

## Possible Billing Codes

The purpose of this document is to provide clinics and agencies with a list of prevention codes that the ROSES team feels meets the needs of providing a preventative education class such as ROSE. We encourage clinics/agencies to discuss the codes provided with their billing departments to determine if their ROSE facilitators/providers may seek reimbursement. While ROSE has been cited by the United States Preventative Task force as a prevention for perinatal depression, there is no standard method of billing ROSE across the country.

### Questions to check for your plans:

1. What kind of providers can bill for these codes?
2. How often/how many times do most plans cover this code for a single person?
3. Are there restrictions to reimbursement for the listed codes for federally qualified health centers?

### Under Education and Training for Patient Self-Management

Education and training for patient self-management **by a qualified, non-physician health care professional** using a standardized curriculum, face-to-face with the patient (could include caregiver/family)

- **98960**- each 30 minutes; individual patient
  - **ROSE** can be delivered in a group setting or individually. This code would also be preferred for intervention visit 5
- **98961**- each 30 minutes; 2-4 patients
- **98962**- each 30 minutes; 5-8 patients

### Counseling and/or Risk Factor Reduction Intervention

These codes are used to report services provided to individuals/groups at a separate encounter for the purpose of promoting health and preventing illness or injury. They are appropriate for initial or follow-up (new or established patient). For the specific preventive medicine counseling codes, the number of minutes counseled determines the level of billing.

#### Preventive Medicine, Individual Counseling

- **99401** Approximately 15 minutes.
- **99402** Approximately 30 minutes.
- **99403** Approximately 45 minutes.
- **99404** Approximately 60 minutes.

#### Preventive Medicine, Group Counseling

- **99411** Approximately 30 minutes.
- **99412** Approximately 60 minutes

### Behavior Change Interventions, Individual Services

(provider example: medical doctor, nurse practitioner, physician assistant, clinical nurse practitioner)

These codes are for face-to-face counseling by a **physician or other qualified health care professional**, using “standardized, evidence-based screening instruments and tools with reliable documentation and appropriate sensitivity.”

- **99406** For intermediate visit of between 3 and 10 minutes.
- **99407** For an intensive visit lasting longer than 30 minutes.

## The Affordable Care Act and Coverage of Preventative Services

Under the Affordable Care Act (ACA) there is now a national requirement that private health insurance plans and Medicaid expansion plans cover a basic set of preventive services without patient cost-sharing. These services include those recommended with an A or B grade by the U.S. Preventive Services Task Force (USPSTF). **ROSE (Reach Out Stay Strong Essentials) for pregnant and new moms received the USPSTF recommendation as a prevention for perinatal depression in February of 2019 with a B grade.**

Recognizing the critical importance of preventive services and care, ACA incorporated USPSTF recommendations into requirements for private and public health insurance coverage:

- **Private Plans.** All “new” (non-grandfathered) group and individual plans, both inside and outside of state Exchanges, must cover, without cost-sharing, all A and B recommended services.
- **Medicaid Expansion.** In states that are expanding Medicaid, the Medicaid expansion plans must cover all A and B recommended services without cost-sharing.
- **Traditional Medicaid.** While preventive services are still an optional benefit under traditional (non-expansion) Medicaid, ACA gives state Medicaid programs a financial incentive to cover preventive services. ACA offers states a 1% increase in FMAP if the state Medicaid program covers all A or B recommended services without cost-sharing; to qualify, the state must make these services available for both fee-for-service and managed care enrollees.

**Please note:** These services are free only when delivered by a doctor or other provider in a plan’s network.

# Interventions to Prevent Perinatal Depression

## US Preventive Services Task Force

### Recommendation Statement

US Preventive Services Task Force

**IMPORTANCE** Perinatal depression, which is the occurrence of a depressive disorder during pregnancy or following childbirth, affects as many as 1 in 7 women and is one of the most common complications of pregnancy and the postpartum period. It is well established that perinatal depression can result in adverse short- and long-term effects on both the woman and child.

**OBJECTIVE** To issue a new US Preventive Services Task Force (USPSTF) recommendation on interventions to prevent perinatal depression.

**EVIDENCE REVIEW** The USPSTF reviewed the evidence on the benefits and harms of preventive interventions for perinatal depression in pregnant or postpartum women or their children. The USPSTF reviewed contextual information on the accuracy of tools used to identify women at increased risk of perinatal depression and the most effective timing for preventive interventions. Interventions reviewed included counseling, health system interventions, physical activity, education, supportive interventions, and other behavioral interventions, such as infant sleep training and expressive writing. Pharmacological approaches included the use of nortriptyline, sertraline, and omega-3 fatty acids.

**FINDINGS** The USPSTF found convincing evidence that counseling interventions, such as cognitive behavioral therapy and interpersonal therapy, are effective in preventing perinatal depression. Women with a history of depression, current depressive symptoms, or certain socioeconomic risk factors (eg, low income or young or single parenthood) would benefit from counseling interventions and could be considered at increased risk. The USPSTF found adequate evidence to bound the potential harms of counseling interventions as no greater than small, based on the nature of the intervention and the low likelihood of serious harms. The USPSTF found inadequate evidence to assess the benefits and harms of other noncounseling interventions. The USPSTF concludes with moderate certainty that providing or referring pregnant or postpartum women at increased risk to counseling interventions has a moderate net benefit in preventing perinatal depression.

**CONCLUSIONS AND RECOMMENDATION** The USPSTF recommends that clinicians provide or refer pregnant and postpartum persons who are at increased risk of perinatal depression to counseling interventions. (B recommendation)

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

**Corresponding Author:** Susan J. Curry, PhD ([chair@uspstf.net](mailto:chair@uspstf.net))

The US Preventive Services Task Force (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.

