

# Hemoglobin or Hematocrit

## CHILD AND TEEN CHECKUPS (C&TC) FACT SHEET FOR PRIMARY CARE PROVIDERS

### C&TC Requirements

#### General

Hemoglobin (Hb) or Hematocrit (Hct) screening is required at one C&TC visit between 9 and 15 months of age and once between 12 and 20 years of age for all menstruating females.

#### Personnel

A medical assistant or lab technician can complete the screening. A licensed health care provider must interpret the results and ensure appropriate follow-up: physician, nurse practitioner, physician assistant, or registered or public health nurse (RN, PHN) who has completed the C&TC Comprehensive Screening training through the Minnesota Department of Health (MDH).

#### Documentation

Documentation forms should contain a complete record of laboratory test results or indicate where they are in the chart.

For documentation examples, refer to the [C&TC Provider Documentation Forms \(mn.gov/dhs\)](https://mn.gov/dhs).

### Procedure

Three basic methods are used to determine Hb concentration and Hct level:

- Venipuncture with analysis by an automated cell counter
- Capillary sampling with analysis by a hemoglobin meter
- Capillary sampling with a microhematocrit analysis by centrifuge

#### Hb/Hct Anemia Cutoffs for C&TC

Sex assigned at birth	Age	Hb (<g/dl)	Hct (<%)
Both	6 months – 2 years	11.0	32.9
Both	2 – 5 years	11.1	33.0
Both	5 – 8 years	11.5	34.5
Both	8 – 12 years	11.9	35.4
Females (non-pregnant)	12–15 years	11.8	35.7
Females (non-pregnant)	15-18 years	12.0	35.9
Females (non-pregnant)	≥18 years	12.0	35.7

(Centers for Disease Control and Prevention, 1998). Note: Hb and Hct values may vary depending on the laboratory or specific test used.

#### Follow-Up

All infants and youth with Hb or Hct values below the cutoffs per age on the above table should have further evaluation and follow-up (Baker & Greer, 2010).

## Importance of Screening

Iron deficiency (ID) is the most common nutritional deficiency in the world. Iron Deficiency Anemia (IDA) is a common cause of anemia in young children (Baker & Greer, 2010).

IDA is associated with psychomotor and cognitive abnormalities in children (Baker & Greer, 2010).

## Health Disparities in Anemia

The rate of anemia in Minnesota's Women, Infants and Children (WIC) program is 1.7 times higher than the US general child population for all race/ethnic groups. Black/African American children experience about two times the rate of anemia compared to white children (Minnesota WIC Program, 2019).

## Professional Recommendations

### American Academy of Pediatrics

The AAP recommends universal screening of Hb concentration at approximately one year of age. This should include assessing risk factors associated with ID/IDA (Baker & Greer, 2010).

## Resources

### American Academy of Pediatrics

- [Bright Futures Periodicity Schedule \(aap.org\)](http://aap.org)

## Minnesota Department of Human Services

- [C&TC Schedule of Age-Related Screening Standards \(dhs.state.mn.us\)](http://dhs.state.mn.us)
- [Minnesota Health Care Programs \(MHCP\) Provider Manual - C&TC Section \(dhs.state.mn.us\)](http://dhs.state.mn.us)

## Minnesota Department of Health

- [Child and Teen Checkups \(C&TC\) \(health.state.mn.us\)](http://health.state.mn.us)
- [Women, Infants and Children \(WIC\) \(health.state.mn.us\)](http://health.state.mn.us)

## References

Baker, R. D., & Greer, F. R. (2010). Diagnosis and prevention of iron deficiency and iron-deficiency anemia in infants and young children (0-3 years of age). *Pediatrics*, 126(5), 1040-1050. doi:10.1542/peds.2010-2576

Centers for Disease Control and Prevention. (1998). *Recommendations to Prevent and Control Iron Deficiency In the United States*. Morbidity and Mortality Weekly Report.

Minnesota WIC Program. (2019). *Child Anemia in Minnesota WIC Fact Sheet*. Retrieved from <https://www.health.state.mn.us/docs/people/wic/localagency/reports/wtstatus/info/2019childanemia.pdf>

## For More Information

The Child and Teen Checkups (C&TC) program is administered through a partnership between the Minnesota Department of Human Services and the Minnesota Department of Health.

For questions about this fact sheet or to obtain this information in a different format, call 651-201-3650 email [health.childteencheckups@state.mn.us](mailto:health.childteencheckups@state.mn.us).

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