

## Healthy People 2010 Operational Definition

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### **19-14. Reduce iron deficiency among pregnant females.**

<b>National Data Source</b>	National Health and Nutrition Examination Survey (NHANES), CDC, NCHS
<b>State Data Source</b>	Not identified.
<b>Healthy People 2000 Objective</b>	Adapted from 2.10 (Nutrition).
<b>Changes since the 2000 Publication</b>	None.
<b>Measure</b>	Percent.
<b>Baseline (Year)</b>	14 (1999-2002)
<b>Target</b>	9
<b>Target-Setting Method</b>	Better than the best racial/ethnic subgroup. For a discussion of target-setting methods, see Part A, section 4.
<b>Numerator</b>	Number of pregnant females of all ages with iron deficiency based a model that considers two indicators of body iron stores, serum ferritin and transferrin receptor.
<b>Denominator</b>	Number of pregnant females of all ages.
<b>Population Targeted</b>	U.S. civilian, noninstitutionalized population.
<b>Questions Used to Obtain the National Baseline Data</b>	Not applicable.
<b>Expected Periodicity</b>	Periodic.
<b>Comments</b>	Blood was collected by phlebotomy. Serum ferritin was measured with the Roche Tina-quant® Ferritin immunoturbidimetric assay on the Hitachi 912 clinical analyzer (Roche Diagnostics, Mannheim, Germany). Serum transferrin receptor (sTfR) was measured with the Tina-quant® sTfR homogeneous immunoturbidimetric assay assay (Roche Diagnostics, Mannheim, Germany). Both assays were performed on a Roche Hitachi 912 clinical

analyzer (Roche Diagnostics, Mannheim, Germany).

Iron deficiency is defined as body iron <0 mg/kg<sup>1,2</sup>

Body iron was calculated from sTfR and ferritin concentrations using the following formula<sup>1,2</sup>: Body iron (mg/kg) = - [log<sub>10</sub> (sTfR\*1000 / ferritin ) – 2.8229] / 0.1207.

For this calculation, the Roche sTfR concentrations were converted to those equivalent to the Flowers assay<sup>3</sup> used in the development of the body iron model in the original study<sup>1,2</sup>. A conversion equation derived from a previous comparison of the two assays (n = 40) was applied<sup>4</sup>: Flowers sTfR = 1.5 \* Roche sTfR + 0.35 mg/L. The original Roche ferritin concentrations were used for the body iron calculation because a previous comparison of the Roche assay with the ELISA method used by Skikne et al<sup>2</sup> and Cook et al<sup>1</sup> in the calculation of body iron showed no difference between these two ferritin methods.

No comparable data source is available to measure iron deficiency among pregnant females at the State level. Prevalence of anemia among low-income pregnant females in the third trimester at the state level is available from the Pregnancy Nutrition Surveillance System.

This objective became measurable after the Healthy People 2010 Midcourse Review.

This objective differs from Healthy People 2000 objective 2.10, which tracked iron deficiency among women of childbearing age (20 - 44 years).

Objective 19-14 focuses on pregnant women of all ages.

For some measures, data do not meet the criteria for statistical reliability, data quality, or confidentiality and have been suppressed. Information on suppression of data for the major Healthy People 2010 data systems has been published in a *Healthy People Statistical Note*.<sup>5</sup>

See Part C for a description of NHANES and Appendix A for focus area contact information.

## References

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1. Cook JD, Flowers CH, Skikne BS. The quantitative assessment of body iron. *Blood* 2003;101:3359-3364.
2. Skikne BS, Flowers CH, Cook JD. Serum transferrin receptor: a quantitative measure of tissue iron deficiency. *Blood* 1990;75:1870-1876.
3. Flowers CH, Skikne BS, Covell AM, Cook JD. The clinical measurement of serum transferrin receptor. *J Lab Clin Med* 1989;114:368-77.
4. Pfeiffer CM, Cook JD, Mei Z, Cogswell ME, Looker AC, Lacher DA. Evaluation of an automated soluble transferrin receptor (sTfR) assay on the Roche Hitachi analyzer and its comparison to two ELISA assays. *Clinica Chimica Acta* 2007;382:112-116.
5. Klein, R.J.; Proctor, S.E.; Boudreault, M.A.; Turczyn, K.M. Healthy People 2010 Criteria for Data Suppression. *Statistical Notes* No. 24. Hyattsville, MD: National Center for Health Statistics. 2002.