### Summary of Recommendation and Evidence

The USPSTF recommends that clinicians provide or refer pregnant and postpartum persons who are at increased risk of perinatal depression to counseling interventions (B recommendation) (Figure 1).

See the Clinical Considerations section for information on risk assessment.

Figure 1. USPSTF Grades and Levels of Evidence

What the USPSTF Grades Mean and Suggestions for Practice		
Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate, or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the Clinical Considerations section of the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

### USPSTF Levels of Certainty Regarding Net Benefit

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as the number, size, or quality of individual studies. inconsistency of findings across individual studies. limited generalizability of findings to routine primary care practice. lack of coherence in the chain of evidence. As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of the limited number or size of studies. important flaws in study design or methods. inconsistency of findings across individual studies. gaps in the chain of evidence. findings not generalizable to routine primary care practice. lack of information on important health outcomes. More information may allow estimation of effects on health outcomes.
The USPSTF defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.	

USPSTF indicates US Preventive Services Task Force.

Figure 2. Clinical Summary: Interventions to Prevent Perinatal Depression

Population	Pregnant and postpartum persons
Recommendation	Provide or refer persons at increased risk of perinatal depression to counseling interventions. Grade: B
Risk Assessment	There is no accurate screening tool for identifying who is at risk of perinatal depression and who might benefit from preventive interventions. A pragmatic approach, based on the populations included in the systematic evidence review, would be to provide counseling interventions to women with 1 or more of the following risk factors: a history of depression, current depressive symptoms (that do not reach a diagnostic threshold), certain socioeconomic risk factors such as low income or adolescent or single parenthood, recent intimate partner violence, or mental health-related factors such as elevated anxiety symptoms or a history of significant negative life events.
Interventions	Studies of counseling interventions to prevent perinatal depression mainly included cognitive behavioral therapy and interpersonal therapy. The USPSTF found limited or mixed evidence that other studied interventions such as physical activity, education, pharmacotherapy, dietary supplements, and health system interventions were effective in preventing perinatal depression.
Relevant USPSTF Recommendations	The USPSTF recommends screening for depression in adults, including pregnant and postpartum women. The USPSTF also recommends screening for depression in adolescents aged 12 to 18 years and found insufficient evidence to recommend for or against screening in children 11 years or younger.

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



USPSTF indicates US Preventive Services Task Force.

## Rationale

### Importance

Perinatal depression, which is the occurrence of a depressive disorder during pregnancy or following childbirth, affects as many as 1 in 7 women and is one of the most common complications of pregnancy and the postpartum period.<sup>1</sup> It is well established that perinatal depression can result in negative short- and long-term effects on both the woman and child.<sup>2</sup>

### Benefits of Counseling Interventions

The USPSTF found convincing evidence that counseling interventions, such as cognitive behavioral therapy and interpersonal therapy, are effective in preventing perinatal depression in those at increased risk.

### Harms of Counseling Interventions

The USPSTF found adequate evidence to bound the potential harms of counseling interventions as no greater than small, based on the nature of the interventions and the low likelihood of serious harms.

### USPSTF Assessment

The USPSTF concludes with moderate certainty that counseling interventions to prevent perinatal depression have a moderate net benefit for persons at increased risk.

## Clinical Considerations

### Patient Population Under Consideration

This recommendation applies to pregnant persons and persons who are less than 1 year postpartum who do not have a current diagnosis of depression but are at increased risk of developing depression (Figure 2).

### Assessment of Risk

Clinical risk factors that may be associated with the development of perinatal depression include a personal or family history of depression, history of physical or sexual abuse, having an unplanned or unwanted pregnancy, current stressful life events, pregestational or gestational diabetes, and complications during pregnancy (eg, preterm delivery or pregnancy loss). In addition, social factors such as low socioeconomic status, lack of social or financial support, and adolescent parenthood have also been shown to increase the risk of developing perinatal depression. However, there is no accurate screening tool for identifying women at risk of perinatal depression and who might benefit from preventive interventions.

A pragmatic approach, based on the populations included in the systematic evidence review, would be to provide counseling interventions to women with 1 or more of the following: a history of depression, current depressive symptoms (that do not reach a diagnostic threshold), certain socioeconomic risk factors such as low income or adolescent or single parenthood, recent intimate partner

violence, or mental health–related factors such as elevated anxiety symptoms or a history of significant negative life events.

### Counseling Interventions

Studies on counseling interventions to prevent perinatal depression mainly included cognitive behavioral therapy and interpersonal therapy.

Cognitive behavioral therapy focuses on the concept that positive changes in mood and behavior can be achieved by addressing and managing negative thoughts, beliefs, and attitudes and by increasing positive events and activities.<sup>2,3</sup> Common therapeutic techniques include patient education, goal-setting, interventions to identify and modify maladaptive thought patterns, and behavioral activation. Interpersonal therapy focuses on treating interpersonal issues thought to contribute to the development or maintenance of psychological disorders.<sup>4</sup> Common therapeutic techniques include the use of exploratory questions (ie, open-ended and clarifying questions), role-playing, decision analysis, and communication analysis.<sup>2,5</sup> The interventions reviewed by the USPSTF varied in setting, intensity, format, and intervention staff. Counseling intervention trials included a mixture of populations at increased risk of perinatal depression and not at increased risk.<sup>2</sup>

The USPSTF found limited or mixed evidence that other studied interventions such as physical activity, education, pharmacotherapy, dietary supplements, and health system interventions were effective in preventing perinatal depression.

### Implementation

There are no data on the ideal timing for offering or referral to counseling interventions; however, most were initiated during the second trimester of pregnancy. Ongoing assessment of risks that develop in pregnancy and the immediate postpartum period would be reasonable, and referral could occur at any time.

