DEPARTMENT OF HEALTH

Anemia in Pregnant and Postpartum Women
Minnesota WIC Fact Sheet, 2019

Anemia during and after pregnancy[¥] can cause health problems for mother and infant that persist into the future. Pregnancy anemia[¥] increases the risk of low birth weight and premature birth.[1] Anemia within the first 30 weeks of pregnancy is associated with autism spectrum disorder, intellectual disability and attention deficit/hyperactivity disorder in offspring.[2] Iron deficiency anemia during the third trimester can result in low iron stores in the newborn that may continue through the first year of life with potential lifelong consequences.[1,3]

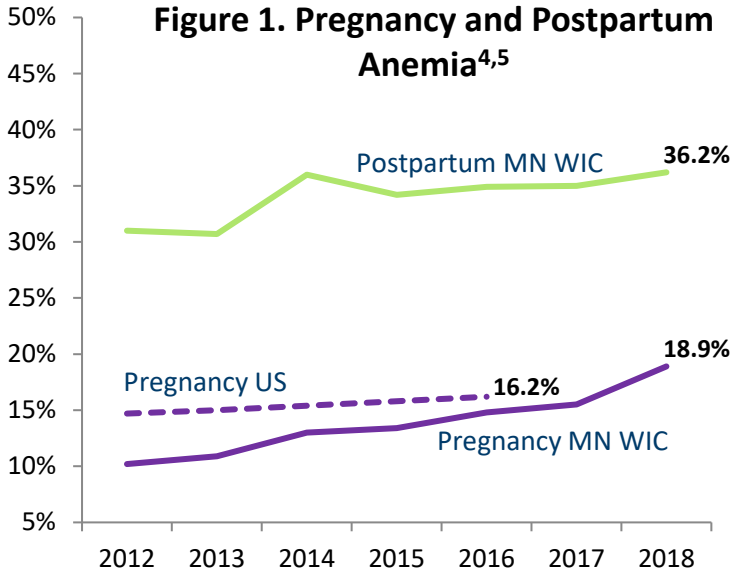
Anemia occurring after pregnancy[¥] is associated with postpartum depression, decreased milk supply, and anemia in subsequent pregnancies.[3]

Pregnancy and Postpartum Anemia in Minnesota WIC

- Since 2012, anemia among all pregnant women in the general population has been increasing nationwide and also for pregnant women in MN WIC. The MN WIC rate, 18.9%, is higher than the national rate of 16.2% (Figure 1).[4,5]
- In 2018, there was a sharp increase in pregnancy anemia. WIC participation has been decreasing in recent years partially linked to declining numbers of people in poverty and to lower birth rate.[6] Consequently, WIC may be serving a higher risk population.
- During 2018, MN WIC initiated a greater focus on anemia in response to rising rates, which likely increased identification and follow-up.
- Anemia in postpartum women has increased steadily since 2015. In 2018, 36% of women participating in MN WIC had anemia during the postpartum period (Figure 1).[3]

Pregnancy anemia increases the risk of low birth rate by 65% and the risk of premature birth by 111%.[6] The cost of a low birth weight infant hospital stay averages $27,200 more than a normal weight infant.[7,8]

Figure 1. Pregnancy and Postpartum Anemia[4,5]



