IRONING OUT ANAEMIA IN PREGNANT WOMEN: IMPROVING IDENTIFICATION AND MANAGEMENT OF IRON DEFICIENCY AND ANAEMIA

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BACKGROUND
Iron deficiency (ID) is common in pregnancy and increased iron demands often lead to iron deficiency anaemia (IDA). This can impact on both the baby (e.g. increased risk of low birth weight), and the mother (e.g. antenatal depression).1 Low haemoglobin (Hb) levels at delivery may increase the risk of red cell transfusion in women with postpartum haemorrhage (PPH).2 Antenatal ID can go undetected if Hb alone is measured, resulting in a missed opportunity to optimise a woman’s iron status and Hb before delivery.
National Patient Blood Management (PBM) Guidelines. Module 5 Obstetrics and Maternity4 were released in 2015 and contain information on how to maximise a woman’s Hb at the time of delivery and to reduce reliance on transfusion. The Australian Red Cross Blood Service partnered with three hospitals to align current practice with the PBM Guidelines. Module 5 and the Royal College of Pathologists of Australasia’s (RCPA) definition of ID in all stages of pregnancy (ferritin ≤30 μg/L).1

AIM
To implement systems to improve antenatal detection and management of ID and IDA in pregnant women, and to optimise iron stores and Hb at delivery.

METHODS
The partnerships, spanning from March 2015 to March 2018, used standard clinical practice improvement (CPI) methodology. The first step was identification of problems, followed by prioritisation of possible interventions, and then implementation and reassessment. Initial data showed increased rates of ID and IDA, and variation in their management at all three hospitals.

The CPI tools developed to address these findings included new Maternity Haemoglobin Assessment and Optimisation flowcharts (Figure 1). These were aligned with PBM Guidelines. Module 5 and RCPA position statements and included routine first and second trimester ferritin screening and advice on iron management. Iron therapy was recommended for iron deficient women. To address patient education, a maternity consumer handout on recommended oral iron preparations for the treatment of ID and IDA was introduced (Figure 2). Education was provided to all staff involved with implementing the initiatives. Patient Hb, ferritin and phone based satisfaction surveys were measured. Staff feedback was actively pursued and collected.

RESULTS AND DISCUSSION
Prior to the CPI, antenatal ID and IDA assessment and management was varied at the three hospitals. Obstetric guidelines and local protocols only recommended Hb screening. According to maternity staff, the flowcharts provided a ‘long needed guidance and consistent approach’ that enabled them to become confident in blood test interpretation and management of ID and IDA.

During the pilot periods, Hb and ferritin requests increased at all hospitals compared to before the CPI. Overall, 67% (Hospital 1: 42.4%–75%); Hospital 2: 60%–75%; Hospital 3: 65%–79% of women screened each month with ferritin tests were iron deficient, see Figure 3.

Figure 3. Number of iron deficient women during pilot periods in three hospitals (2015 to 2018)

Data across all hospitals shows that anaemic pregnancy patients at delivery (Hb ≤110 g/L) had higher chances of being transfused compared to non-anaemic patients, see Figure 4. Following the introduction of CPI tools, the rate of anaemia transfusion fell from 12.2% to 3.6% at Hospital 1 and from 16.3% to 11.6% at Hospital 2.

Figure 4. Anaemic vs non-anaemic women at delivery and transfusion

Prior to the partnerships, there was minimal maternity patient education about iron and poor compliance with oral iron therapy across all hospitals. Feedback from women who received the iron prescription maternity consumer handout indicated that it was useful (93% (88%–100%)). Reported compliance with oral iron therapy was up to 96%. Consistent positive feedback was received from women across all hospitals.

SUMMARY
Better systems to identify and manage ID/IDA in pregnant women can have significant benefits for both mother and baby. The Blood Service and hospital partnerships provided practical improvements in maternity blood management which were aligned with PBM Guidelines and are now embedded in practice.
Routine ferritin screening reliably detects ID in pregnancy, which allows early provision of iron therapy and results in improved Hb before delivery.7 From these successful results, a Toolkit for Maternity Blood Management is available that may be translated readily into other institutions (Figure 5).

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REFERENCES