Counseling sessions reviewed for this recommendation ranged from 4 to 20 meetings (median, 8 meetings) lasting for 4 to 70 weeks.<sup>6</sup> The format of counseling consisted mainly of group and individual sessions, with the majority involving in-person visits. Intervention staff included psychologists, midwives, nurses, and other mental health professionals.<sup>2</sup>

One example of a cognitive behavioral approach was the “Mothers and Babies” program.<sup>7-10</sup> It involved 6 to 12 weekly 1- to 2-hour group sessions during pregnancy and 2 to 5 postpartum booster sessions. The program included modules on the cognitive behavioral theory of mood and health; physiological effects of stress; the importance of pleasant and rewarding activities; how to reduce cognitive distortions and automatic thoughts; and the importance of social networks, positive mother-child attachment, and parenting strategies to promote child development and secure attachment in infants.

The Reach Out, Stand Strong, Essentials for New Mothers (ROSE) program is an example of an interpersonal therapy approach reviewed by the USPSTF.<sup>4,5,11-13</sup> It involved 4 or 5 prenatal group sessions lasting 60 to 90 minutes and 1 individual 50-minute postpartum session. Course content included psychoeducation on the “baby blues” and postpartum depression, stress management, development of a social support system, identification of role transitions, discussion of types of interpersonal conflicts common around childbirth and techniques for resolving them, and role-playing exercises with feedback from other group members.

### Additional Approaches to Prevention of Depression

The Substance Abuse and Mental Health Administration—Health Resources and Services Administration Center for Integrated Health Solutions promotes the development of, and provides resources for, integrating primary and behavioral health services.<sup>14</sup> The Substance Abuse and Mental Health Administration provides resources for locating mental health services.<sup>15</sup>

The Mothers and Babies program, which is based on cognitive behavioral therapy, also provides web-based resources for families and clinicians.<sup>16</sup>

The USPSTF has a related recommendation on screening for depression in adults, including pregnant and postpartum women (B recommendation).<sup>17</sup> The USPSTF also recommends screening for depression in adolescents aged 12 to 18 years (B recommendation) and found insufficient evidence to recommend for or against screening in children 11 years or younger (I statement).<sup>18</sup>

### Other Considerations

#### Research Gaps and Needs

Further research could address important gaps in several areas. Good-quality evidence is lacking on the best way to identify women at increased risk of perinatal depression who would most benefit from preventive interventions. Measures of depression symptoms are useful in predicting future perinatal depression, although more data are needed on how to incorporate other perinatal risk factors into these depression screening tools.

A small number of trials examined several potentially valuable depression prevention interventions, such as physical activity, infant sleep education, in-hospital perinatal education, and peer counseling. More and larger-scale trials of these types of interventions are needed to expand the evidence base. Similarly, large-scale trials of cognitive behavioral therapy and interpersonal therapy interventions are needed to demonstrate whether these strategies are scalable and applicable to persons at lower risk.

Several interventions related to improved health systems, such as developing clinical pathways, training health care practitioners, and facilitating access to embedded behavioral health specialists, show promise and have been implemented on a limited basis in US-based primary care settings. Further research is needed to evaluate the potential benefits and harms of these types of interventions.

Data are lacking on the benefits and harms of antidepressant medications for the prevention of perinatal depression. Likewise, dietary supplements, such as selenium and vitamin D, have shown promise, but more research is needed to explore these interventions.

### Discussion

#### Burden of Disease

Perinatal depression is the occurrence of a depressive disorder during pregnancy or following childbirth.<sup>19</sup> Symptoms include loss of interest and energy, depressed mood, fluctuations in sleep or eating patterns, reduced ability to think or concentrate, feelings of worthlessness, and recurrent suicidal ideation. Symptoms of depressed mood or loss of interest are required and must be present for a minimum of 2 weeks.<sup>20</sup> The diagnosis should not be confused with the less severe

postpartum "baby blues," which is a commonly experienced transient mood disturbance consisting of crying, irritability, fatigue, and anxiety that usually resolves within 10 days of delivery.<sup>21</sup>

In the United States, the estimated prevalence of major depressive disorder in the postpartum period ranges from 8.9% among pregnant women to 37% at any point in the first year postpartum.<sup>22</sup> Rates vary by age, race/ethnicity, and other sociodemographic characteristics. For example, women 19 years or younger, American Indian/Alaska Native women, women with less than 12 years of education, unmarried women, or women with 6 or more stressful life events in the previous 12 months have higher reported rates of perinatal depression.<sup>23</sup>

It is well established that depression during the postpartum period can lead to adverse effects on the mother and infant. Although acts of harming oneself or the fetus or newborn are rare, perinatal depression increases the risk of suicide and suicidal ideation, and mothers with depression report more thoughts of harming their infants than mothers without depression.<sup>24</sup> Women with perinatal depression exhibit significantly higher levels of negative maternal behaviors (ie, hostile or coercive behaviors or both) and disengagement from their infants than women without perinatal depression.<sup>25</sup> Women with perinatal depression are also more likely to exhibit significantly lower levels of positive maternal behaviors, such as praising and playing with their child.<sup>25</sup> Perinatal depression is linked to an increased risk of preterm birth, small for gestational age newborn, and low birth weight.<sup>26</sup> Infants whose mothers have perinatal depression are at increased risk of early cessation of breastfeeding<sup>27</sup> and have been shown to receive fewer preventive health services (ie, vaccinations) compared with infants whose mothers are without depressive symptoms.<sup>28</sup> Perinatal depression can also affect a child's cognition and emotional development. Children of mothers who had perinatal depression demonstrate more behavior problems, lower cognitive functioning, and increased risk of developing psychiatric disorders.<sup>29,30</sup>

