

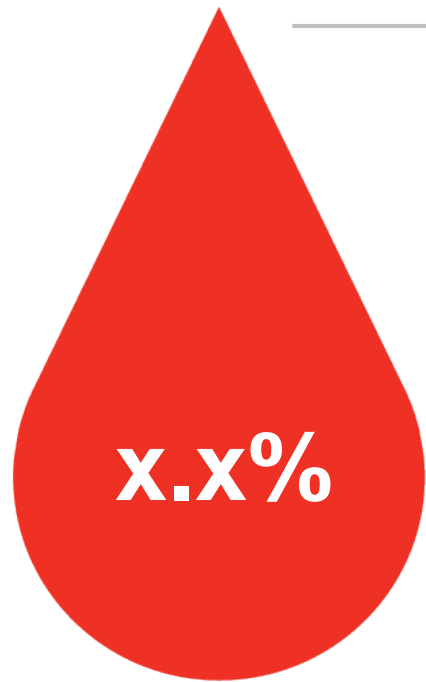
# The problem worth solving

Maternity blood management – Improving identification and management of iron deficiency and anaemia

# How to use these slides

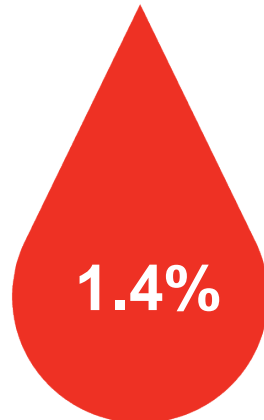
- Customise with your health service data
- Present to executive and key stakeholders to gain endorsement to proceed with improvement initiatives
- Add more local information as desired
- Delete slides if not relevant for audience

# The problem worth solving



**x.x%**

Our obstetric transfusion rate is xxxx compared to NSW state-wide published data



**1.4%**

NSW state-wide average obstetric transfusion rate

Transfusion rate

# The problem worth solving



Anaemia at delivery

**x.x%**

Our rate of anaemia at delivery is x.x%

Compared to Hospital ABC (3.6%) and Hospital XYZ (11.5%) post-improvement.

# The problem worth solving

**x.x%**

of anaemic women  
at delivery received  
a transfusion

**x.x%**

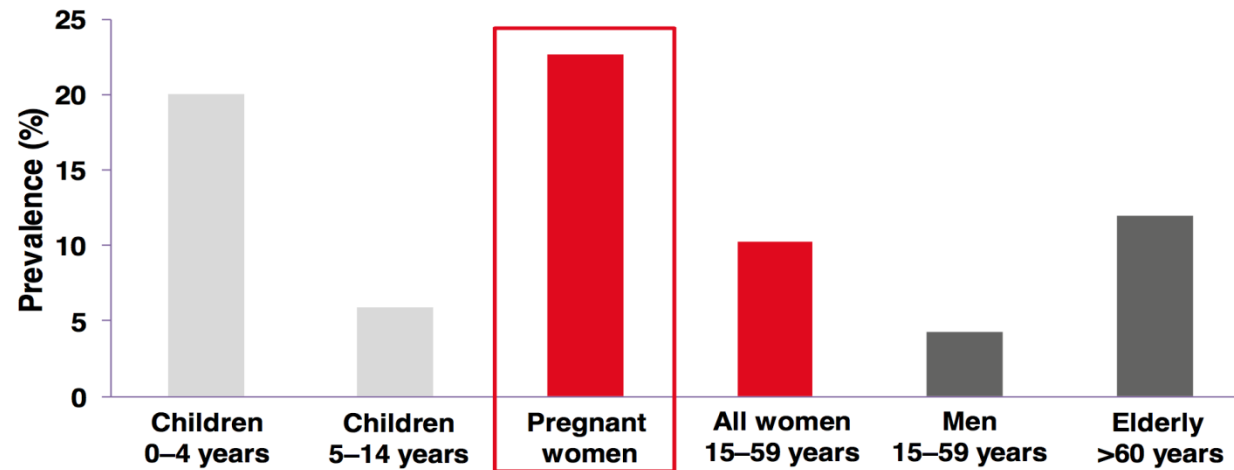
of non-anaemic  
women at delivery  
received a transfusion



In 2018, anaemic maternity patients at delivery ( $\leq 110$  g/L) had a **x times higher** chance of being transfused.

