

Child Anemia in Minnesota WIC Fact Sheet, 2019

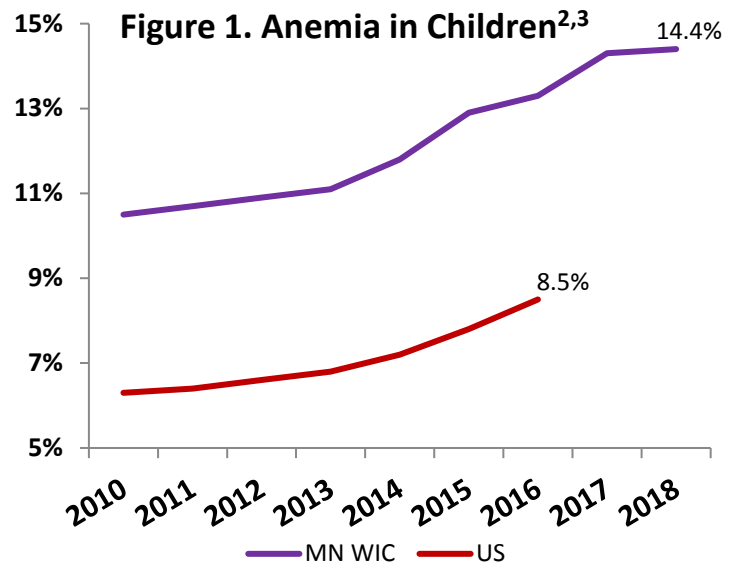
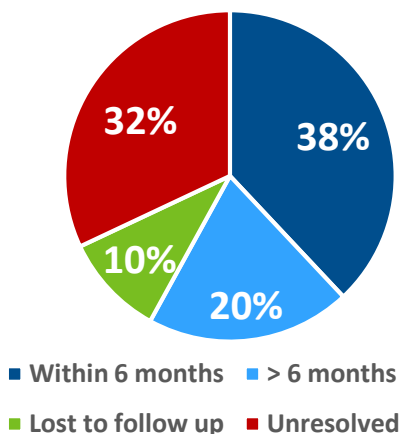
Anemia in young children can cause growth and developmental delays. Anemia is characterized by fatigue, irritability and cognitive difficulties and it is a key indicator of general nutrition status. Most anemia in children is due to iron deficiency. By the time anemia is apparent in the blood, iron deficiency has been long standing and damage to brain development may already be occurring.¹

The WIC Program serves children up to age five living in lower income households. WIC serves populations that are at higher risk for anemia than the general population.

Anemia in Minnesota WIC Children

- Anemia in WIC children has been increasing since 2010 reaching 14.4% in 2018. Anemia in MN WIC is 1.7 times higher than the rate in US general child population. (Figure 1).^{2,3}
- In MN WIC, 38% of anemia identified in 2017 was resolved (normal hemoglobin) within six months and an additional 20% within more than six months (Figure 2).²
- There are significant health disparities in anemia with Black/African-American children having nearly twice the rate of anemia as White children (Figure 3).²