### Risk Factors

A number of risk factors are thought to be associated with the development of perinatal depression. These include a past history of depression,<sup>31</sup> current depressive symptoms (that do not reach a diagnostic threshold),<sup>32</sup> history of physical or sexual abuse,<sup>33,34</sup> unplanned or unwanted pregnancy,<sup>35</sup> stressful life events,<sup>23,31</sup> lack of social and financial support,<sup>31,35</sup> intimate partner violence,<sup>33,34</sup> pregestational or gestational diabetes,<sup>36</sup> and complications during pregnancy. Additional risk factors include adolescent parenthood, low socioeconomic status, and lack of social support.<sup>37</sup> Genetic factors are also suspected to contribute to women's risk of developing perinatal depression.<sup>38</sup>

### Scope of Review

The USPSTF commissioned a systematic evidence review<sup>2,6</sup> to evaluate the evidence on the potential benefits and harms of preventive interventions for perinatal depression in pregnant or postpartum women or their children. The review focused on studies of interventions involving pregnant women and new mothers of any age who were both selected and unselected based on known risk factors. The review included studies of women with mental health symptoms or disorders, although studies targeting women with a depression diagnosis, women with high levels of depressive symptoms, or women cur-

rently being treated for a depressive disorder were excluded, as were studies of women with psychotic or developmental disorders. The USPSTF reviewed contextual information on the accuracy of tools used to identify women at increased risk of perinatal depression and the most effective timing for preventive interventions. Interventions reviewed included counseling, health system interventions, physical activity, education, supportive interventions, and other behavioral interventions, such as infant sleep training and expressive writing. Pharmacological approaches included the use of nortriptyline, sertraline, and omega-3 fatty acids.

### Effectiveness of Preventive Interventions

The USPSTF reviewed studies of pregnant and postpartum women who received interventions to prevent perinatal depression delivered in or referred from primary care. The main reported outcomes were depression status (measured as cumulative incidence, point prevalence, or scoring above a cutoff on a symptom severity scale) and continuous depression symptom scale scores. Other health outcomes such as quality of life, infant or child outcomes, and functioning were also reported by trials and considered by the USPSTF. The USPSTF reviewed a total of 50 good- or fair-quality studies (49 randomized clinical trials, 1 nonrandomized controlled intervention study). The studies were divided between those that targeted pregnant (26/50 [52%]) or postpartum (22/50 [44%]) women. Two trials recruited pregnant women as well as women up to 26 weeks postpartum.<sup>2</sup> Most studies (42/50 [84%]) were limited to women 18 years or older, and the mean age across studies was 28.6 years. Twenty-six of the studies (52%) selected women with risk factors for perinatal depression. These included a personal or family history of depression (or perinatal depression), elevated depressive symptoms, socioeconomic factors (eg, low income, single or without partner, young age, or recent intimate partner violence), and other mental health factors (elevated anxiety symptoms or history of significant negative life events).<sup>2</sup> The majority of participants in the included studies were non-Hispanic white women, although 2 studies were limited to Latina women and 8 had a majority black and Latina population. Nearly one-fourth of the included studies (13/50 [26%]) were primarily or entirely composed of economically disadvantaged women.<sup>2</sup>

Twenty trials (n = 4107) reported on counseling interventions. More than half were conducted in the United States (12/20 [60%]), most were limited to adults (older than 18 years) (17/20 [85%]), and most initiated interventions during pregnancy (17/20 [85%]).<sup>2</sup> Three-quarters of the trials were limited to women known to be at increased risk of perinatal depression because of depression history or symptoms (6/20 [30%]); non-depression-related risk factors such as low socioeconomic status, recent intimate partner violence, or young age (3/20 [15%]); or depression-related or other risk factors (6/20 [30%]). Almost two-thirds (13/20 [65%]) of the trials excluded women who met diagnostic criteria for current major depression or scored above the cutoff on a symptom severity scale. Most of the interventions (13/20 [65%]) used cognitive behavioral therapy or interpersonal therapy approaches. Counseling interventions lasted a median of 8 weeks and had a median of 12 hours of total contact time.<sup>2</sup> The interventions consisted of both group (15/20 [75%]) and individual (11/20 [55%]) sessions, with some involving both types.<sup>2</sup> Settings included in-person (19/20) or telephone-based meetings (2/20), and 4 trials included home visits. Across all



counseling interventions, half to three-quarters of sessions were attended by participants.<sup>2</sup>

When the outcomes of incidence, prevalence, and scoring above the cutoff on a symptom severity scale were combined, counseling interventions were associated with a 39% reduction in the likelihood of perinatal depression (pooled relative risk [RR], 0.61 [95% CI, 0.47 to 0.78]).<sup>2</sup> Assuming a 19% baseline risk of perinatal depression (ie, the median percentage of women with depression in control groups at 3 to 6 months postpartum across all included studies), this corresponds to a number needed to treat of 13.5 women (95% CI, 9.9 to 23.9). Compared with the overall effect of counseling interventions, studies reporting the use of cognitive behavioral therapy or interpersonal therapy approaches showed similar effects.<sup>2</sup> **Subgroup analysis of trials using the "Mothers and Babies" and ROSE programs showed pooled RR reductions of 53% and 50%, respectively.<sup>2</sup>** When analyzing the effect of counseling interventions by study population, trials that selected women at increased risk of perinatal depression (based on symptoms, history of depression, or social or socioeconomic risk factors) demonstrated a larger positive effect compared with trials enrolling lower-risk, unselected populations (45% vs 21% risk reduction, respectively), although this difference was not statistically significant.<sup>2</sup>

