

# Screening for Depression and Suicide Risk in Children and Adolescents

## US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

**IMPORTANCE** Depression is a leading cause of disability in the US. Children and adolescents with depression typically have functional impairments in their performance at school or work as well as in their interactions with their families and peers. Depression can also negatively affect the developmental trajectories of affected youth. Major depressive disorder (MDD) in children and adolescents is strongly associated with recurrent depression in adulthood; other mental disorders; and increased risk for suicidal ideation, suicide attempts, and suicide completion. Suicide is the second-leading cause of death among youth aged 10 to 19 years. Psychiatric disorders and previous suicide attempts increase suicide risk.

**OBJECTIVE** To update its 2014 and 2016 recommendations, the US Preventive Services Task Force (USPSTF) commissioned a systematic review to evaluate the benefits and harms of screening, accuracy of screening, and benefits and harms of treatment of MDD and suicide risk in children and adolescents that would be applicable to primary care settings.

**POPULATION** Children and adolescents who do not have a diagnosed mental health condition or are not showing recognized signs or symptoms of depression or suicide risk.

**EVIDENCE ASSESSMENT** The USPSTF concludes with moderate certainty that screening for MDD in adolescents aged 12 to 18 years has a moderate net benefit. The USPSTF concludes that the evidence is insufficient on screening for MDD in children 11 years or younger. The USPSTF concludes that the evidence is insufficient on the benefit and harms of screening for suicide risk in children and adolescents owing to a lack of evidence.

**RECOMMENDATION** The USPSTF recommends screening for MDD in adolescents aged 12 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 MDD in children 11 years or younger. (I statement) The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for suicide risk in children and adolescents. (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
Adolescents aged 12 to 18 years	The USPSTF recommends screening for major depressive disorder (MDD) in adolescents aged 12 to 18 years.	B
Children 11 years or younger	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for MDD in children 11 years or younger.	I
Children and adolescents	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for suicide risk in children and adolescents.	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.

**Table 1. Summary of USPSTF Rationale: Screening for MDD**

Rationale	Children (11 y or younger)	Adolescents (aged 12 to 18 y)
Detection	Inadequate evidence on screening instruments for depression in children 11 y or younger in primary care settings	Adequate evidence that screening instruments for depression can accurately identify MDD in adolescents aged 12 to 18 y in primary care settings
Benefits of early detection and intervention	<ul style="list-style-type: none"> <li>No direct evidence on the benefits of screening for MDD in children 11 years or younger in primary care (or comparable) settings on health outcomes</li> <li>Inadequate evidence on the benefits of treatment in children with screen-detected MDD</li> </ul>	<ul style="list-style-type: none"> <li>No direct evidence on the benefits of screening for MDD in adolescents in primary care (or comparable) settings on health outcomes</li> <li>Adequate evidence that treatment of MDD detected through screening in adolescents is associated with moderate magnitude of benefit (eg, improved depression symptoms or response)</li> <li>Adequate evidence to link screening and early treatment of MDD in adolescents to improved outcomes</li> </ul>
Harms of early detection and intervention	Inadequate evidence on the harms of screening for or treatment of MDD in children 11 y or younger	<ul style="list-style-type: none"> <li>No direct evidence on the harms of screening for MDD in adolescents</li> <li>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 harms, and the noninvasive nature of the interventions (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)</li> </ul>
USPSTF assessment	The benefits and harms of screening for MDD in children 11 y or younger is uncertain, and the balance of benefits and harms cannot be determined	Moderate certainty that screening for MDD in adolescents aged 12 to 18 y has a moderate net benefit (eg, improved depression symptoms or response)

Abbreviations: MDD, major depressive disorder; USPSTF, US Preventive Services Task Force.