# Risk factors for anaemia

- Pregnancy and breastfeeding are risk factors
- Iron deficiency is the most common cause



Reference Looker AC et al. JAMA 1997;(12):973-976



# Personal impact of iron deficiency

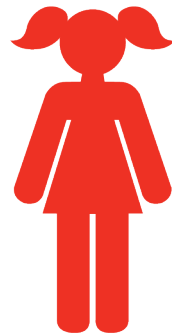


## Newborn

Low birth weight, higher risk of fetal death or abnormalities.

## Infant

Alteration in brain function, increased risk of infection and death.



## Children

Poor exercise tolerance and school performance.



## Adult

Poor productivity, cognitive and behavioural problems.



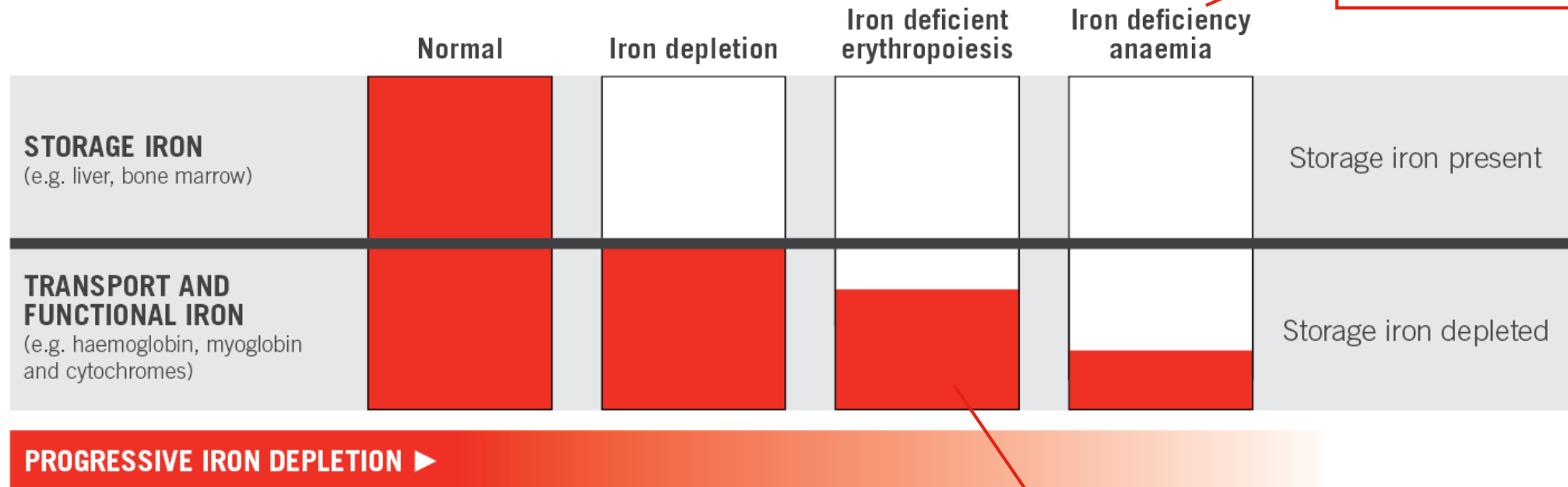
## Pregnancy

Higher risk of pre-term delivery, retarded IUG,  $\leq 5x$  maternal mortality.

**Reference:** Zhang Y, Jin L, Liu JM, Ye R, Ren A. J Pediatr. Maternal Hemoglobin Concentration during Gestation and Risk of Anemia in Infancy: Secondary Analysis of a Randomized Controlled Trial. 2016.

# Spectrum of iron deficiency

Anaemia is one end of the spectrum of iron deficiency



Iron deficiency **without** anaemia is three times as common as iron deficiency anaemia



# Patient blood management guidelines



## Patient blood management (PBM) obstetrics and maternity

Maximise red cell mass at the time of delivery and reducing reliance on transfusion as salvage therapy to treat blood loss.

# Aim of the pilot

Consider including a **SMART** aim statement i.e. Specific, Measurable, Aspirational, Realistic, Time based.

## **Example aim statement**

*'To optimise antenatal haemoglobin levels and iron stores in 80% of women who have their first visit at  $\leq 20$  weeks and to increase the use of iron therapy in 80% of women diagnosed with ID booked between 1 September and 31 December 2017'*

# Implementation tools



## TOOLKIT FOR MATERNITY BLOOD MANAGEMENT

Improving identification and management of iron deficiency and anaemia

Download the full suite of resources at: [transfusion.com.au/maternity](https://transfusion.com.au/maternity)

**Australian Red Cross BLOOD SERVICE**

Toolkit for Maternity Blood Management

## HAEMOGLOBIN ASSESSMENT AND OPTIMISATION ACTION PLAN

### WHAT DO YOU NEED TO DO?

**IF IRON THERAPY IS REQUIRED IN ANY TRIMESTER:**

- Provide the patient with a copy of *Maternity Iron Assessment and Optimisation* and *Maternity Blood Management*.
- Refer to the relevant specialist for iron deficiency and anaemia.
- Refer to the relevant specialist for iron deficiency and anaemia.