Thirteen trials reported continuous symptom score measures, with 5 trials demonstrating statistically significant group differences.<sup>7,8,11,39,40</sup> Counseling interventions were associated with a small beneficial effect in symptom scores, resulting in a pooled standardized effect size of 0.2, or an average 1.5-point greater reduction in depression symptom severity compared with control groups.<sup>2</sup> Trials reported other maternal or child outcomes; however, outcome measures widely varied and there was little consistency across studies. Stress (4 trials)<sup>39,41-43</sup> and anxiety (4 trials)<sup>41,42,44,45</sup> were the most common other reported outcomes, although most trials did not demonstrate statistically significant findings.<sup>2</sup>

Three studies (n = 5321)<sup>46-48</sup> examined health system-level interventions consisting of screening, counseling, and patient navigation services conducted by midwives and nurses.<sup>2</sup> In all 3 studies, usual care included home visitation.<sup>2</sup> Individually, each study showed a statistically significant risk reduction in the likelihood of scoring above the cutoff on the Edinburgh Postnatal Depression Scale (EPDS) (RR range, 0.33-0.71). However, pooled analysis did not demonstrate statistical significance (RR, 0.58 [95% CI, 0.22 to 1.53]). Three trials (n = 1200)<sup>49-51</sup> examined physical activity programs consisting of group or individual exercise sessions (with or without dietary advice or educational sessions). Two trials<sup>50,51</sup> found statistically significant reductions in depression symptoms (weighted mean difference, -3.45 [95% CI, -4.99 to -1.91]),<sup>2</sup> although pooled analysis failed to demonstrate statistically significant reductions in depression diagnosis (RR, 0.54 [95% CI, 0.18 to 1.57]).<sup>2</sup>

Three trials (n = 980) focusing on improving infant sleep demonstrated mixed results. One trial found a 39% reduction in the likelihood of scoring 10 or higher on the EPDS at 6-month follow-up (adjusted odds ratio, 0.57 [95% CI, 0.34 to 0.94]).<sup>52</sup> Two other trials reported statistically significant or near-significant reductions in symptom severity scores at 1 (but not all) of several time points on at least 1 depression screening instrument (but not all).<sup>53,54</sup> Educational interventions and other supportive interventions, such as telephone-based peer support and nondirective group sessions, dem-

onstrated inconsistent findings, with 1 of 6 and 3 of 7 trials, respectively, reporting statistically significant reductions in depression status or depression symptom scores. Yoga classes, debriefing exercises, and expressive writing failed to demonstrate statistically significant reductions in depression symptoms or status.<sup>2</sup>

Four trials of chemoprevention of perinatal depression assessed the effects of sertraline (n = 22),<sup>55</sup> nortriptyline (n = 58),<sup>56</sup> and omega-3 fatty acids (n = 219).<sup>57,58</sup> The sertraline trial found that at 20 weeks postpartum, women taking sertraline had decreased depression recurrence compared with those taking placebo (7% vs 50%, respectively; *P* = .04). In addition, the time to depression recurrence was faster in participants receiving placebo (*P* = .02).<sup>55</sup> Neither nortriptyline<sup>56</sup> nor omega-3 fatty acids<sup>57,58</sup> showed preventive benefits for perinatal depression compared with placebo, although omega-3 fatty acids demonstrated small statistically significant improvements in gestational length, mean birth weight, and 5-minute Apgar score.<sup>58</sup>

### Potential Harms of Preventive Interventions

The nortriptyline trial<sup>56</sup> reported only the number of events for 1 of 11 adverse effects, with 78% of women taking nortriptyline reporting constipation (vs 22% of women taking placebo). Participants taking sertraline were more likely than those taking placebo to report dizziness (57% vs 13%, respectively; *P* = .05) and drowsiness (100% vs 50%, respectively; *P* = .02).<sup>55</sup> One woman taking nortriptyline and 1 woman taking sertraline developed mania or hypomania, but there were no cases among women taking placebo.<sup>55,56</sup> No harms were associated with omega-3 fatty acids. None of the other included intervention trials reported harms outcomes.

### Estimate of Magnitude of Net Benefit

The USPSTF found convincing evidence that counseling interventions, such as cognitive behavioral therapy and interpersonal therapy, are effective in preventing perinatal depression. Based on the population of women included in the studies, **those with a history of depression, current depressive symptoms, or certain socioeconomic risk factors (eg, low income or young or single parenthood) would benefit from counseling interventions and could be considered at increased risk.** The USPSTF found adequate evidence to bound the potential harms of counseling interventions as no greater than small, based on the nature of the intervention and the low likelihood of serious harms. The USPSTF found inadequate evidence to assess the benefits and harms of other noncounseling interventions. The USPSTF concludes with moderate certainty that providing or referring pregnant or postpartum women at increased risk to counseling interventions has a moderate net benefit in preventing perinatal depression.

### Response to Public Comment

A draft version of this recommendation statement was posted for public comment on the USPSTF website from August 28 to September 24, 2018. Several comments requested that the recommendation be expanded to include associated mood disorders (such as anxiety disorder). The primary focus of the USPSTF recommendation and evidence review was depression. Several additional outcomes (including anxiety) were included in the scope of the evidence review; however, reporting on incidence or symptoms of anxiety was limited and inconsistent. Several comments questioned why perinatal



depression screening tools such as the EPDS were not recommended as risk-assessment tools. Additionally, comments requested that the USPSTF clarify the population at risk that would benefit from counseling interventions. The focus of this recommendation is the prevention of depression; the USPSTF has a separate recommendation on screening for depression in all adults, including pregnant women. The Research Gaps and Needs section calls for more studies on the use of tools for risk assessment, including established screening tools. For this recommendation, the USPSTF defined increased risk based on the study population; the USPSTF made revisions to further identify who would be considered at increased risk of depression. Several comments raised concerns about the ability of clinicians to implement the recommendation because of barriers to

accessing mental health services. The USPSTF recognizes these barriers and provided some additional information about mental health resources and systems to connect patients to appropriate care in the Implementation section and Additional Approaches to Prevention of Depression section.