**Table 2. Summary of USPSTF Rationale: Screening for Suicide Risk**

Rationale	Children and adolescents
Detection	Inadequate evidence on the accuracy of screening for suicide risk in children and adolescents due to a lack of studies
Benefits of early detection and intervention	<ul style="list-style-type: none"> <li>No studies report on the benefits of screening for suicide risk on health outcomes comparing screened with unscreened populations</li> <li>Inadequate evidence on the effectiveness of treatment (psychotherapy, pharmacotherapy, or collaborative care) of suicide risk in improving health outcomes in children and adolescents. Evidence was limited and findings were inconsistent.</li> </ul>
Harms of early detection and intervention	<ul style="list-style-type: none"> <li>Inadequate evidence to assess the potential harms of screening for suicide risk in children and adolescents due to an absence of studies</li> <li>Inadequate evidence to assess the potential harms of psychotherapy, pharmacotherapy, or collaborative care for treatment of suicide risk in children and adolescents due to a lack of studies</li> </ul>
USPSTF assessment	The benefits and harms of screening for suicide risk in children and adolescents are uncertain, and the balance of benefits and harms cannot be determined

Abbreviation: USPSTF, US Preventive Services Task Force.

## Importance

Depression is a leading cause of disability in the US. Children and adolescents with depression typically have functional impairments in their performance at school or work, as well as in their interactions with their families and peers. Depression can also negatively affect the developmental trajectories of affected youth. Major depressive disorder (MDD) in children and adolescents is strongly associated with recurrent depression in adulthood; other mental disorders; and increased risk for suicidal ideation, suicide attempts, and suicide completion.<sup>1,2</sup>

Suicide is the second-leading cause of death among youth aged 10 to 19 years.<sup>3</sup> Psychiatric disorders and previous suicide attempts increase suicide risk. Rates of suicide attempts and deaths vary by sex, age, and race and ethnicity.<sup>1,2</sup>

## USPSTF Assessment of Magnitude of Net Benefit

The US Preventive Services Task Force (USPSTF) concludes with moderate certainty that screening for MDD in adolescents aged 12 to 18 years has a **moderate net benefit**.

The USPSTF concludes that the **evidence is insufficient** on screening for MDD in children 11 years or younger. Evidence is lacking, and the balance of benefits and harms cannot be determined.

The USPSTF concludes that the **evidence is insufficient** on the benefit and harms of screening for suicide risk in children and adolescents owing to a lack of evidence. As a result, the balance of benefits and harms cannot be determined.

See **Table 1** and **Table 2** 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.<sup>4</sup>

## Practice Considerations

### Patient Population Under Consideration

This recommendation applies to children and adolescents who do not have a diagnosed mental health condition or are not showing recognized signs or symptoms of depression or suicide risk. This recommendation focuses on screening for MDD and does not address screening for other depressive disorders, such as minor depression or dysthymia.

Figure. Clinician Summary: Screening for Depression and Suicide Risk in Children and Adolescents