Figure 2. Resolution of Childhood Anemia, 2017²

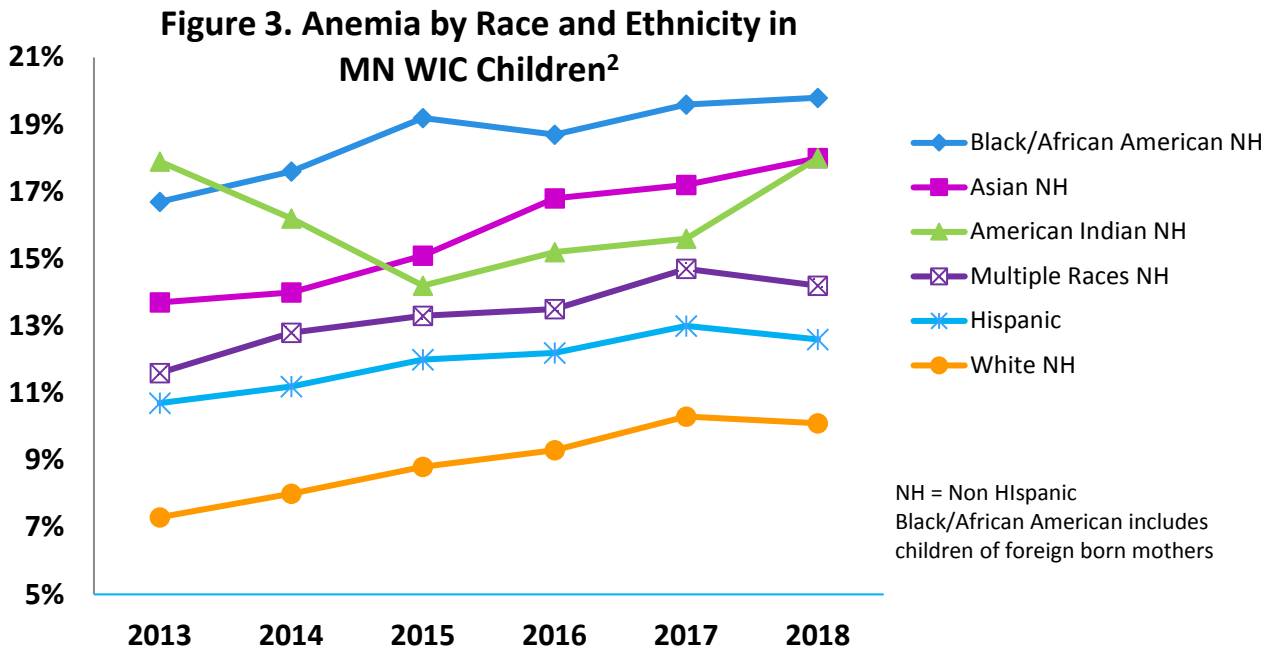


Minnesota WIC Addresses Anemia

- Screen for anemia between 9 and 12 months, 18 months of age and then annually;
- Provide individualized nutrition assessment to assess risk for iron deficiency anemia;
- Education to resolve or prevent anemia;
- Provide a nutritious food package high in iron and vitamin C;
- Encourage breastfeeding, iron supplementation of exclusively breastfed infants and introduction of iron-rich foods by six months of age;
- Promote appropriate bottle use and weaning from the bottle by 12-14 months of age;
- Prevent anemia during pregnancy by providing iron rich foods and recommending supplements; and
- Refer food-insecure families to other community programs and food resources.

Minnesota WIC refers children with a hemoglobin below 10 mg/dl to their health care provider.

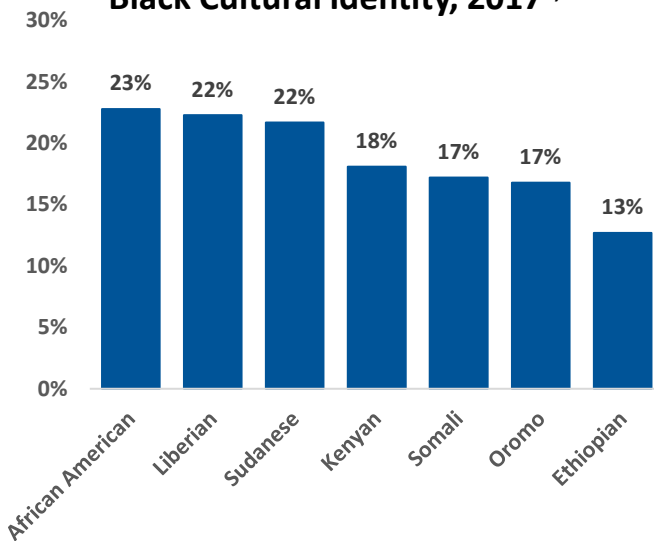
Health Inequities in Early Childhood Anemia



- In 2018, anemia increased in Black/African-American, Asian and American Indian groups. Anemia decreased in Hispanic, White NH and Multiple Races NH groups, which represent over half of the children with anemia (Figure 3).²
- All race/ethnic groups in MN WIC exceed the US rate of anemia (8.5%).³
- Anemia is highest in Black/African-American, Asian and American Indian populations. (Figure 3).²

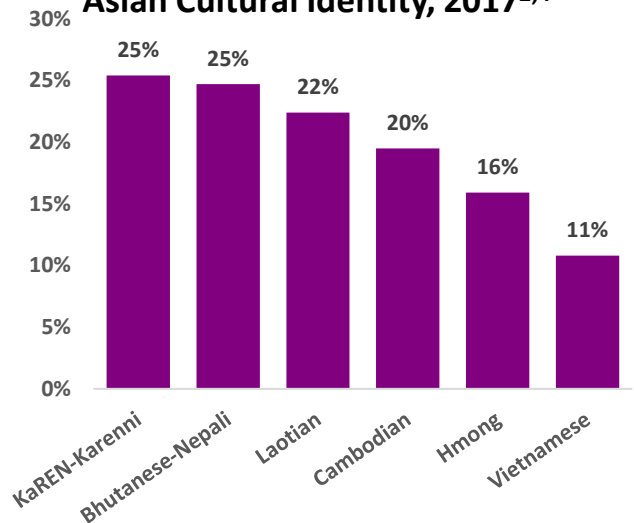
Anemia by Cultural Identity

Figure 4. Childhood Anemia by Black Cultural Identity, 2017^{2,4}



- Over 4,000 Black/African-American children in MN WIC have anemia. Children from families identifying as multi-generation African-American, Liberian or Sudanese have higher rates of anemia (Figure 4).