## Recommendations of Others

The USPSTF found no other guidelines on the prevention of perinatal depression. The American College of Obstetricians and Gynecologists recommends early postpartum follow-up care, including screening for depression and anxiety, for all postpartum women.<sup>19,59</sup>

### ARTICLE INFORMATION

#### The US Preventive Services Task Force (USPSTF)

**members:** Susan J. Curry, PhD; Alex H. Krist, MD, MPH; Douglas K. Owens, MD, MS; Michael J. Barry, MD; Aaron B. Caughey, MD, PhD; Karina W. Davidson, PhD, MASC; Chyke A. Doubeni, MD, MPH; John W. Epling Jr, MD, MSEd; David C. Grossman, MD, MPH; Alex R. Kemper, MD, MPH, MS; Martha Kubik, PhD, RN; C. Seth Landefeld, MD; Carol M. Mangione, MD, MSPH; Michael Silverstein, MD, MPH; Melissa A. Simon, MD, MPH; Chien-Wen Tseng, MD, MPH, MSEE; John B. Wong, MD.

#### Affiliations of The US Preventive Services Task Force (USPSTF) members:

University of Iowa, Iowa City (Curry); Fairfax Family Practice Residency, Fairfax, Virginia (Krist); Virginia Commonwealth University, Richmond (Krist); Veterans Affairs Palo Alto Health Care System, Palo Alto, California (Owens); Stanford University, Stanford, California (Owens); Harvard Medical School, Boston, Massachusetts (Barry); Oregon Health & Science University, Portland (Caughey); Feinstein Institute for Medical Research at Northwell Health, Manhasset, New York (Davidson); University of Pennsylvania, Philadelphia (Doubeni); Virginia Tech Carilion School of Medicine, Roanoke (Epling); Kaiser Permanente Washington Health Research Institute, Seattle (Grossman); Nationwide Children's Hospital, Columbus, Ohio (Kemper); Temple University, Philadelphia, Pennsylvania (Kubik); University of Alabama at Birmingham (Landefeld); University of California, Los Angeles (Mangione); Boston University, Boston, Massachusetts (Silverstein); Northwestern University, Evanston, Illinois (Simon); University of Hawaii, Honolulu (Tseng); Pacific Health Research and Education Institute, Honolulu, Hawaii (Tseng); Tufts University, Medford, Massachusetts (Wong).

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### REFERENCES

- Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T. Perinatal depression: a systematic review of prevalence and incidence. *Obstet Gynecol*. 2005;106(5, pt 1):1071-1083. doi:10.1097/O1.AOG.0000183597.31630.db
- O'Connor E, Senger CA, Henninger M, Gaynes BN, Coppola E, Soulsby MW. *Interventions to Prevent Perinatal Depression: A Systematic Evidence Review for the US Preventive Services Task Force: Evidence Synthesis No 172*. Rockville, MD: Agency for Healthcare Research and Quality; 2019. AHRQ publication 18-05243-EF-1.
- Hofmann SG, Asnaani A, Vonk IJ, Sawyer AT, Fang A. The efficacy of cognitive behavioral therapy: a review of meta-analyses. *Cognit Ther Res*. 2012;36(5):427-440. doi:10.1007/s10608-012-9476-1
- Phipps MG, Raker CA, Ware CF, Zlotnick C. Randomized controlled trial to prevent postpartum depression in adolescent mothers. *Am J Obstet Gynecol*. 2013;208(3):192.e1-192.e6. doi:10.1016/j.ajog.2012.12.036
- Zlotnick C, Tzilios G, Miller I, Seifer R, Stout R. Randomized controlled trial to prevent postpartum depression in mothers on public assistance. *J Affect Disord*. 2016;189:263-268. doi:10.1016/j.jad.2015.09.059
- O'Connor E, Senger CA, Henninger M, Gaynes BN, Coppola E, Soulsby MW. Interventions to prevent perinatal depression: a systematic review and evidence report for the US Preventive Services Task Force [published February 12, 2019]. *JAMA*. doi:10.1001/jama.2018.20865
- Tandon SD, Leis JA, Mendelson T, Perry DF, Kemp K. Six-month outcomes from a randomized controlled trial to prevent perinatal depression in low-income home visiting clients. *Matern Child Health J*. 2014;18(4):873-881. doi:10.1007/s10995-013-1313-y
- Tandon SD, Perry DF, Mendelson T, Kemp K, Leis JA. Preventing perinatal depression in low-income home visiting clients. *J Consult Clin Psychol*. 2011;79(5):707-712. doi:10.1037/a0024895
- Muñoz RF, Le HN, Ippen CG, et al. Prevention of postpartum depression in low-income women: development of the Mamás y Bebés/Mothers and Babies course. *Cogn Behav Pract*. 2007;14(1):70-83. doi:10.1016/j.cbpra.2006.04.021
- Le HN, Perry DF, Stuart EA. Randomized controlled trial of a preventive intervention for perinatal depression in high-risk Latinas. *J Consult Clin Psychol*. 2011;79(2):135-141. doi:10.1037/a0022492
- Zlotnick C, Johnson SL, Miller IW, Pearlstein T, Howard M. Postpartum depression in women receiving public assistance: pilot study of an interpersonal-therapy-oriented group intervention. *Am J Psychiatry*. 2001;158(4):638-640. doi:10.1176/appi.ajp.158.4.638
- Zlotnick C, Miller IW, Pearlstein T, Howard M, Sweeney P. A preventive intervention for pregnant women on public assistance at risk for postpartum depression. *Am J Psychiatry*. 2006;163(8):1443-1445. doi:10.1176/ajp.2006.163.8.1443
- Zlotnick C, Capezza NM, Parker D. An interpersonally based intervention for low-income pregnant women with intimate partner violence: a pilot study. *Arch Womens Ment Health*. 2011;14(1):55-65. doi:10.1007/s00737-010-0195-x
- Substance Abuse and Mental Health Administration (SAMHSA). SAMHSA-HRSA Center for Integrated Health Solutions. SAMHSA website. <https://www.integration.samhsa.gov/>. Accessed December 31, 2018.
- Substance Abuse and Mental Health Administration (SAMHSA). Behavioral Health Treatment Services Locator. SAMHSA website. <https://findtreatment.samhsa.gov/>. Accessed December 31, 2018.