What does the USPSTF recommend?	Adolescents aged 12 to 18 years: Screen for major depressive disorder (MDD). <b>Grade: B</b>
	Children 11 years or younger: The evidence is insufficient to assess the balance of benefits and harms of screening for depression. <b>I statement</b>
	Children and adolescents: The evidence is insufficient to assess the balance of benefits and harms of screening for suicide risk. <b>I statement</b>
To whom does this recommendation apply?	This recommendation applies to children and adolescents 18 years or younger who do not have a diagnosed depression disorder and who are not showing recognized signs or symptoms of depression.
What's new?	This recommendation is consistent with the 2014 USPSTF recommendation statement on screening for suicide risk in adolescents and the 2016 recommendation statement on screening for MDD in children and adolescents.
How to implement this recommendation?	<ul style="list-style-type: none"> <li>• Treatment options for MDD in children and adolescents include pharmacotherapy, psychotherapy, and collaborative care.</li> <li>• Clinicians should be aware of the risk factors, signs, and symptoms of depression and suicide, listen to any patient concerns, and make sure that persons who need help get it. Youth diagnosed with depression and their health care professional should decide together with the parents or guardians what treatment is right for them.</li> </ul>
What additional information should clinicians know about this recommendation?	<ul style="list-style-type: none"> <li>• All children aged 12 to 18 years are at risk of depression and should be screened. However, there are some factors that increase the risk. These include family history of depression, prior episodes of depression, childhood abuse or neglect, exposure to traumatic events or stress, bullying, maltreatment, adverse life events, and a difficult relationship with parents. Some gender identities and sexual orientations may increase risk of depression.</li> <li>• If antidepressants are used, the USPSTF recommends that health care professionals follow US Food and Drug Administration guidance and observe patients closely.</li> <li>• In the absence of evidence, health care professionals should use their judgment based on individual patient circumstances when determining whether to screen for MDD in children 7 years or younger or screen for suicide risk in youth not showing recognized signs or symptoms.</li> </ul>
Why is this recommendation and topic important?	Depression is a leading cause of disability in the US. Children and adolescents with depression often have functional impairments in their performance at school or work, as well as in their interactions with their families and peers. Depression can also negatively affect the developmental trajectories of affected youth. Suicide is the second-leading cause of death among youth aged 10 to 19 years.
What are other relevant USPSTF recommendations?	<ul style="list-style-type: none"> <li>• Screening for anxiety in children and adolescents</li> <li>• Primary care-based interventions for illicit drug use in children, adolescents, and young adults</li> <li>• Information on additional mental health recommendations in children and adolescents from the USPSTF are available at <a href="https://www.uspreventiveservicestaskforce.org/uspstf/">https://www.uspreventiveservicestaskforce.org/uspstf/</a></li> </ul>
What are additional tools and resources?	<ul style="list-style-type: none"> <li>• The Community Preventive Services Task Force recommends: <ul style="list-style-type: none"> <li>• Targeted school-based cognitive behavioral therapy programs to reduce depression and anxiety symptoms (<a href="https://www.thecommunityguide.org/findings/mental-health-targeted-school-based-cognitive-behavioral-therapy-programs-reduce-depression-anxiety-symptoms">https://www.thecommunityguide.org/findings/mental-health-targeted-school-based-cognitive-behavioral-therapy-programs-reduce-depression-anxiety-symptoms</a>) and collaborative care for the management of depressive disorders (<a href="https://www.thecommunityguide.org/findings/mental-health-and-mental-illness-collaborative-care-management-depressive-disorders">https://www.thecommunityguide.org/findings/mental-health-and-mental-illness-collaborative-care-management-depressive-disorders</a>).</li> </ul> </li> <li>• The Centers for Disease Control and Prevention has information on depression in childhood (<a href="https://www.cdc.gov/childrensmentalhealth/depression.html">https://www.cdc.gov/childrensmentalhealth/depression.html</a>).</li> <li>• The Suicide Prevention Resource Center, supported by the Substance Abuse and Mental Health Services Administration, offers various resources on suicide prevention (<a href="https://www.sprc.org/">https://www.sprc.org/</a>).</li> </ul>
Where to read the full recommendation statement?	Visit the USPSTF website ( <a href="https://www.uspreventiveservicestaskforce.org/uspstf/">https://www.uspreventiveservicestaskforce.org/uspstf/</a> ) or the JAMA website ( <a href="https://jamanetwork.com/collections/44068/united-states-preventive-services-task-force">https://jamanetwork.com/collections/44068/united-states-preventive-services-task-force</a> ) 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.