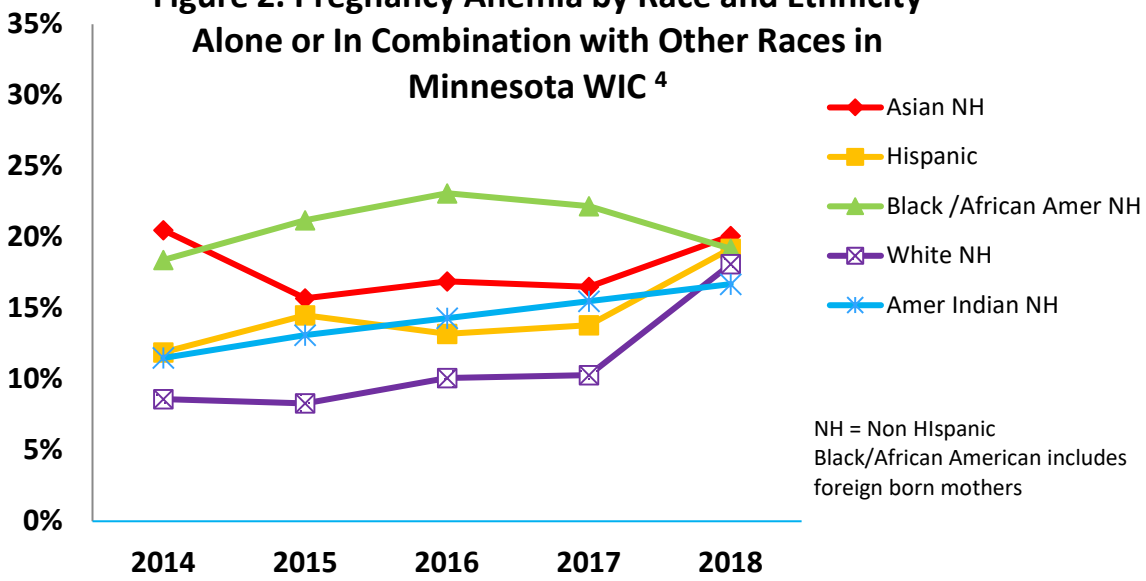
Minnesota WIC Addresses Anemia

- Screening for anemia at WIC certification;
- Individualized nutrition assessment to identify risk for iron deficiency anemia;
- Counseling and education to prevent or resolve anemia;
- Providing a nutritious food package that increases intake of iron and vitamin C;
- Encouraging the use of prenatal vitamin/mineral supplement with adequate amounts of iron during pregnancy;
- Promoting routine prenatal and postpartum health care visits;
- Referring food-insecure families to other community nutrition programs and food resources; and
- Referring women with low hemoglobin results to health care provider for follow-up.

[¥] Anemia refers to low hemoglobin of <11.0 mg/dl first and third trimesters, <10.5 mg/dl second trimester, and <12.0 mg/dl postpartum. · Low hemoglobin is most often due to iron deficiency.

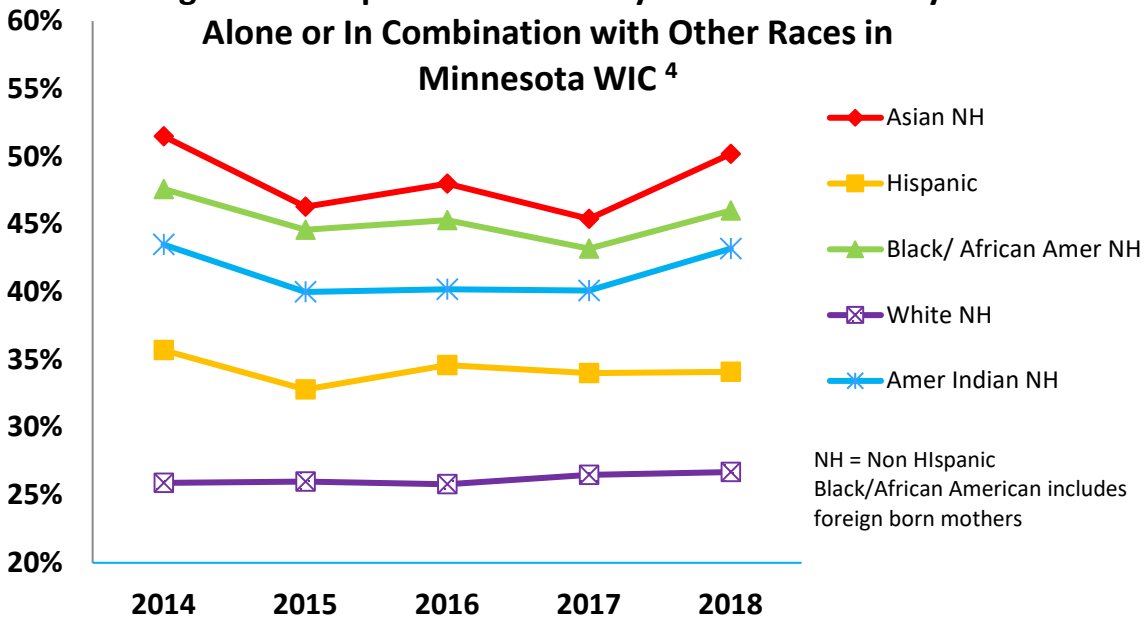
Health Inequities in Pregnancy and Postpartum Anemia