**FIRST TRIMESTER VISIT – <20 WEEKS**

- Check FBC and ferritin on all visits.
- If iron deficiency anaemia is identified, refer to the relevant specialist.
- Provide patient with a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
- Refer to the relevant specialist for iron deficiency and anaemia.

**SECOND ANTEPART VISIT**

- Review iron status on all visits.
- If iron deficiency anaemia is identified, refer to the relevant specialist.
- Provide patient with a copy of *Maternity Iron Assessment and Optimisation Second Trimester*.
- Refer to the relevant specialist for iron deficiency and anaemia.

**SECOND TRIMESTER VISIT – 26–28 WEEKS**

- Review FBC and ferritin on all visits.
- If iron deficiency anaemia is identified, refer to the relevant specialist.
- Provide patient with a copy of *Maternity Iron Assessment and Optimisation Second Trimester*.
- Refer to the relevant specialist for iron deficiency and anaemia.

**THIRD TRIMESTER VISIT – 32–36 WEEKS**

- Review FBC and ferritin on all visits.
- If iron deficiency anaemia is identified, refer to the relevant specialist.
- Provide patient with a copy of *Maternity Iron Assessment and Optimisation Third Trimester*.
- Refer to the relevant specialist for iron deficiency and anaemia.

**INTRAPARTUM**

- Review FBC and ferritin on all visits.
- If iron deficiency anaemia is identified, refer to the relevant specialist.
- Provide patient with a copy of *Maternity Iron Assessment and Optimisation Intra-partum*.
- Refer to the relevant specialist for iron deficiency and anaemia.

**POSTPARTUM**

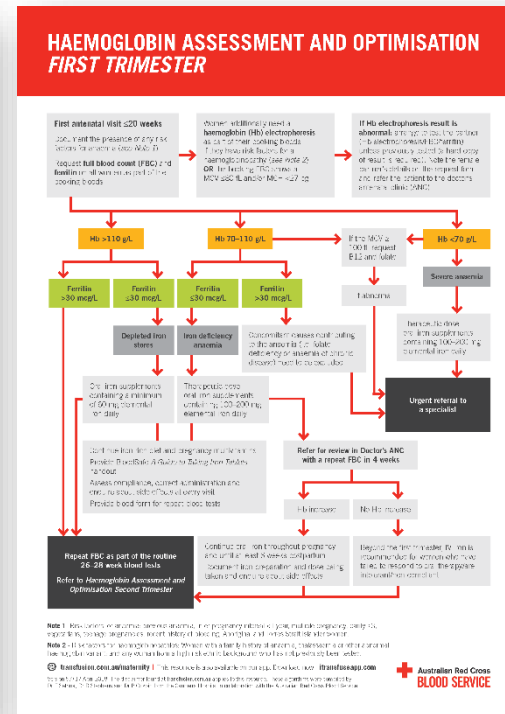
- Review FBC and ferritin on all visits.
- If iron deficiency anaemia is identified, refer to the relevant specialist.
- Provide patient with a copy of *Maternity Iron Assessment and Optimisation Postpartum*.
- Refer to the relevant specialist for iron deficiency and anaemia.

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Hb Assessment and Optimisation Action Plan

## HAEMOGLOBIN ASSESSMENT AND OPTIMISATION FIRST TRIMESTER



**First antenatal visit <20 weeks**

Check FBC and ferritin on all visits. If iron deficiency anaemia is identified, refer to the relevant specialist. Provide patient with a copy of *Maternity Iron Assessment and Optimisation First Trimester*.

**Flowchart Summary:**

- Hb <110 g/L:**
  - Ferritin <30 µg/L: Depleted iron stores. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
  - Ferritin 30-100 µg/L: Iron deficiency anaemia. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
  - Ferritin >100 µg/L: Suspected iron deficiency. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
- Hb 110-130 g/L:**
  - Ferritin <30 µg/L: Depleted iron stores. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
  - Ferritin 30-100 µg/L: Iron deficiency anaemia. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
  - Ferritin >100 µg/L: Suspected iron deficiency. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
- Hb >130 g/L:**
  - Ferritin <30 µg/L: Depleted iron stores. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
  - Ferritin 30-100 µg/L: Iron deficiency anaemia. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.
  - Ferritin >100 µg/L: Suspected iron deficiency. Refer to the relevant specialist for iron deficiency anaemia. Provide a copy of *Maternity Iron Assessment and Optimisation First Trimester*.