### Condition Definitions

The *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition) defines MDD as having at least 2 weeks of mild to severe persistent feelings of sadness or a lack of interest in everyday activities. Depression can also present with irritability, poor concentration, and somatic issues (eg, difficulty sleeping, decreased energy, and changes in appetite).<sup>5</sup>

Suicidal behavior includes suicidal ideation, suicide attempts, and suicide completion. Suicidal ideation refers to thinking about, considering, or planning suicide. Suicide attempts refer to nonfatal, self-directed, and potentially injurious behavior that is intended to result in death. Suicide completion is defined as a death caused by self-inflicted injurious behavior with the intent to result in death because of the behavior.<sup>6-8</sup>

### Assessment of Risk

The USPSTF recommends screening for MDD in all adolescents but notes that several risk factors might help identify patients at higher risk. Risk factors for depression include a combination of genetic, biological, and environmental factors such as a family history of depression, prior episode of depression, and other mental health or behavioral problems. Individual factors (eg, age, sex, gender identity, sexual orientation, or genetic predisposition) also may serve as risk factors across mental health conditions.<sup>1,2</sup> Other psychosocial risk factors include childhood abuse or neglect, exposure to traumatic events, bullying (either as perpetrators or as victims), adverse life events, early exposure to stress, maltreatment, and an insecure parental relationship.<sup>1,2</sup>

Recent cohorts of Black children and adolescents have reported a higher prevalence of suicide rates, increase in suicide attempts, and greater increases in the prevalence of depression than in the past.<sup>9-11</sup> Reasons for this increase may be due to multiple factors such as socioeconomic status, family structure, neighborhood effects, and childhood adversity. Adverse childhood experiences influence the likelihood of experiencing mental health conditions such as depression. Adverse childhood experiences may result from a complex interaction of familial, peer, or societal factors. 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.<sup>12</sup> Combined with lower engagement with mental health services, adverse childhood experiences can result in high levels of unmet need in Black youth.<sup>13-17</sup> 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.<sup>18</sup>

### Screening Tests

Screening instruments for depression are based on either patient or caregiver reporting. Depression screening instruments typically assess common symptoms related to depression. The most commonly used screening instrument in clinical practice is the 9-item Patient Health Questionnaire (PHQ-9). Other screening instruments that may be longer but have been studied include the full PHQ modified for adolescents (PHQ-A) and the Center for Epidemiologic Studies Depression Scale.

Many depression screening instruments also include at least 1 item related to suicidal ideation. Instruments designed to screen across mental health conditions may be more efficient than instruments targeting a single condition. However, these instruments take longer to administer, thereby reducing feasibility in primary care settings. They also may be less accurate for specific conditions.<sup>1,2</sup>

### Screening Intervals

The USPSTF found no evidence on appropriate or recommended screening intervals for depression, and the optimal interval is unknown. Repeated screening may be most productive in adolescents with risk factors for depression. Opportunistic screening may be appropriate for adolescents, who may have infrequent health care visits.

### Treatment or Interventions

Treatment options for MDD in children and adolescents include pharmacotherapy, psychotherapy, collaborative care, psychosocial

support interventions, and complementary and alternative medicine approaches.<sup>1,19,20</sup> Different types of psychotherapy are used in treating children and adolescents with depression, but cognitive behavioral therapy and interpersonal therapy have the most evidence supporting their effectiveness.<sup>21-23</sup> Although several antidepressants are approved for treating MDD in adult populations, fluoxetine is the only medication approved by the US Food and Drug Administration (FDA) for use in treating MDD in children 8 years or older; escitalopram is approved to treat MDD in adolescents aged 12 to 17 years.<sup>19,20</sup> Fluoxetine and escitalopram, both selective serotonin reuptake inhibitors, are sometimes combined with psychotherapy. The FDA has issued a boxed warning for antidepressants, recommending that patients of all ages who start antidepressant therapy be monitored appropriately and observed closely for clinical worsening, suicidality, or unusual changes in behavior.

### Implementation

Many screening tools are available to identify depression in children and adolescents, and some have been used in primary care. The number of items in each tool, the administrative time required to complete them, and the appropriate ages for screening vary. An initial screening may be followed by additional questioning or a formal diagnostic interview.