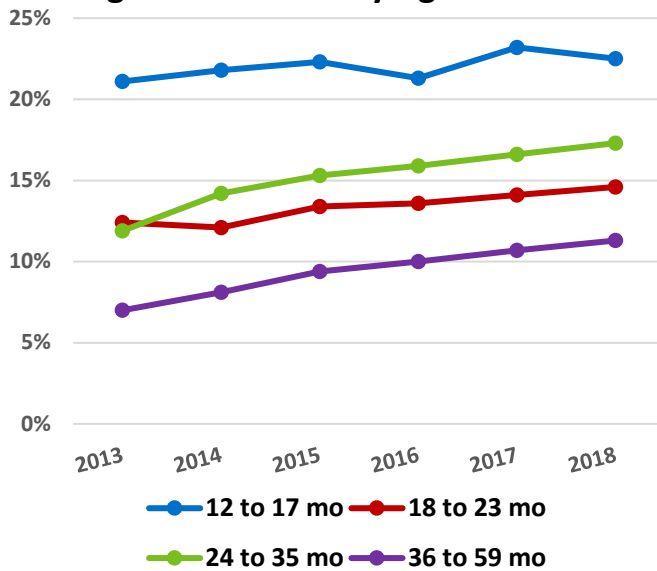
Figure 5. Childhood Anemia by Asian Cultural Identity, 2017^{2,4}



- Over 1,500 Asian children in MN WIC have anemia. Rates vary greatly by Asian cultural identity with KaREN/Karenni, Bhutanese-Nepali and Laotian children having the highest rates (Figure 5).

Anemia by Age Group

Figure 6. Anemia by Age MN WIC²



- In 2018, anemia decreased in children ages 12 to 17 months, but increased in all other age groups. Children ages 12 to 17 months experienced the highest rates of anemia (Figure 6).
- Feeding behaviors contribute to anemia or iron deficiency.
 - Not weaning from the bottle at 12 to 14 months and delaying introduction and progression of iron containing foods.⁵
 - Decline in the use of iron fortified infant cereals prior to one year.⁵
 - Consuming cow's milk during the first year of life due to low iron content, intestinal blood loss, and inhibition of iron absorption by milk casein and calcium.⁵
- Anemia in early childhood can have lifelong effects on cognition and behavior.¹

