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Building Nunavut Together
Nunavuliuqatigiingniq
Bâtir le Nunavut ensemble

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Department of Health
Munaqhiliqiyitkut
Ministère de la Santé

Protocol for Identifying and Treating Iron Deficiency Anemia in Infants and Young Children

Introduction

Iron Deficiency in infants and young children is a preventable condition that may lead to irreversible developmental and cognitive deficits. Iron deficiency anemia (IDA) is the most severe form of iron deficiency. The major risk factors for IDA in this age group are low socioeconomic status, early introduction of cow's milk and delayed introduction of iron-rich solid foods.[1] It has been estimated that 30% of infants in Nunavut are affected by iron deficiency.[2] The purpose of this protocol is to assist in identifying and treating IDA among infants and preschool aged children.

Identifying Infants and Young Children with IDA

- Finger or heel prick hemoglobin (Hgb) tests should be done at every well-child visit from 6 months to 2-3 years.

Results from Finger or Heel Prick

Result of Heel Prick for Hgb	Action
Hgb > 110 g/L	Reinforce importance of breastfeeding and introduction of iron rich solid foods at 6 months.
Hgb < 110 g/L	• Take a venous blood sample for CBC (Hgb, MCV), ferritin & CRP. • Review handouts: "*Baby's First Foods*" and "*When your baby has low blood iron*".[3]

Results from Venous Sample

- **Hgb < 80 g/L is very serious and emergency room, physician/NP should be notified immediately**

Result from Venous Sample	Possible Diagnosis	Action
Hgb <110 g/L MCV = normal/high	Normocytic/ Macrocytic Anemia	Refer to a physician or NP for further investigation.
Hgb <110 g/L MCV <70 fL Ferritin <10µg	Iron Deficiency Anemia (IDA)	See *Treating Infant with IDA.*
Hgb <110 g/L MCV <70 fL Ferritin = normal	Possible IDA or Microcytic Anemia	Repeat venous blood sample for CBC (Hgb, MCV), ferritin & CRP. Refer to a physician or NP for further investigation.

[1] Canadian Paediatric Society, Dietitians of Canada, Health Canada. *Nutrition for healthy term infants*. Ottawa: Minister of Public Works and Government Services, 2005.
[2] Christofides A, Schauer C, Zlotkin SH. Iron deficiency and anemia prevalence and associated etiologic risk factors in First Nations and Inuit communities in northern Ontario and Nunavut. Can J Public health 2005; 96:304-7.
[3] Pdf available to download from http://www.gov.nu.ca/health/information/fact-sheets-0

Treating IDA in Infants and Young Children

Initial Appointment

1. Dispense 4 weeks of elemental iron 6 mg/kg/day up to 150 mg/day
    - Maximum **single dose** of elemental iron is 60 mg; the 6 mg/kg/day may need to be given in 2-3 doses
    - Liquid iron preparations can stain teeth: prevent by mixing the dose with water or fruit juice or have child suck through a straw or use a dropper to the back of the mouth and then rinsing the mouth thoroughly with juice or water after giving dose.
    - Remind family to not give iron with milk or tea as it decreases absorption.
2. Review sources of iron in infant's diet including iron fortified infant formula if not breastfeeding.
3. Dispense 2 weeks of polyethylene glycol (PEG 3350 or Pegalax™) to manage constipation if indicated (see below).
4. Encourage high fibre foods and increased water intake.
5. Book a follow-up appointment for 1 month.
6. Advise mother to make an earlier appointment if additional PEG 3350 required to manage constipation.
7. Obtain prescription for iron for another month with two repeats from physician or NP for follow-up visit in 1 month.
8. Obtain prescription for PEG 3350 for one month with two repeats from physician or NP for follow-up visit.

**** Advise patients that iron can be toxic to children and should always be safely stored ****

Follow up Appointments

1 month follow-up from initial appointment to treat IDA:

- Dispense prescription for elemental iron from physician/NP for 1 month.
- If required, dispense prescription of PEG 3350 from physician/NP for 1 month.
- Ask parents about their experiences with giving their infant iron – reinforce how important the iron is to treat their infant's anemia.
- Address concerns/side effects from medication.
- Book follow-up visit in another month.

2 months follow-up from initial appointment to treat IDA:

- Repeat venous blood sample for CBC (Hgb, MCV), ferritin & CRP. (Ensure no intercurrent illness).
- Consult with physician/NP when results available.
- Dispense prescription for elemental iron from physician/NP for 1 month.
- Dispense PEG 3350 if required.
- Ask parents about their experiences with giving iron – reinforce importance of iron.
- Book monthly visits to address concerns/side effects and dispense another month of elemental iron/PEG 3350.

Management of Constipation

- Constipation may be a side effect of iron supplementation; unfortunately this can lead to parents not giving the iron.
- If infant has a tendency to be constipated, or the parents are very concerned about this side effect, it would be reasonable to prescribe two weeks of PEG 3350 (Pegalax™) at the same time as the iron.
- Let parents know that the onset of action is 2-4 days.

Child's Weight (kg)	Dose of PEG 3350 (g)	Amount of PEG 3350
4-8 kg	4 g PO daily	¼ bottle cap
9-16 kg	8 g PO daily	½ bottle cap
≥17 kg	17 g PO daily	1 bottle cap

Dose limit: 17 g/day **Directions:** Mix in approximately 120-240 mL of water or other liquid.