

Avoid using hemoglobin to screen for iron deficiency. Instead use ferritin.

Iron deficiency is one of the most common nutritional deficiencies worldwide. Prevalence of iron deficiency in women ages 12-49 years increased from 11% in 2003 to 14.8% in 2010 in the United States. In addition to women of child-bearing age, pregnant women and young children are also high risk groups and must be screened for this disorder. Screening for iron deficiency using whole blood hemoglobin will only identify the most severe cases. Moreover, hemoglobin is not specific for iron deficiency or iron deficiency anemia. Serum ferritin is a measure of iron stores and is the most sensitive biomarker to test for early stages of iron deficiency as well as iron deficiency anemia. Sensitivity of the ferritin test is 89% for diagnosis of iron depletion compared to hemoglobin, which is only 26%. Moreover, the ferritin cutoff of ≤ 30 ng/mL provides 92% sensitivity and 98% specificity for iron deficiency anemia and is the best screening test for this disorder. This cutoff is also appropriate in cases of inflammation as ferritin is an acute phase reactant. Screening for iron deficiency with ferritin will identify early stage iron deficiency and will potentially result in iron therapy, preventing iron deficiency anemia. Iron deficiency anemia has been long associated with psychomotor and cognitive abnormalities but even iron deficiency without anemia has been related to negative neurodevelopmental outcomes in children.

American Society for Clinical Laboratory Science

This American Society for Clinical Laboratory Science (ASCLS) recommendation was developed under the leadership of ASCLS's Choosing Wisely Task Force and the ASCLS president and executive vice president. The Task Force examined evidence available on this topic through an extensive review of the literature. The results of our review suggest that ferritin is the best screening test for iron deficiency and screening is the first step in addressing the high prevalence of iron deficiency anemia. Subject matter experts from the ASCLS Hematology Scientific Assembly reviewed and recommended approval of this recommendation, which was subsequently approved by the ASCLS Board of Directors.

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