The USPSTF recognizes that inadequate support and follow-up may result in treatment failures or harms, as also indicated by the FDA boxed warning. Adequate systems and clinical staff are needed to ensure that patients are screened and, if they screen positive, are appropriately diagnosed and treated with evidence-based care. These essential functions can be provided through a wide range of clinician types and settings, including primary care, referral to specialty setting, or collaborative care in both settings. Collaborative care is a multicomponent, health care system-level intervention that uses care managers to link primary care clinicians, patients, and mental health specialists.<sup>24</sup> Additional resources on collaborative care can be found below in the Additional Tools and Resources section.

### Suggestions for Practice Regarding the I Statements

#### Potential Preventable Burden

Little is known about the prevalence of MDD in children 11 years or younger. Early onset is associated with worse outcomes.

Suicide is the second-leading cause of death among youth aged 10 to 19 years.<sup>3</sup> The rate of suicide deaths is highest among Native American/Alaska Native youth and lowest among Black youth, compared with White youth.<sup>25,26</sup> Native American/Alaska Native youth die by suicide at a rate of 2.5 deaths per 100 000 persons (younger youth) and 16.1 deaths per 100 000 persons (older youth).<sup>1,2</sup> White children and adolescents have a similar rate of dying by suicide compared with Black children and adolescents of the same age (1.3 vs 1.4 deaths per 100 000 persons for White and Black children, respectively); however, the suicide rate among White adolescents is nearly double the rate among Black adolescents (8.4 deaths per 100 000 persons and 4.2 deaths per 100 000 persons, respectively).<sup>1,2,25,26</sup> Important risk factors for suicide are mental health disorders and adverse childhood experiences (eg, family history of suicide or mental health disorders, previous suicide attempts, life stressors, history of

trauma, parent-child conflict, or legal problems).<sup>27</sup> Suicide risk varies by gender or sex and type of behavior. Male youth had a higher rate of suicide completion (17.9 deaths per 100 000 persons) than female youth (5.4 deaths per 100 000 persons); however, the risk of suicide attempts was greater in female youth than in male youth.<sup>28</sup> Lesbian, gay, bisexual, transgender, and queer adolescents demonstrate higher rates of suicidal ideation and attempts compared with heterosexual adolescents.<sup>29</sup> Treatments to reduce risk for suicide attempt include psychotherapy and pharmacotherapy (eg, antidepressants, antipsychotics, and mood stabilizers). However, it is unclear how effective these therapies are in reducing suicide attempts in children and adolescents who do not have recognized signs or symptoms of being suicidal.

#### Potential Harms

Potential harms of screening for MDD in young children or for suicide risk in children and adolescents of any age include false-positive screening results that lead to unnecessary referrals (and associated time and economic burden), treatment, labeling, anxiety, and stigma. Psychological interventions are likely to have minimal harms.<sup>1,2</sup> The use of selective serotonin reuptake inhibitors in children is associated with harms, specifically risk for suicidality.

#### 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% believe 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.<sup>30</sup>

Screening instruments for suicide risk usually include components related to current suicidal ideation, self-harm behaviors, and assessments of past attempts and behaviors. Although several screening tools for suicide risk have been developed, the accuracy of these screening tools compared with clinical interview is uncertain. Data on how often primary care clinicians screen for suicide risk in children and adolescents are lacking.

## 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 evi-

dence of effectiveness in reducing psychological harm (<https://www.thecommunityguide.org/findings/violence-psychological-harm-traumatic-events-among-children-and-adolescents-cognitive-group>).

The Community Preventive Services Task Force recommends collaborative care for the management of depressive disorders (<https://www.thecommunityguide.org/findings/mental-health-and-mental-illness-collaborative-care-management-depressive-disorders>).

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

The Agency for Healthcare Research and Quality has a playbook on how to develop a shared care plan (<https://integrationacademy.ahrq.gov/products/playbooks/behavioral-health-and-primary-care/implementing-plan/develop-shared-care-plan>).

The Centers for Medicare & Medicaid Services provides resources on the collaborative care model (<https://www.chcs.org/resource/the-collaborative-care-model-an-approach-for-integrating-physical-and-mental-health-care-in-medicare-health-homes>).

