Randall Children's Hospital

Co-Management Guideline for Primary Care/Specialty Care Collaboration

Iron deficiency ± anemia in adolescent patients

Hematology/Oncology

Phone: **503-276-9300**
Fax: **503-276-9351**

Introduction

Iron deficiency is the most common cause of anemia in children and is particularly prevalent in young children (see young children guidelines) and adolescents. Ferritin is a useful iron study, indicating the amount of stored iron. Labs must be interpreted by age-specific norms (available in Harriet Lane and others, vary slightly by reference); the table below shows the lower limit of normal (LLN) or upper limit of normal (ULN) by age per Nathan and Oski's Hematology of Infancy and Childhood, 8th Ed.:

Age	Hemoglobin (g/dL, LLN)	MCV (fL, LLN)	Ferritin (ng/mL, LLN)	TIBC (ug/dL, ULN)
6-12 years	12	77	10	508
12-18 years	13 (Males) 12 (Females	78	23 (Males) 6 (Females)	470 (Males) 564 (Females)

Evaluation and Management

Elicit history regarding patient and/or affected family member

- Red flags: bleeding (menorrhagia, GI, trauma, frequent and prolonged epistaxis), renal failure, and hemodynamic instability
- Diet: Lack of iron-rich foods, excessive milk or tea intake
- Symptoms: Fatigue, pallor, pica, dizziness, pre-syncope/syncope, poor attention and poor working memory, baseline constipation or GI pain limiting PO iron tolerance
- Social factors: risk of poor adherence to PO iron

Labs to consider

- **All patients: CBC with differential, iron deficiency panel (including ferritin) if not done in past 30 days:**
  - Labs consistent with IDA: low hemoglobin, low MCV, high RDW, +/- high platelets, ferritin less than 10-20 with concurrent anemia, elevated TIBC for age
- **Select cases:**
  - Excessive bleeding/menorrhagia: Von Willebrand panel (includes PT/INR, PTT), fibrinogen
  - GI symptoms: Hemoccult
  - Jaundiced or normocytic: Reticulocyte count, Coombs
  - Adenopathy, hepatosplenomegaly, weight loss, bone pain, unexplained fevers: LDH, uric acid, LFTs

(continued)

Management while awaiting appointment

- **Hemoglobin ≥7 g/dL: low risk, outpatient management: intermediate risk, outpatient management usually indicated.** Discuss with hematology for urgent outpatient evaluation.
  - PO iron for goal of 50-100 mg/dose every other day
  - Ferrous sulfate 65 mg/tablet is standard; low cost, easily prescribed
  - Alternatives for adolescents with constipation, concern for poor tolerance: Novaferrum (available on Novaferrum.com and Amazon.com) "All good" iron 50 mg/tablet, Bariatric fusion soft chews, other polysaccharide iron
  - Note that: Iron can cause constipation, discuss bowel regimen. Iron will cause black stools, this is not a reaction. Chewable and liquid iron will stain teeth; brush teeth after each dose. Iron should not be taken with dairy. Vitamin C increases iron absorption.
- **Hemoglobin 4-6.9 g/dL without active bleeding and stable vital signs:** intermediate risk, outpatient management usually indicated. Discuss with hematology for urgent outpatient evaluation.
  - PO iron for patients with anticipated good adherence and no risk factors
  - Strongly consider IV iron; this can be given outpatient
  - PRBC only if ongoing blood loss, hemodynamic instability
- **Hemoglobin 4-6.9 g/dL with active bleeding, or any Hemoglobin <4 g/dL:** high risk, hospitalization likely indicated
  - Strongly consider PRBC. Requires PICU admission for monitoring of patient whose hemoglobin is <5 g/dL, per RCH policy. Use small aliquots (2-5 mL/kg over 4 hours)
  - IV iron could be considered in patients who are hemodynamically stable and prefer to avoid transfusion
  - PO iron should be initiated once hemodynamically stable

When to refer

- Hemoglobin less than 7 g/dL. PO iron should be initiated once hemodynamically stable
- Failure of hemoglobin to improve with oral iron replacement after 1-3 months
- Please note: Hematologist will determine if IV iron is appropriate. Most patients with IDA do not require IV iron.

Referral process

Randall Children's Cancer and Blood Disorders Program

Please send pertinent lab results

Phone: **503-276-9300** or toll-free **877-KIDS-ONC/877-543-7663**

Fax: **503-276-9351** or we can view labs via **Epic Care Everywhere**

Legacy One Call: 1-800-500-9111

Updated September 2024

Find this and other co-management/referral guidelines online at: ***www.legacyhealth.org/randallguidelines***

RANDALL CHILDREN'S HOSPITAL
LEGACY EMANUEL