Figure 2. Pregnancy Anemia by Race and Ethnicity Alone or In Combination with Other Races in Minnesota WIC [4]



- In 2018, there was a sharp increase in pregnancy anemia in White, Hispanic and Asian women; a steady increase in American Indian women; and a modest decrease in Black/African American women (Figure 2).[4]
- It is likely that higher rates observed in 2018 were partially due to increased focus on anemia screening and education. In general, one out of five pregnant women experience anemia.

Figure 3. Postpartum Anemia by Race and Ethnicity Alone or In Combination with Other Races in Minnesota WIC [4]



- Postpartum anemia increased for all race ethnicities in 2018 (Figure 3).[4]
- In 2018, Asian women had twice the rate of postpartum anemia compared with White women (Figure 3).[4]
- Asian, Black/African-American and American Indian women have the highest rates of postpartum anemia (Figure 3).[4]

Anemia by Cultural Identity

Figure 4. Postpartum Anemia by Black Cultural Identity in MN WIC, 2018[4]

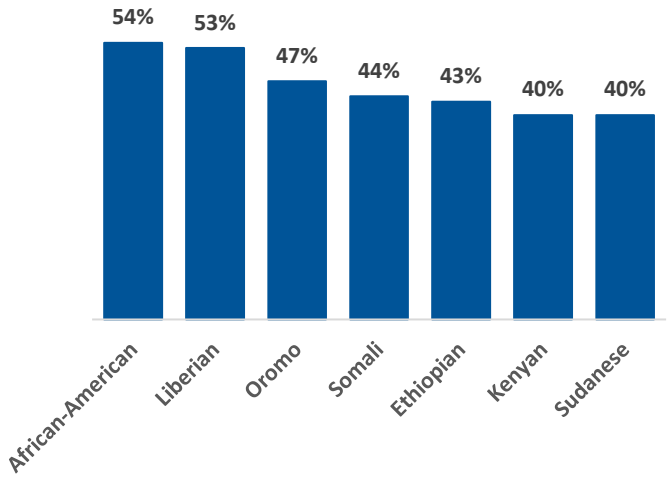
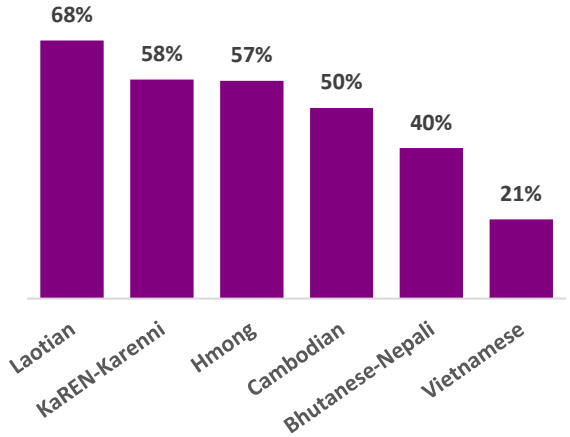