In 2021, the US Surgeon General issued a Call to Action that seeks to progress toward full implementation of the National Strategy for Suicide Prevention (<https://www.sprc.org/resources-programs/surgeon-generals-call-action-implement-national-strategy-suicide-prevention>).

The Suicide Prevention Resource Center, supported by the Substance Abuse and Mental Health Services Administration, offers various resources on suicide prevention (<https://www.sprc.org/>).

## Other Related USPSTF Recommendations

The USPSTF has recommendations on mental health topics pertaining to children and adolescents, including screening for anxiety<sup>31</sup> and screening for illicit drug<sup>32</sup> and alcohol use.<sup>33</sup>

## Update of Previous USPSTF Recommendation

This recommendation replaces the 2014 USPSTF recommendation statement on screening for suicide risk in adolescents<sup>34</sup> and the 2016 recommendation statement on screening for MDD in children and adolescents.<sup>35</sup> A separate review on screening for suicide risk in adults is currently in progress. Previously, the USPSTF concluded that there was insufficient evidence to assess the balance of benefits and harms of screening for suicide risk in adolescents, adults, and older adults in primary care (I statement).<sup>34</sup> The USPSTF recommended screening for MDD in adolescents aged 12 to 18 years, noting that screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up (B recommendation). The USPSTF also concluded that the current evidence was insufficient to assess the balance of benefits and harms of screening for MDD in children 11 years or younger (I statement).<sup>35</sup> The current recommendation statement is consistent with these previous recommendations.

## Supporting Evidence

### Scope of Review

The USPSTF commissioned a systematic review<sup>1,2</sup> to evaluate the benefits and harms of screening, accuracy of screening, and benefits and harms of treatment of MDD and suicide risk in children and adolescents that would be applicable to primary care settings. Studies conducted in inpatient or psychiatric residential facilities or psychiatric emergency departments were excluded.

### Accuracy of Screening Tests

The USPSTF found 7 fair-quality studies on accuracy of screening tests for detecting depression (n = 3316). There were no studies of depression screening accuracy in children only; 1 study included children and adolescents younger than 12 years. The other 6 studies were in children and adolescents 12 years or older. Most of the 7 screening instruments assessed are not widely used in clinical practice. The USPSTF did not identify any studies that used the most common screening instrument in clinical practice, the PHQ-9.<sup>1</sup> The Center for Epidemiologic Studies Depression Scale (2 included studies) is also used for screening in practice but does not include items that assess suicidality.<sup>1</sup> Each screening instrument was assessed in only 1 or 2 studies, and results varied by screening instrument and threshold. For studies assessing accuracy of depression screening instruments, sensitivity ranged from 0.59 to 0.94 and specificity ranged from 0.38 to 0.97.<sup>1,2</sup>

One study of the PHQ-A demonstrated a sensitivity of 0.73 (95% CI, 0.58 to 0.85) and a specificity of 0.94 (95% CI, 0.91 to 0.96). Based on the accuracy characteristics of the PHQ-A, 58 false-positive results and 8 false-negative results per 1000 screening tests conducted would result at the low end of MDD prevalence (3%), and 53 false-positive results and 30 false-negative results would result at the high end of MDD prevalence (11%).<sup>36-38</sup> Two studies using the Center for Epidemiologic Studies Depression Scale used different thresholds, with sensitivity ranging from 0.59 to 0.85 and specificity ranging from 0.38 to 0.83.<sup>1,2</sup>

Only 1 fair-quality study assessing the accuracy of screening for suicide risk in adolescents was found (n = 580), and none were identified in younger age groups. Sensitivity ranged from 0.87 to 0.91 (depending on reference standard used) and specificity was 0.60.<sup>1,2</sup> Other suicide screening tools were excluded from review because the accuracy of these tools could not be ascertained using established USPSTF methodology.

### Benefits of Early Detection and Treatment

The USPSTF found no studies that directly evaluated the benefits of screening for depression or suicide risk on health outcomes in screened vs unscreened participants.

