U.S. Preventive Services Task Force

Screening for Iron Deficiency Anemia and Iron Supplementation in Pregnant Women to Improve Maternal Health and Birth Outcomes: Recommendation Statement

▶ See related Putting Prevention into Practice on page 137.

As published by the U.S. Preventive Services Task Force.

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

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

This series is coordinated by Sumi Sexton, MD, Associate Deputy Editor.

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

Summary of Recommendations and Evidence

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for iron deficiency anemia in pregnant women to prevent adverse maternal health and birth outcomes *(Table 1)*. **I statement.**

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of routine iron supplementation for pregnant women to prevent adverse maternal health and birth outcomes. **I statement.**

Go to the Clinical Considerations section for suggestions for practice regarding the I statements.

Rationale

IMPORTANCE

The aims of iron supplementation or screening for and treatment of iron deficiency anemia in pregnant women are to improve maternal and infant health outcomes. Few data are available to estimate the current prevalence of iron deficiency anemia in pregnant women in the United States. Based on older data from 1999 to 2006, an estimated 18.6% of pregnant women have iron deficiency; of those, an estimated 16.2% have anemia.[1] Rates may be higher in low-income and minority populations.[1,2]

DETECTION AND RECOGNITION OF RISK STATUS

The USPSTF found inadequate evidence that specifically addressed the accuracy of screening tests in asymptomatic pregnant women. The USPSTF found inadequate evidence to evaluate risk prediction tools to identify pregnant women who are at increased risk for iron deficiency anemia.

BENEFITS OF EARLY DETECTION AND TREATMENT

Screening. The USPSTF found inadequate evidence on screening for iron deficiency anemia in asymptomatic pregnant women. No studies evaluated the direct effects of routine screening in asymptomatic pregnant women on maternal health or birth outcomes. The USPSTF also found inadequate evidence on the treatment of iron deficiency anemia in pregnant women because none of the recent studies on treatment were generalizable to the general U.S. population. This represents a critical gap in the evidence.

Preventive Medication. Overall, the USPSTF found inadequate evidence on the effect of routine iron supplementation during pregnancy on maternal health or birth outcomes, such as maternal iron deficiency anemia, cesarean delivery, preterm delivery, infant mortality, or low birth weight. Several studies reported inconsistent findings on these health outcomes. The USPSTF found adequate evidence that routine iron supplementation during pregnancy improves intermediate maternal hematologic indexes, such as serum ferritin and hemoglobin levels. The USPSTF found adequate evidence that routine iron supplementation during pregnancy has no effects on the length of gestation and infant Apgar scores at 1 and 5 minutes.

Change in Iron Status. No studies were found that directly assessed the association between change in iron status as a result of treatment or supplementation and improvement in maternal or infant health outcomes. This represents a critical gap in the evidence.

HARMS OF EARLY DETECTION AND TREATMENT

Screening. The USPSTF found inadequate evidence on the harms of routine screening for iron deficiency anemia in asymptomatic pregnant women. No studies were found that evaluated the harms of routine screening on maternal health or birth outcomes. The USPSTF found inadequate evidence on the harms of treatment of iron deficiency anemia in pregnant women; no recent studies were generalizable to the current general U.S. population.

Preventive Medication. The USPSTF found adequate evidence that the magnitude of the harms of routine iron supplementation in pregnant women is small to none. Several studies assessed the harms of iron supplementation in pregnant women. Most reported no statistically significant increase in harms. Of the harms reported, most were self-limited and transient effects of treatment, such as nausea, constipation, and diarrhea.

USPSTF ASSESSMENT

The USPSTF concludes that the evidence of the effect of routine screening for iron deficiency anemia in asymptomatic pregnant women on maternal health and birth outcomes is insufficient. Evidence is lacking, and the balance of benefits and harms cannot be determined.

The USPSTF concludes that the evidence on the effect of routine iron supplementation in pregnant women on maternal health and birth outcomes is insufficient. Evidence is lacking, and the balance of benefits and harms cannot be determined.

Clinical Considerations

PATIENT POPULATION UNDER CONSIDERATION

This recommendation addresses screening and supplementation in pregnant women and adolescents living in the United States who do not have symptoms of iron deficiency anemia. It does not address pregnant women who are malnourished, have symptoms of

Table 1. Screening for Iron Deficiency Anemia and Iron Supplementation in Pregnant Women to Improve Maternal Health and Birth Outcomes: Clinical Summary of the USPSTF Recommendation

Population	Asymptomatic U.S. pregnant women and adolescents	
Recommendation	Screening: no recommendation Grade: I statement (insufficient evidence)	Iron supplementation: no recommendation Grade: I statement (insufficient evidence)
Risk assessment	No studies assessed the performance of risk assessment tools to identify pregnant women who are at increased risk for iron deficiency anemia.	
Screening tests	Although the evidence is insufficient to recommend specific tests for screening, measurement of serum hemoglobin or hematocrit is often the first step.	
Treatment and interventions	Iron deficiency anemia in pregnant women is treated through additional iron intake with oral iron pills (usually 60 to 120 mg of elemental iron per day) and diet. Intravenous iron treatment can also be used during pregnancy.	Although the evidence is insufficient to recommend routine iron supplementation for pregnant women, prenatal vitamins often include a low dose of iron (usually 30 mg of elemental iron per day).
Balance of benefits and harms	The current evidence is insufficient to assess the balance of benefits and harms of screening for iron deficiency anemia in pregnant women.	The current evidence is insufficient to assess the balance of benefits and harms of routine iron supplementation for pregnant women.
Other relevant USPSTF recommendations	The USPSTF addresses screening for iron deficiency anemia in children and folic acid supplementation during pregnancy in separate recommendation statements (available at http://www.uspreventiveservicestaskforce.org).	

