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Abstract Title : Implementation of a multidisciplinary quality improvement project standardizing an approach to screening and treating iron deficiency in pregnancy

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Abstract Body

Introduction: Iron deficiency (ID) is a global epidemic with discrepant definitions of both ID and anemia in pregnancy. Iron requirements increase during pregnancy and deficiencies should be corrected to avoid adverse maternal-fetal outcomes. Current guidelines recommend only screening for ID during pregnancy in the presence of anemia despite the global epidemic of ID in reproductive-age females and availability of ferritin as a high-value biomarker. To address this unmet need and gap in care, we implemented a standardized approach to screening and treating ID in pregnancy.

Methods: In March 2024 at the ASH Quality Improvement Training Institute, our multidisciplinary team with representatives from hematology, obstetrics, anesthesiology, and patient blood management developed a quality improvement (QI) initiative to standardize an approach to screening and treating ID in pregnancy. After local dissemination and education of the standardized care pathway via patient/provider handouts and divisional presentations, obstetric providers paired ferritin testing with two standard hemoglobin assessments in early (8-12 weeks gestation) and late (24-28 weeks gestation) pregnancy to minimize lab draws and optimize logistics. The process was facilitated by modifying prenatal order sets in the electronic medical record. ID was defined as a ferritin <50 mcg/L and anemia was defined as a hemoglobin <11 g/dL. If ID was present in early pregnancy, oral iron supplementation was offered; if ID was present in late pregnancy, an IV iron infusion (low molecular weight iron dextran, 1 gram) was offered regardless of anemia status.

Results: Obstetric data were captured pre-intervention from January 2023 – February 2024 (n=2097 pregnancies) and post-intervention from March 2024 – June 2025 (n=2429 pregnancies).

Ferritin screening rates improved from 10% (205/2097) to 63% (1534/2429). Of those ferritin tests, 66% demonstrated ID in the pre-intervention cohort and 69% demonstrated ID in the post-intervention cohort. Anemia rates by measured hemoglobin during pregnancy were 25% in both the pre-intervention and post-intervention cohorts despite 92% having documentation of prenatal vitamins containing iron (PNV).

Iron dextran infusion rates improved from 0.9% (18/2097) to 21% (507/2429). Of those receiving IV iron dextran, 39% had documentation of both PNV as well as additional oral iron supplementation. Overall, the median hemoglobin improved from 10.7 to 11.8 g/dL in those receiving IV iron dextran. This included increases from 12.0 to 12.8 g/dL in those without anemia and from 11.2 to 12.1 g/dL in those with ferritin 30-50 mcg/L after IV iron.

Prior to initiation of this QI project, 3.1% of pregnancies (65/2097) required a blood transfusion during admission for delivery. After initiation of this project, 2.7% of pregnancies (65/2429) required a blood transfusion, of which 46 did not receive IV iron and 33 did not have a ferritin checked.

Conclusions: ID in pregnancy is underrecognized and undertreated. Through a multidisciplinary QI initiative, screening for ID improved from 10% to over 60% of pregnancies within one year of project initiation. Over the same period, there was a 20-fold increase in the number of IV iron dextran infusions resulting in an increase in median hemoglobin by over 1 g/dL and a signal for decreased transfusion requirements. This occurred despite almost universal supplementation with a PNV. This standardized approach to screening and treating ID was performed by the obstetrics teams and could be implemented within varied practice models. Given the potential implications for reevaluation of appropriate reference ranges and equitable prenatal care globally, additional studies are warranted to better characterize ID in pregnancy as well as clinical sequelae for both mothers and infants. Simultaneously, discussions are needed around current guidelines and recommendations for both screening and treating ID in pregnancy.

Keywords: Diseases, Iron Deficiency, Quality Improvement, Metabolic Disorders, Women's Health, Clinical Practice (Health Services And Quality)

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