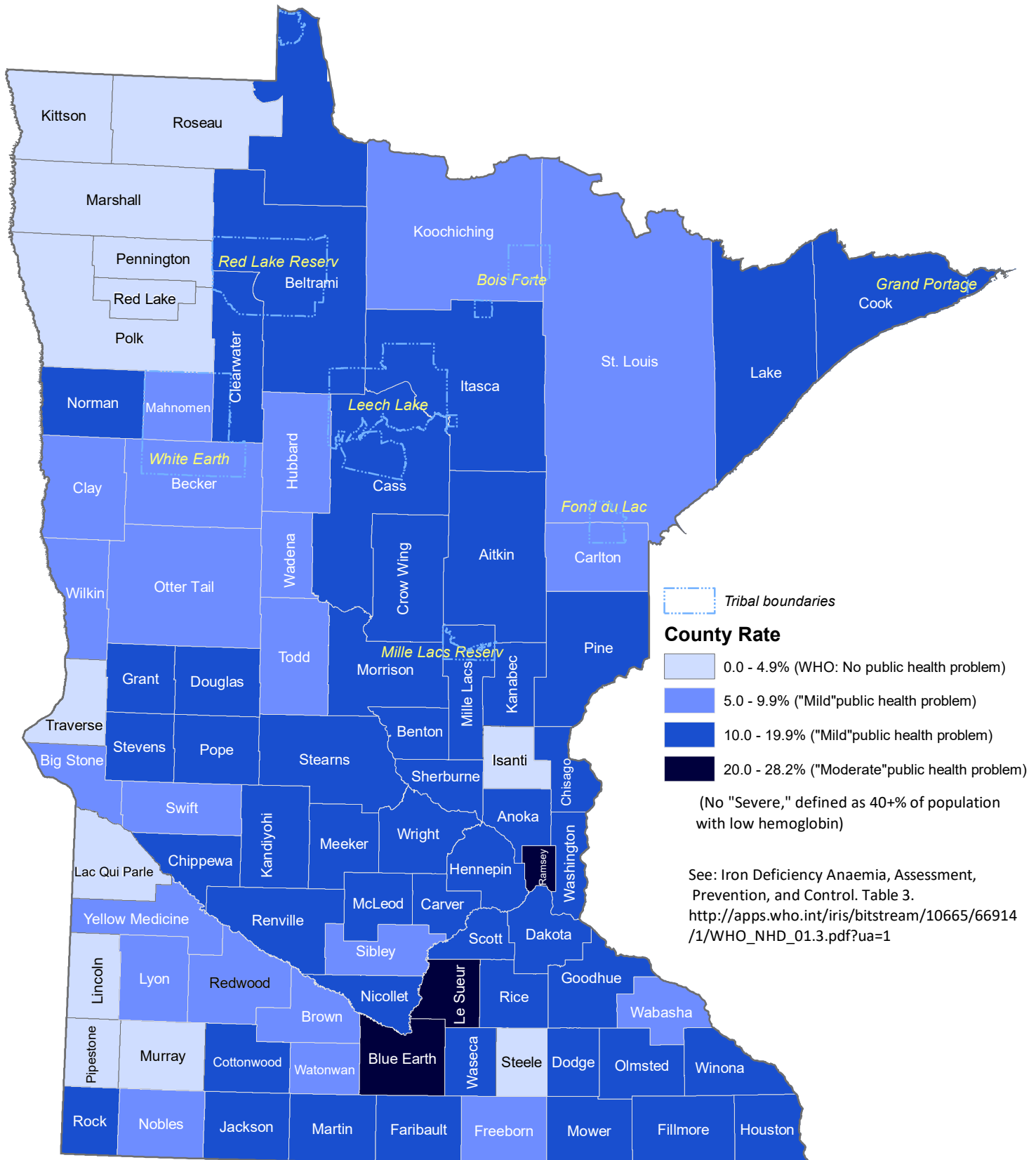
Actions to Prevent Anemia in Children

Prenatal ¹	0 to 12 months ¹	12 to 60 months ¹
<p>Promote infant iron stores</p> <ul style="list-style-type: none"> • Support healthy pregnancy to achieve full term and normal birth weight • Prevent or resolve anemia during pregnancy • Promote prenatal vitamin with iron along with iron-rich foods • Refer food insecure pregnant women to food resources 	<ul style="list-style-type: none"> • No cow or goat milk until one year of age • Drink from a cup starting at around six months • If exclusively breastfed, supplement with iron at four months (or at one month if preterm) until iron-containing solids are eaten • Begin iron-containing solids at around six months • Screen for anemia by 12 months of age 	<ul style="list-style-type: none"> • Wean from the bottle around 12 months • Eat iron-containing foods each day such as meats, legumes and fortified grains • Offer fruits and vegetables at meals and snacks • Avoid sugar beverages • Limit juice to four oz a day • Limit milk to 2 to 3 cups a day • Planned meals and snacks • Family mealtimes • Refer food insecure families to food resources⁶

References

1. Baker RD, Freer FR. Diagnosis and prevention of iron deficiency and iron-deficiency anemia in infants and young children (0-3 years of age), *Pediatrics* 2010; 126 (5) 1040-8, accessed Jan 2019.
2. Minnesota WIC Information System
3. [World Health Organization](#), accessed Jan 2019.
4. Minnesota Vital Statistics
5. Roess AA, Jacquier EF, Catellier DJ, Carvalho R, Lutes AC, Anater AS, Dietz WH. Food consumption patterns of infants and toddlers: Findings from the Feeding Infants and Toddler Study (FITS), 2016, *J Nutr* 2018;148 (3) 1525S-35S, accessed Jan 2019.
6. Moradi S, Arghavani H, Issah A, Mohammadi H, Mirzaei K. Food insecurity and anaemia risk: a systematic review and meta-analysis, *Public Health Nutr* 2018; 21 (16) 3067-79.

Anemia in Infants and Children Participating in MN WIC by County of Residence, CY 2018²



For more information:
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