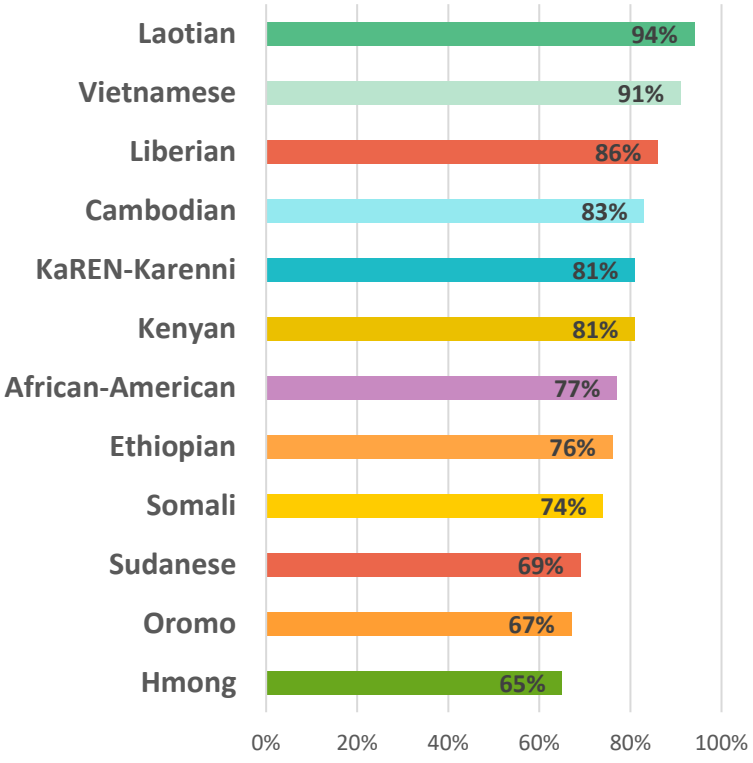
Figure 5. Postpartum Anemia by Asian Cultural Identity in MN WIC, 2018[4]



- There were striking differences in postpartum anemia rates by Black and Asian cultural identities. (Figures 4, 5)[4]
- Each of these cultures has its own traditions and dietary practices.
- Evaluation of WIC anemia data by cultural identity enriches our understanding in ways that allow for more effective, targeted services.

Multivitamin/Mineral Use

Figure 6. Daily Multivitamin Use During Pregnancy by Cultural Identity in MN WIC, 2018[4]



- In 2018, 81% of all women in Minnesota WIC reported taking a daily multivitamin during pregnancy and 22% prior to pregnancy.[4]
- Daily multivitamin use varied by cultural identity, with women identifying as Hmong, Oromo and Sudanese reporting lowest levels (Figure 6).[4]
- Pregnant women need guidance on acceptable multivitamin and mineral supplements. Some cultural groups seek gelatin-free capsules. All women need to be advised against taking gummy supplements, as very few contain iron.

References

[1]Haider BA, Olofin I, Wang M, Spiegelman D, Ezzati M, Fawzi WW. *Anaemia, prenatal iron use, and risk of adverse pregnancy outcomes: systematic review and meta-analysis*. BMJ 2013; 346:f3443 Accessed Sep 2019.

[2]*Nutritional anaemias: tools for effective prevention and control*. Geneva: World Health Organization; 2017. Accessed Sep 2019.

[3]Wiegersma AM, Dalman C, Lee BK, Karlsson H, Gardner RM. *Association of prenatal maternal anemia with neurodevelopmental disorders*. JAMA Psychiatry 2019; doi 10.1001 2309 epub. Accessed Sep 2019.

[4]Minnesota WIC Information System

[5]World Health Organization, Global Health Observatory Data Repository/World Health Statistics. *Prevalence of anemia among pregnant women*. Accessed Sep 2019.

[6]Oliveira V. *WIC participation continues to decline*. USDA. June 2017. Accessed Sep 2019.

[7]Jung J, Rahman M, Rahman S, Swe KT, Islsam R, Rahman O, Alder S. *Effects of hemoglobin levels during pregnancy on adverse maternal and infant outcomes: a systematic review and meta-analysis*. Annals NY Acad Science 2019; 1450 (1) :69-82. Accessed Sep 2019.

[8] Statistical Brief #163. Healthcare Cost and Utilization Project (HCUP). September 2013 . Agency for Healthcare Research and Quality, Rockville MD. Last accessed Sept2019.