**Urgent referral to specialist:** If Hb <70 g/L, Hb <100 g/L with symptoms, or if Hb <100 g/L with symptoms and ferritin <30 µg/L.

**Refer for review in Doctor's AND with a repeat FBC in 4 weeks:** If Hb <100 g/L, Hb <110 g/L with symptoms, or if Hb <110 g/L with symptoms and ferritin <30 µg/L.

**Repeat FBC as part of the routine 26-28 week blood tests:** If Hb <100 g/L, Hb <110 g/L with symptoms, or if Hb <110 g/L with symptoms and ferritin <30 µg/L.

**Continue iron therapy throughout pregnancy:** If Hb <100 g/L, Hb <110 g/L with symptoms, or if Hb <110 g/L with symptoms and ferritin <30 µg/L.

**Refer to the relevant specialist for iron deficiency anaemia:** If Hb <100 g/L, Hb <110 g/L with symptoms, or if Hb <110 g/L with symptoms and ferritin <30 µg/L.

**transfusion.com.au/maternity**

**Australian Red Cross BLOOD SERVICE**

Hb Assessment and Optimisation Flowcharts

## MATERNITY IRON HANDOUT

Date: / /

Dear: / /

**YOUR TEST RESULTS:**

Hb: \_\_\_\_\_ g/L

Ferritin: \_\_\_\_\_ µg/L

Ref: / /

Based on your test results, it is recommended you begin taking an iron preparation with (110-130 g/L) (130 g/L or greater) iron content to boost your iron levels.

**RECOMMENDED IRON PREPARATIONS INCLUDE:**

NAME (Manufacturer)	FORMULATION	ELEMENTAL IRON CONTENT	OTHER ACTIVE INGREDIENTS
FERRO-GRADUET (BASF)	105 mg Ferrous Sulphate Controlled release tablet	105 mg	nil
FERROGRAD C (BASF)	105 mg Ferrous Sulphate Controlled release tablet	105 mg	Ascorbic acid 500 mg
Ferre-Fab (Alli pharmaceuticals)	310 mg Ferrous Sulphate Non-controlled release tablet	100 mg	Folic acid 350 µg
FERRO Iron & Folate Supplement (Pharmacia Care)	270 mg Ferrous Sulphate Controlled release capsule	87.4 mg	Folic acid 350 µg
IFe (Jabard)	250 mg Ferrous Sulphate Controlled release tablet	80 mg	Folic acid 350 µg
Ferre-tab (Alli pharmaceuticals)	200 mg Ferrous sulphate Non-controlled release tablet	65.7 mg	nil
FERRO-LIQUID (Alli pharmaceuticals)	60 mg/10 mL Ferrous Sulphate Oral liquid	60 mg/10 mL	nil
MALTOFER (Apogen Pharmaceuticals)	570 mg Iron poly maltoate	100 mg	nil
MALTOFER SYRUP (Apogen Pharmaceuticals)	185 mg Iron poly maltoate Oral Syrup	50 mg/5 mL	nil

Approved Iron Preparations: The responsibility for the provision of medicines lies with the Australian Red Cross Blood Service, South Australia, 2014. It is not to be used for any other purpose.

**PLEASE TAKE NOTE:**

- Take tablets on an empty stomach 1 hour before or 2 hours after a meal with water or juice.
- Take important information on the medication A guide to taking iron tablets pamphlet attached.
- Continue taking pregnancy multivitamins.
- Follow-up with your Maternity Care Provider for a repeat blood test in \_\_\_\_\_ weeks postpartum.
- After the birth of your baby, to develop your full iron reserves postpartum for a repeat blood test.

Health professional's signature: \_\_\_\_\_

**Australian Red Cross BLOOD SERVICE**

[transfusion.com.au](https://transfusion.com.au) transfusion information for patients

Maternity Iron Handout

# Definitions

## Anaemia

- Hb  $\leq$  110 g/L (First trimester)
- Hb  $\leq$  105 g/L (Second trimester)
- Hb  $\leq$  110 g/L (Third trimester)

## Iron deficiency (depleted iron stores)

- Ferritin  $\leq$  30 mcg/L

## Iron deficiency anaemia

- Low ferritin and low Hb