Thirteen randomized clinical trials (RCTs) (n = 2156) addressed the benefits of depression treatment. Of these 13 RCTs, 9 evaluated psychotherapy; 2 evaluated pharmacotherapy; 1 evaluated cognitive behavioral therapy, fluoxetine, and their combination; and 1 evaluated collaborative care. Cognitive behavioral therapy was the most common type of psychotherapy evaluated. The mean age of participants was 13 years or older in 10 of the studies; only 3 studies included participants 12 years or younger. Most studies recruited participants through general advertisements or from health

systems and clinics; only 1 study specifically targeted recruitment from mental health clinics.<sup>1,2</sup> For pharmacotherapy interventions, the evidence is mostly limited to short-term benefits (typically up to 12 weeks).

Pooled estimates demonstrated that psychotherapy, compared with wait-list controls, treatment as usual, attention control, or placebo, was associated with improved symptoms (Beck Depression Inventory or Beck Depression Inventory II standardized mean difference, -0.58 [95% CI, -0.83 to -0.34]; n = 471; 4 trials;  $I^2 = 0\%$ ; Hamilton Depression Scale mean difference, -2.25 [95% CI, -4.09 to -0.41]; n = 262; 3 trials;  $I^2 = 0\%$ ). Psychotherapy also demonstrated improvements in clinical response and loss of diagnosis (relative risk, 1.73 [95% CI, 1.00 to 3.00]; n = 395; 4 trials;  $I^2 = 0\%$ ). There were no statistically significant differences for other measures.<sup>1,2</sup>

Pharmacotherapy, compared with placebo, was associated with statistically significant improvement in symptoms (Children's Depression Rating Scale-Revised [CDRS-R] pooled mean difference, -3.76 [95% CI, 5.95 to -1.57]; n = 793; 3 trials,  $I^2 = 49\%$ ). Pharmacotherapy also demonstrated benefit for loss of diagnosis (pooled relative risk, 1.20 [95% CI, 1.00 to 1.45]; n = 793; 3 trials;  $I^2 = 0\%$ ) and a benefit for functional status (Children's Global Assessment Scale pooled mean difference, 2.60 [95% CI, 0.78 to 4.42]; n = 793; 3 trials;  $I^2 = 0\%$ ). There was no significant association between pharmacotherapy and improved remission.<sup>1,2</sup>

In 1 study, collaborative care was shown to be associated with statistically significant improved symptoms at 6 months (CDRS-R change, 8.5 [95% CI, -13.4 to -3.6];  $P = .001$ ), response by 12 months (odds ratio for  $\geq 50\%$  reduction in CDRS-R score from baseline, 3.3 [95% CI, 1.4 to 8.2]), and remission (odds ratio for PHQ-9 score  $< 5$  at 6 months, 5.2 [95% CI, 1.6 to 17.3]). The study reported no statistically significant benefits on measures of functioning.<sup>1</sup>

Sixteen trials (n = 3034) addressed the benefits of treatment of suicide risk. Suicidal ideation, an intermediate outcome, was measured by the Beck Hopelessness Scale, and a statistically significant difference favoring intervention was found (pooled mean difference, -2.35 [95% CI, -4.06 to -0.65]; n = 644; 4 trials;  $I^2 = 46\%$ ), compared with the control.<sup>1,2</sup> However, the clinical significance of how this change on the Beck Hopelessness Scale translates to fewer suicide attempts or completed suicides is not well understood. The 12 remaining trials focused on health outcomes but were underpowered.<sup>1,2</sup> Findings for the health outcomes (eg, suicide deaths, hospitalization or emergency department visits, number of self-harm events, proportion with self-harm events, or functioning) were mixed or not statistically significantly different.<sup>1,2</sup>

### Harms of Screening and Treatment

The USPSTF found 2 studies that evaluated the evidence on the harms of screening for depression or suicide risk on health outcomes in children or adolescents in primary care or primary care-relevant settings. Two RCTs (n = 2675) compared short-term distress from screening for suicide risk and reported no significant differences between those screened and those not screened.<sup>1,2</sup> No studies reported on harms such as labeling, stigmatization, or over-medication that resulted from screening.