16. The Mothers & Babies Program website. <http://www.mothersandbabiesprogram.org/>. Accessed December 31, 2018.
17. Siu AL, Bibbins-Domingo K, Grossman DC, et al; US Preventive Services Task Force (USPSTF). Screening for depression in adults: US Preventive Services Task Force recommendation statement. *JAMA*. 2016;315(4):380-387. doi:10.1001/jama.2015.18392
18. Siu AL; U.S. Preventive Services Task Force. Screening for depression in children and adolescents: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med*. 2016;164(5):360-366. doi:10.7326/M15-2957
19. Committee on Obstetric Practice. The American College of Obstetricians and Gynecologists Committee Opinion No. 630: screening for perinatal depression. *Obstet Gynecol*. 2015;125(5):1268-1271. doi:10.1097/01.AOG.0000465192.34779.dc
20. American Psychological Association. *Diagnostic and Statistical Manual for Psychiatric Disorders*. 5th ed. Washington, DC: American Psychological Association; 2013.
21. Fitelson E, Kim S, Baker AS, Leight K. Treatment of postpartum depression: clinical, psychological and pharmacological options. *Int J Womens Health*. 2010;3:1-14.
22. Norhayati MN, Hazlina NH, Asrenee AR, Emilin WM. Magnitude and risk factors for postpartum symptoms: a literature review. *J Affect Disord*. 2015;175:34-52. doi:10.1016/j.jad.2014.12.041
23. Ko JY, Rockhill KM, Tong VT, Morrow B, Farr SL. Trends in postpartum depressive symptoms—27 states, 2004, 2008, and 2012. *MMWR Morb Mortal Wkly Rep*. 2017;66(6):153-158. doi:10.15585/mmwr.mm6606a1
24. Jennings KD, Ross S, Popper S, Elmore M. Thoughts of harming infants in depressed and nondepressed mothers. *J Affect Disord*. 1999;54(1-2):21-28. doi:10.1016/S0165-0327(98)00185-2
25. Lovejoy MC, Graczyk PA, O'Hare E, Neuman G. Maternal depression and parenting behavior: a meta-analytic review. *Clin Psychol Rev*. 2000;20(5):561-592. doi:10.1016/S0272-7358(98)00100-7
26. Szegeka K, Markenson G, Bertone-Johnson ER, Chasan-Taber L. Depression during pregnancy: a risk factor for adverse neonatal outcomes? *J Matern Fetal Neonatal Med*. 2014;27(9):960-967. doi:10.3109/14767058.2013.845157
27. Wouk K, Stuebe AM, Meltzer-Brody S. Postpartum mental health and breastfeeding practices: an analysis using the 2010-2011 Pregnancy Risk Assessment Monitoring System. *Matern Child Health J*. 2017;21(3):636-647. doi:10.1007/s10995-016-2150-6
28. Minkovitz CS, Strobino D, Scharfstein D, et al. Maternal depressive symptoms and children's receipt of health care in the first 3 years of life. *Pediatrics*. 2005;115(2):306-314. doi:10.1542/peds.2004-0341
29. Beck CT. The effects of postpartum depression on child development: a meta-analysis. *Arch Psychiatr Nurs*. 1998;12(1):12-20. doi:10.1016/S0883-9417(98)80004-6
30. Santos IS, Matijasevich A, Barros AJ, Barros FC. Antenatal and postnatal maternal mood symptoms and psychiatric disorders in pre-school children from the 2004 Pelotas Birth Cohort. *J Affect Disord*. 2014;164:112-117. doi:10.1016/j.jad.2014.04.033
31. Wilson LM, Reid AJ, Midmer DK, Biringier A, Carroll JC, Stewart DE. Antenatal psychosocial risk factors associated with adverse postpartum family outcomes. *CMAJ*. 1996;154(6):785-799.
32. Shankman SA, Lewinsohn PM, Klein DN, Small JW, Seeley JR, Altman SE. Subthreshold conditions as precursors for full syndrome disorders. *J Child Psychol Psychiatry*. 2009;50(12):1485-1494. doi:10.1111/j.1469-7610.2009.02117.x
33. Kornfeld BD, Bair-Merritt MH, Frosch E, Solomon BS. Postpartum depression and intimate partner violence in urban mothers: co-occurrence and child healthcare utilization. *J Pediatr*. 2012;161(2):348-353. doi:10.1016/j.jpeds.2012.01.047
34. Wu Q, Chen HL, Xu XJ. Violence as a risk factor for postpartum depression in mothers: a meta-analysis. *Arch Womens Ment Health*. 2012;15(2):107-114. doi:10.1007/s00737-011-0248-9
35. Beck CT. Predictors of postpartum depression: an update. *Nurs Res*. 2001;50(5):275-285. doi:10.1097/00006199-200109000-00004
36. Kozhimannil KB, Pereira MA, Harlow BL. Association between diabetes and perinatal depression among low-income mothers. *JAMA*. 2009;301(8):842-847. doi:10.1001/jama.2009.201
37. Kim S, Soeken TA, Cromer SJ, Martinez SR, Hardy LR, Strathearn L. Oxytocin and postpartum depression. *Brain Res*. 2014;1580:219-232. doi:10.1016/j.brainres.2013.11.009
38. Corwin EJ, Kohan R, Jarrett M, Stafford B. The heritability of postpartum depression. *Biol Res Nurs*. 2010;12(1):73-83. doi:10.1177/1099800410362112
