

Low Hematocrit/Low Hemoglobin

Definition/ cut-off value

Hemoglobin or hematocrit concentration below the 95 percent confidence interval (i.e., below the .025 percentile) for healthy, well-nourished individuals of the same age, sex, and stage of pregnancy.

The Texas State Agency has elected to adopt hematological values with no adjustments for smoking and/or altitude based on the 1998 CDC Guidelines. See Clarifications/Guidelines section.

Participant category and priority level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III
Infants	I
Children	III

Clarifications/ Guidelines

1. Basis for bloodwork assessment: For pregnant women being assessed for iron deficiency anemia, bloodwork must be evaluated using trimester values established by CDC. Thus, a pregnant women would be certified, based on the trimester in which her bloodwork was taken.

Category	Hct*	Hgb
Pregnant First Trimester (0 through 13 wks)	Less than 33.0%	Less than 11.0 g/dL
Second Trimester (14 through 26 wks)	Less than 32.0%	Less than 10.5 g/dL
Third Trimester (27 through 40 wks)	Less than 33.0%	Less than 11.0 g/dL
Breastfeeding 12 through 14 years	Less than 36.0%	Less than 11.8 g/dL
15 years or older	Less than 36.0%	Less than 12.0 g/dL
Postpartum 12 through 14 years	Less than 36.0%	Less than 11.8 g/dL
15 years or older	Less than 36.0%	Less than 12.0 g/dL
Infant 0 through 5 months	No values available to assess anemia	No values available to assess anemia
6 to 12 months	Less than 33.0%	Less than 11.0 g/dL
Children 12 to 24 months	Less than 33.0%	Less than 11.0 g/dL
2 to 5 years	Less than 33.0%	Less than 11.1 g/dL

*Rounded Hematocrit values have been adapted from CDC for those WIC agencies that obtain hematocrits only in whole numeric values.

**Clarifications/
Guidelines**

2. Definition of Trimester: CDC defines a trimester as a term of three months in the prenatal gestation period with the specific trimesters defined as follows in weeks:
 - First Trimester: 0-13 weeks
 - Second Trimester: 14-26 weeks
 - Third Trimester: 27-40 weeksFurther, CDC begins the calculation of weeks starting with the first day of the last menstrual period. If that date is not available, CDC estimates that date from the estimated date of confinement (EDC). This definition is used in interpreting CDC's Prenatal Nutrition Surveillance System data, comprised primarily of data on pregnant women participating in the WIC Program.
3. For postpartum and breastfeeding applicants younger than 12 years, use the anemia values for 12 to 15 year olds. Based on the age of the applicant, there should be other risk criteria that will qualify her for the WIC program.
4. Blood test MUST be performed at each certification prior to 24 months of age.
5. Blood test may be waived for children 2 to 5 years old, if at previous certification:
 - Hematocrit was 33% or greater, or
 - Hemoglobin was 11.1 g/dL or greaterAND
 - Only qualified for risks 422 – Inadequate diet, and/or 424 – Inadequate vitamin or mineral supplementation

Justification

Hemoglobin (Hb) and hematocrit (Hct) are the most commonly used tests to screen for iron deficiency anemia. Measurements of Hb and Hct reflect the amount of functional iron in the body. Changes in Hb concentration and Hct occur at the late stages of iron deficiency. While neither an Hb or Hct test are direct measures of iron status and do not distinguish among different types of anemia, these tests are useful indicators of iron deficiency anemia.

Iron deficiency is by far the most common cause of anemia in children and women of childbearing age. It may be caused by a diet low in iron, insufficient assimilation of iron from the diet, increased iron requirements due to growth or pregnancy, or blood loss. Anemia can impair energy metabolism, temperature regulation, immune function, and work performance. Anemia during pregnancy may increase the risk of prematurity, poor maternal weight gain, low birth weight, and infant mortality. In infants and children, even mild anemia may delay mental and motor development. The risk increases with the duration and severity of anemia, and early damages are unlikely to be reversed through later therapy.

References

1. Institute of Medicine: Nutrition During Pregnancy; National Academy Press; 1990; pp. 284-285.
2. Institute of Medicine: Iron Deficiency Anemia: Recommended Guidelines for the Prevention, Detection, and Management Among US Children and Women of Childbearing Age; 1993.
3. Institute of Medicine: WIC Nutrition **Risk** Criteria: A Scientific Assessment; 1996; pp. 154-159.
4. Morbidity and Mortality Weekly Report: CDC Criteria for Anemia in Children and Childbearing-Aged Women; April 3, 1998; Vol. 47; No. RR-3.
5. Centers for Disease Control and Prevention: Prenatal Nutrition Surveillance System User's Manual. Atlanta, **GA**: CDC; 1994; pp. 3-8.