Iron Status in Postpartum Women by County of Residence, 2018

2018 Minnesota WIC Rate: 36.2 %

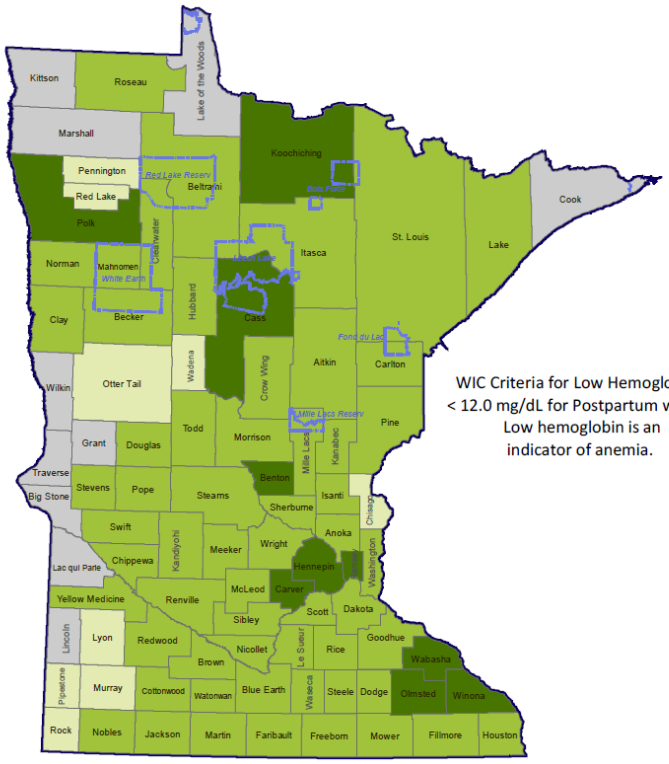
Tribal WIC grantee

Too few to report (n < 30 Postpartum)

Rate of Low Hemoglobin/ Anemia (WHO *)

- ≤ 4.9% No public health problem
- 5.0 ≤ 19.9% Mild public health problem
- 20.0 ≤ 39.9% Moderate public health problem
- 40.0 ≤ 50.9% Severe public health problem

* World Health Organization (WHO) categories.



WIC Criteria for Low Hemoglobin: < 12.0 mg/dL for Postpartum women Low hemoglobin is an indicator of anemia.

- Postpartum anemia is a significant public health problem throughout Minnesota with several counties considered to be at the "severe public health problem" level.[4,5]
- Supplementation with an iron-containing multivitamin/mineral supplement can prevent and treat iron deficiency anemia.

Actions to Prevent Anemia in Women

Preconception

- Take 400 mcg DFE of Folic Acid daily.
- Eat iron-containing foods each day, such as meats, legumes and fortified grains along with foods high in Vitamin C.
- Space pregnancies at 18 or more months apart.
- Resolve anemia from previous pregnancy before becoming pregnant.

Prenatal

- Get early and regular prenatal care.
- Take a daily prenatal supplement with 27 mg iron and 600 mcg DFE of Folic Acid. No gummies, as few contain iron.
- Eat iron-containing foods each day along with foods high in Vitamin C.
- Manage nausea and vomiting.
- If eligible, participate in WIC early in pregnancy and redeem benefits for all WIC foods each month. Participate in SNAP and food shelves if eligible.

Postpartum

- Get postpartum health care.
- Continue prenatal supplements with iron as needed. No gummies, as few contain iron.
- Eat iron-containing foods each day along with foods high in Vitamin C.
- Participate in WIC as long as eligible. WIC provides 6 to 12 months of food for postpartum women based on breastfeeding status. Redeem benefits for all WIC foods each month.
- Enroll infant in WIC if eligible.

MINNESOTA WIC
Women, Infants & Children Nutrition Program

For more information:
https://www.health.state.mn.us/people/wic/index.html
1-800-657-3942
Sandy.Sather@state.mn.us
Rosie.Pierce-Martin@state.mn.us
Joni.Geppert@state.mn.us

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