Six trials (n = 1352) and 1 network meta-analysis assessed the harms of depression treatment: 3 evaluated pharmacotherapy; 2 evaluated psychotherapy; 1 evaluated cognitive behavioral therapy,

fluoxetine, and their combination; and 1 evaluated collaborative care. Only 1 study included children younger than 12 years.<sup>1,2</sup>

The results for pharmacotherapy suggested a higher rate of suicide-related outcomes and withdrawal as a result of adverse events and serious adverse events compared with placebo; the differences were not statistically significant, likely because of a small number of events due to poor reporting. One collaborative care study that evaluated harms had inconsistent results for psychiatric hospitalizations and emergency department visits. The 2 trials of psychotherapy reported inconsistent findings on harms, as did the single trial on collaborative care.<sup>1,2</sup>

Two trials (n = 885) reported on suicide risk interventions. There were no significant differences in adverse events reported.<sup>1,2</sup>

### 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 has clarified in the Supporting Evidence section that none of the studies it reviewed reported on the potential harms of labeling, stigmatization, and overmedication that are hypothesized to potentially result from screening. Two additional studies were identified but provided no evidence of harm; outcome measures were limited to very short-term measures of distress or emotion. Challenges in implementing screening in primary care and additional information on collaborative care models are provided in the Implementation and Additional Tools and Resources sections. A few comments requested that the USPSTF consider and recommend additional suicide screening tools. The USPSTF reviewed the evidence on the accuracy of these screening tools and clarified that determining the accuracy of these screening tools using established USPSTF methodology was too uncertain for the USPSTF to recommend.

### Research Needs and Gaps

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

Screening for MDD:

- More RCTs are needed on the benefits and harms of screening for and treatment of MDD in children 11 years or younger.
- Large, good-quality RCTs are needed to better understand the overarching effects of screening for MDD on long-term health outcomes.

- More research is needed in child and adolescent populations that are similar to those found in primary care settings to study the effects of comorbid conditions on screening accuracy, type of MDD treatment selected, and benefits and harms.
- More research is needed on collaborative care and integrated behavioral health in children and adolescents.
- More research is needed on screening and treatment in populations defined by sex, race and ethnicity, sexual orientation, and gender identity.

Screening for suicide risk:

- More RCTs are needed on the benefits and harms of screening for suicide risk in children and adolescents in primary care settings compared with no screening or usual care.
- More information is needed on the performance characteristics of screening tests for suicide risk.
- Treatment studies are needed in populations with screen-detected suicide risk, in all age groups.
- Evidence on screening and treatment is lacking in populations defined by sex, race and ethnicity, sexual orientation, and gender identity, such as Native American/Alaska Native youth (who are at increased risk for suicide). More research is needed in these populations.

### Recommendations of Others

The Guidelines for Adolescent Depression in Primary Care (GLAD-PC) recommend annual screening for depression in adolescent patients 12 years or older.<sup>39</sup> GLAD-PC is supported by the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry, and the American Psychiatric Association. The Canadian Task Force on Preventive Health Care states that there is insufficient evidence to recommend for or against screening for depression in children or adolescents in primary care settings.<sup>40</sup> The Canadian Task Force is currently updating its guidelines.<sup>40</sup> The American Academy of Pediatrics, the American Foundation for Suicide Prevention, and experts from the National Institute of Mental Health released a "Blueprint for Youth Suicide Prevention" that recommends universal screening for suicide risk in youth 12 years or older; children aged 8 to 11 years should be screened as clinically indicated.<sup>41</sup> The Joint Commission recommends that organizations screen all individuals for suicidal ideation using a validated screening tool.<sup>42</sup>

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