39. Ortiz Collado MA, Saez M, Favrod J, Hatem M. Antenatal psychosomatic programming to reduce postpartum depression risk and improve childbirth outcomes. *BMC Pregnancy Childbirth*. 2014;14:22. doi:10.1186/1471-2393-14-22
40. Dimidjian S, Goodman SH, Felder JN, Gallop R, Brown AP, Beck A. Staying well during pregnancy and the postpartum: a pilot randomized trial of mindfulness-based cognitive therapy for the prevention of depressive relapse/recurrence. *J Consult Clin Psychol*. 2016;84(2):134-145. doi:10.1037/ccp0000068
41. Woolhouse H, Mercuri K, Judd F, Brown SJ. Antenatal mindfulness intervention to reduce depression, anxiety and stress: a pilot randomised controlled trial of the MindBabyBody program in an Australian tertiary maternity hospital. *BMC Pregnancy Childbirth*. 2014;14:369. doi:10.1186/s12884-014-0369-z
42. Milgrom J, Schembri C, Ericksen J, Ross J, Gemmill AW. Towards parenthood: an antenatal intervention to reduce depression, anxiety and parenting difficulties. *J Affect Disord*. 2011;130(3):385-394. doi:10.1016/j.jad.2010.10.045
43. Leung SS, Lee AM, Wong DF, et al. A brief group intervention using a cognitive-behavioural approach to reduce postnatal depressive symptoms. *Hong Kong Med J*. 2016;22(suppl 2):S4-S8.
44. Gorman L. *Prevention of Postpartum Difficulties in a High Risk Sample* [dissertation]. Iowa City: University of Iowa; 1997.
45. Feinberg ME, Kan ML. Establishing family foundations: intervention effects on coparenting, parent/infant well-being, and parent-child relations. *J Fam Psychol*. 2008;22(2):253-263. doi:10.1037/0893-3200.22.2.253
46. Brughla TS, Morrell CJ, Slade P, Walters SJ. Universal prevention of depression in women postnatally: cluster randomized trial evidence in primary care. *Psychol Med*. 2011;41(4):739-748. doi:10.1017/S0033291710001467
47. MacArthur C, Winter HR, Bick DE, et al. Effects of redesigned community postnatal care on womens' health 4 months after birth. *Lancet*. 2002;359(9304):378-385. doi:10.1016/S0140-6736(02)07596-7
48. Fontein-Kuipers YJ, Ausems M, de Vries R, Nieuwenhuijze MJ. The effect of Wazupp Mama?! an antenatal intervention to prevent or reduce maternal distress in pregnancy. *Arch Womens Ment Health*. 2016;19(5):779-788. doi:10.1007/s00737-016-0614-8
49. Songgygard KM, Stafne SN, Evensen KA, Salvesen KÅ, Vik T, Mørkved S. Does exercise during pregnancy prevent postnatal depression? *Acta Obstet Gynecol Scand*. 2012;91(1):62-67. doi:10.1111/j.1600-0412.2011.01262.x
50. Perales M, Refoyo I, Coteron J, Bacchi M, Barakat R. Exercise during pregnancy attenuates prenatal depression. *Eval Health Prof*. 2015;38(1):59-72. doi:10.1177/0163278714533566
51. Norman E, Sherburn M, Osborne RH, Galea MP. An exercise and education program improves well-being of new mothers. *Phys Ther*. 2010;90(3):348-355. doi:10.2522/ptj.20090139
52. Hiscock H, Cook F, Bayer J, et al. Preventing early infant sleep and crying problems and postnatal depression: a randomized trial. *Pediatrics*. 2014;133(2):e346-e354. doi:10.1542/peds.2013-1886
53. Werner EA, Gustafsson HC, Lee S, et al. PREPP: postpartum depression prevention through the mother-infant dyad. *Arch Womens Ment Health*. 2016;19(2):229-242. doi:10.1007/s00737-015-0549-5
54. Hiscock H, Wake M. Randomised controlled trial of behavioural infant sleep intervention to improve infant sleep and maternal mood. *BMJ*. 2002;324(7345):1062-1065. doi:10.1136/bmj.324.7345.1062
55. Wisner KL, Perel JM, Peindl KS, Hanusa BH, Piontek CM, Findling RL. Prevention of postpartum depression: a pilot randomized clinical trial. *Am J Psychiatry*. 2004;161(7):1290-1292. doi:10.1176/appi.ajp.161.7.1290
56. Wisner KL, Perel JM, Peindl KS, Hanusa BH, Findling RL, Rapport D. Prevention of recurrent postpartum depression. *J Clin Psychiatry*. 2001;62(2):82-86. doi:10.4088/JCP.v62n0202
57. Llorente AM, Jensen CL, Voigt RG, Fraley JK, Berretta MC, Heird WC. Effect of maternal docosahexaenoic acid supplementation on postpartum depression and information processing. *Am J Obstet Gynecol*. 2003;188(5):1348-1353. doi:10.1067/mob.2003.275
58. Mozurkewich EL, Clinton CM, Chilimigras JL, et al. The Mothers, Omega-3, and Mental Health Study: a double-blind, randomized controlled trial. *Am J Obstet Gynecol*. 2013;208(4):313.e1-313.e9. doi:10.1016/j.ajog.2013.01.038
59. ACOG Committee Opinion No. 736: optimizing postpartum care. *Obstet Gynecol*. 2018;131(5):e140-e150. doi:10.1097/AOG.0000000000002633