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

USPSTF = U.S. Preventive Services Task Force.

iron deficiency anemia, or have special hematologic conditions or nutritional needs that may increase their need for iron. Screening for iron deficiency anemia in young children is addressed in a separate recommendation statement (available at http://www.uspreventiveservicestaskforce.org).

SUGGESTIONS FOR PRACTICE REGARDING THE I STATEMENT

Potential Preventable Burden. Based on older data, estimates of the prevalence of iron deficiency anemia in pregnant women in the United States range from 2% to 27%, with higher rates in later trimesters and minority populations.[2] Based on calculations of total body iron from 1999 to 2006 National Health and Nutrition Examination Survey (NHANES) data, the estimated prevalence of iron deficiency in pregnant women is 18.6%; of these, 16.2% also have anemia.[1] However, given the physiologic hemodilution that normally occurs during the later stages of pregnancy, determining exact prevalence rates of anemia in pregnant women may be difficult.

Several factors have been identified that may increase a pregnant woman's risk for iron deficiency anemia, including a diet lacking in iron-rich foods (for example, a vegetarian diet with inadequate sources of iron), gastrointestinal disease and/or medications that can decrease iron absorption (for example, antacids), and a short interval between pregnancies. Non-Hispanic black and Mexican American women have higher prevalence rates of iron deficiency than white women and women with parity of 2 or more. Evidence on additional risk factors, such as lower educational level and family income, has been less consistent. On the basis of a scan of the literature, the USPSTF found limited evidence on the use of risk prediction tools to identify pregnant women who are at increased risk for iron deficiency anemia.

Many observational studies have explored the association between adverse maternal and infant health outcomes (such as postpartum hemorrhage, preterm birth, low birth weight, and perinatal death) and iron deficiency or iron deficiency anemia in pregnancy, but findings have been inconclusive.[2]

Potential Harms. The harms of screening for iron deficiency anemia have not been well studied but are likely minor. Potential harms of screening include false-positive results, anxiety, and cost. Reported adverse events of iron supplementation or treatment with iron include limited gastrointestinal symptoms, darkening color of urine or stool, staining of teeth and gums, and drug interactions with other medications.

Current Practice. Rates of screening for iron deficiency anemia and iron supplementation in pregnant women by clinicians are not well documented. However, based on anecdotal evidence, it is probably common. In addition, there may be other reasons to screen for anemia in pregnant women, such as to prepare for cesarean delivery or anticipated blood loss during a complicated delivery. Older data from 1988 show that 97% of pregnant women who received prenatal care reported being advised to take a multivitamin–mineral supplement.[3] Based on 1996 to 2006 NHANES data, 77% of pregnant women reported using a supplement within the previous 30 days and they most frequently used a multivitamin containing 48 mg of iron.[4]

SCREENING TESTS

Measurement of serum hemoglobin or hematocrit levels is often the first step used in primary care practice.

TREATMENT

Treatment of iron deficiency anemia in pregnant women is similar to that in nonpregnant women and includes additional iron intake through oral iron pills, prenatal vitamins, and diet. The usual dose is 60 to 120 mg of elemental iron per day.[2,5] Intravenous iron treatment is also used during pregnancy.

SUPPLEMENTATION

Prenatal vitamins often include a low dose of iron; the usual dose prescribed in early pregnancy is 30 mg of elemental iron per day. Higher doses (60 to 100 mg of elemental iron per day) are sometimes prescribed in populations at increased risk for iron deficiency anemia.[2]

OTHER APPROACHES TO PREVENTION

Dietary Iron. According to the Institute of Medicine, the Recommended Dietary

Allowance for iron in pregnant women is 27 mg per day. Natural food sources of iron include certain fruits, vegetables, meat, and poultry. The Institute of Medicine also notes that nonheme iron, which is found in vegetarian diets, may be less well absorbed than heme iron, which is found in diets containing meat; therefore, the iron requirement may be almost twice as much in women who eat a purely vegetarian diet.[6]

Fortified breads and grain products (such as cereal) are also important potential sources of iron.[7,8] Federally regulated iron fortification of U.S. food products began in 1941, and the iron content in enriched grain products has increased over the years.[7] It is estimated that more than 50% of the iron in the U.S. food supply comes from iron-fortified cereal grain products.[7,8]

USEFUL RESOURCES

The USPSTF has published separate recommendation statements on screening for iron deficiency anemia in young children and folic acid supplementation during pregnancy (available at http://www.uspreventiveservicestaskforce.org).

This recommendation statement was first published in *Ann Intern Med.* 2015;163(7):529-536.

The "Other Considerations," "Discussion," "Update of Previous USPSTF Recommendation," and "Recommendations of Others" sections of this recommendation statement are available at http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/iron-deficiency-anemia-in-pregnant-women-screening-and-supplementation.

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