for anxiety diagnosis.^{1,3}

Screening accuracy varied by condition screened for and specific screening test and threshold used. For example, sensitivity for detection of GAD ranged from 0.50 to 0.88 and specificity ranged from 0.63 to 0.98 (based on 3 studies). For social anxiety disorder, the ranges were narrower, with a sensitivity ranging from 0.67 to 0.93 and specificity ranging from 0.69 to 0.94; 4 of 5 studies found a sensitivity of 0.78 or greater and a specificity of 0.74 or greater. Across all of the screening instruments and subscales and thresholds for a positive test evaluated, sensitivity ranged between 0.34 and 1.00; specificity ranged between 0.47 and 0.99. Confidence intervals were wide and imprecise. The number of false-positive results also varied. For example, false-positive results per 1000 persons screened ranged from 17 to 361 for GAD and from 104 to 254 for social anxiety disorder.^{1,3} No additional analyses were available on populations by age, sex, or race or ethnicity.^{1,3}

Benefits of Early Detection and Treatment

The USPSTF found no studies that directly evaluated the benefits of screening for anxiety disorders. The evidence on screening for anxiety in children and adolescents relies on linking indirect evidence on the accuracy of screening and the benefits of treatment. There were 29 good- or fair-quality randomized clinical trials (RCTs) on anxiety treatment (n = 2805); 22 trials assessed cognitive behavioral therapy, 6 trials assessed pharmacotherapy (sertraline and fluoxetine were most commonly studied but other medications included fluvoxamine, escitalopram, and duloxetine), and 1 trial evaluated both cognitive behavioral therapy and pharmacotherapy and combinations thereof. Three studies included young children aged 3 to 7 years, 4 studies included adolescents aged 13 to 20 years, and 22 studies focused on older children (aged 6 to 14 years [11 studies]) or children and adolescents (aged 5 to 18 years [11 studies]).^{1,3} Most trials enrolled children and adolescents with any anxiety disorder, but a small number of trials focused on a specific anxiety diagnosis. Studies recruited participants from multiple countries, including the US, Mexico, South Africa, Australia, the UK, Denmark, Germany, Norway, Hong Kong, Japan, Spain, and Sweden.^{1,3} Nine of the 29 studies had a majority of male participants. Eighteen studies had a majority of White patients enrolled.^{1,3}

The most common primary diagnoses in these trials were social anxiety disorder and GAD. Most anxiety trials recruited using referrals from community or school settings (17 trials, n = 1199), with another 10 trials (n = 846) including referrals from specialist men-

tal health settings. The USPSTF concluded that the community or school settings in which most participants were recruited from were similar to those of patients followed up in primary care settings and determined that the treatment benefits would be applicable to screen-detected asymptomatic patients.^{1,3}

Cognitive behavioral therapy was associated with improvement in anxiety outcomes across several pooled measures: treatment response (pooled relative risk [RR], 1.89 [95% CI, 1.17 to 3.05]; n = 606; 6 trials; $I^2 = 64%$), disease remission (RR, 2.68 [95% CI, 1.48 to 4.88]; n = 321; 4 trials; $I^2 = 48%$), and loss of diagnosis (RR range, 3.02 to 3.09), compared with usual care or wait-list. The evidence on improved functioning with cognitive behavioral therapy in participants with any anxiety was inconsistent.

The evidence on pharmacotherapy compared with placebo was associated with an increased improvement in symptoms and response on the Clinical Global Impressions-Improvement Scale (scores of 1 or 2; RR, 2.11 [95% CI, 1.58 to 2.98]; n = 370; 5 trials; $I^2 = 18%$) but was inconsistent on measures of functioning.^{1,3}

Harms of Screening and Treatment

The USPSTF found no studies that directly evaluated the evidence on the harms of screening for anxiety disorders. The evidence on harms of screening for anxiety in children and adolescents relies on linking indirect evidence on the harms of inaccurate screening test results and the harms of treatment.

Eleven RCTs (n = 1293) on treatment of anxiety in children and adolescents addressed harms. The evidence from cognitive behavioral therapy trials demonstrated inconsistent results on suicide-related events. These trials also showed lower rates of withdrawal due to adverse events and serious adverse events in the cognitive behavioral therapy groups. One study evaluated homicidal ideation but showed no pattern with cognitive behavioral therapy.

Pharmacotherapy studies on duloxetine, escitalopram, and sertraline reported some harms such as more suicide-related events, psychiatric adverse events, and withdrawals due to adverse events; however, these events were rare and not statistically significant. No pattern for homicidal ideation was seen in a single study of pharmacotherapy.^{1,3}

Response to Public Comment

A draft version of this recommendation statement was posted for public comment on the USPSTF website from April 12, 2022, to May 9, 2022. In response to comments, the USPSTF provided additional information about participant characteristics of included studies in the Supporting Evidence section. The USPSTF also clarified that this recommendation does not apply to children and adolescents with diagnosed anxiety or who are showing recognized signs or symptoms of anxiety in the Patient Population Under Consideration section. Some comments inquired about additional screening tools, such as the Revised Children's Anxiety and Depression Scale (RCADS-25), the Spence Children's Anxiety Scale (SCAS), and Pediatric Symptom Checklist (PSC). These other instruments were not included in the review because the USPSTF did not identify any eligible studies of these instruments as screening tools. Some comments asked, given the high rates of comorbidity between anxiety and depression, whether a positive anxiety screening result should prompt a screening for depression and suicide risk. The USPSTF did not evaluate the evidence

on this screening approach, so it is not addressed by this recommendation statement.

- More evidence is needed in populations defined by sex, race and ethnicity, sexual orientation, and gender identity.

Research Needs and Gaps

There are several critical evidence gaps. Studies are needed that provide more information on the following.

- More RCTs are needed on the direct benefits and harms of screening for anxiety among children and adolescents in primary care settings (or similar settings) compared with no screening or usual care.
- Multiple types of anxiety disorders exist, so future research could clarify trade-offs between screening instruments designed to identify any anxiety disorder and instruments designed for specific anxiety disorders.
- More research is needed on the accuracy of screening tools in children and adolescents and the effectiveness of anxiety treatment in younger children.
- More research is needed on the feasibility of using screening tools in the primary care setting.

Recommendations of Others

The American Academy of Child and Adolescent Psychiatry states that freely available general social-emotional screening instruments can be deployed systematically to standardize identification of anxiety concerns in primary care, school, or other child-serving settings. Early identification of an anxiety concern, if confirmed as a problem on follow-up assessment, can facilitate early intervention.³¹ The American Academy of Pediatrics and Bright Futures recommends annual screening for behavioral, social, and emotional problems (including anxiety in children and adolescents) in patients from birth to age 21 years.³² The American College of Obstetricians and Gynecologists recommends that all adolescents should be screened for any mental health disorder in a confidential setting during preventive care visits (if allowed by local laws).³³

ARTICLE INFORMATION

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Author Contributions: Dr Mangione 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.

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