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Related Trust Policies (to be read in conjunction with)	04071 Standard Infection Prevention 04072 Hand Hygiene 04272 Guideline for Maternity Care 08045 Guideline for Amniocentesis for Antenatal Diagnosis 08046 Guideline for Interpreting and Acting on CVS sample and Amniocentesis Results 06031 Receiving and Acting on Test Results in Maternity by both Hospital and Community 06036 Guideline for Maternity Record Keeping including Documentation in Handheld Records 15018 Management of Ferrinject in pregnancy and the postpartum period for treating iron deficiency anaemia Home Birth

Document Review History:			
Version No:	**Authored/Reviewer:**	**Summary of amendments/ Record documents superseded by:**	**Issue Date:**
1.0	Julie Bishop		October 2005
2.0	Dr Neerja Gupta		February 2008
3.0	Nicky Leslie and Dr Zamzam		June 2012
4.0	Nicky Leslie		4th January 2016
5.0	Rosie Newman	Full Review	14th January 2019

INDEX

1.0 Purpose

The purpose of this guideline is to aid midwifery and medical staff in screening women for Iron deficiency anaemia at the right time in order to commence treatment effectively for a better pregnancy outcome.

2.0 Equality Impact Assessment

2.1 Mid Essex Hospital Services NHS Trust is committed to the provision of a service that is fair, accessible and meets the needs of all individuals.
(Refer to Appendix 1)

3.0 Background

3.1 Normal haemoglobin distribution varies with different stages of pregnancy and therefore haemoglobin level that defines anaemia in pregnancy is controversial and lacks consistency. In the UK, the normal range of haemoglobin in pregnant women up to 12 weeks should be at or above 11g/dl and 105g/dl at 28 to 30 weeks of gestation. Severe anaemia in pregnancy is defined as haemoglobin <7g/dl and very severe anaemia is defined as haemoglobin <4 g/dl, this constitutes medical emergency due to risk of congestive cardiac failure leading to death.

3.2 During pregnancy red cell mass increases by 20 % to meet the increase in maternal iron requirement and also 50% increased plasma volume leading to haemodilution, which constitutes the ‘normal’ physiological response that may resemble iron deficiency anaemia. Therefore correct interpretation of fall in haemoglobin, haematocrit and red cell count are essential for diagnosis of iron deficiency anaemia.

3.3 Iron deficiency anaemia is the most common haematological problem in pregnancy occurring in 33% of all pregnancies. It increases maternal mortality, prenatal and perinatal infant loss and prematurity. Favourable pregnancy outcomes occur 30-45% less often in anaemic mothers and their infants have less than one half of normal iron reserves. Such infants require more iron than is supplied by breast milk at an earlier age than do infants at normal birth weight.

4.0 Screening

(Refer to Maternity Care; register number 04272 & Home Birth; register number 08001)

4.1 All pregnant women should be offered screening for anaemia early in pregnancy i.e. at the Booking appointment and at 28 weeks gestation. This allows enough time for treatment if anaemia is detected. For timescales of receiving and reporting on blood tests involving anaemia refer to the following guideline.
(Refer to the guideline entitled ‘Receiving and Acting on Test Results in Maternity by both Hospital and Community’; register number 06031)

4.2 All women at 28 weeks gestation require a blood test to ascertain haemoglobin levels. If the haemoglobin results are between 85 to 105 g/l, the woman should be treated with the appropriate iron therapy.
(Refer to the guideline entitled 'Iron deficiency anaemia in pregnancy'; register number 08011)

4.3 The woman's haemoglobin levels should be repeated at 36 weeks gestation to review the bloods levels and ascertain whether the iron therapy has been effective.

4.4 Patients with known haemoglobinopathy should have a serum ferritin checked and offered oral suppliments if their ferritin is less than 30ug/l.

4.5 Patients with unknown haemoglobinopathy status with normocytic or microcytic anaemia, should start iron suppliments and an haemoglobinopathy screen should organised (in accordance with the NHS screening programme)

4.6 Non-anaemic patients identified to be at increased risk of iron deficiency should have a serum ferritin checked early in pregnancy and be offered oral supplements if ferritin is less than 30 ug/l

5.0 Tests

5.1 Haematocrit or packed cell volume is an acceptable and recommended method for anaemia determination but has no advantage compared to **haemoglobin** measurement.

5.2 Mean corpuscular volume and mean corpuscular haemoglobin are the two most sensitive indices in iron deficiency anaemia. Reduction in mean corpuscular volume occurring in parallel with anaemia is a late phenomenon. Again these values are altered due to physiological haemodilution in pregnancy.

5.3 Serum ferritin level is the most specific biochemical test that correlates with relative total body iron stores. A low serum ferritin level reflects depleted iron stores and hence is a precondition for iron deficiency in the absence of infection.

5.4 When encountered with anaemia in pregnancy **consider screening for haemoglobinopathy** (refer to trust guideline) in conjunction with the history of the patient.

6.0 Treatment

6.1 One systematic review assessed the effectiveness of different treatment: oral, intramuscular and intravenous for iron deficiency anaemia. Five RCT (randomly controlled trials), randomizing 1,234 women were included. It revealed that the evidence was inconclusive on effects of treatment of anaemia in pregnancy because of lack of good quality trials.

6.2 NICE continues to recommend iron supplementation for women diagnosed with anaemia in pregnancy. Pregaday is recommended, which contains 322mg of ferrous fumerate

(equivalent to100mg elemental iron) with folic acid 350 microgrammes; in a dose of one tablet daily. Several alternatives are available with similar bioavailability, with and without folic acid.

6.3 If patients being treated with Pregaday find they get side effects from the iron, it is usually due to the elemental iron. As ferrous sulphate 200mg only contains 65mg iron, women might find they tolerate that more effectively. A disadvantage could be potentially women don't get enough iron in one tablet (need 100-200mg elemental iron for deficiency) so therefore women may need to take at least 2 tablets a day. It may be advisable to split the dose (i.e. ferrous sulphate 200mg twice a day). Symptoms of nausea or epigastric pain may be reduced as a result, although constipation is another contributory factor.

6.4 Folic acid 350 mcg is for use in early pregnancy and not as treatment for megaloblastic anaemia.

6.5 There is 40% risk of side effects with oral iron preparation, mainly gastrointestinal which may affect tolerance and compliance. For those with proven iron deficiency that cannot be managed with oral therapy because of lack of compliance, severe gastrointestinal side effects, continuing significant blood loss or malabsorption, parenteral preparation can be administered.

6.6 Intravenous iron: Ferrinject is an intravenous iron preparation that can be used in the 2nd and third trimester in a patient unresponsive to oral iron or with abnormally low haemoglobin.
(Refer to the guideline entitled ‘Management of Ferrinject in pregnancy and the postpartum period for treating iron deficiency anaemia)

6.7 Blood transfusion: It is the most rapid way to increase haemoglobin concentration and should be used when there is not enough time to increase haemoglobin with iron therapy. It has its documented risks, which need to be discussed with the patient before commencing transfusion.

7.0 Dietary Advice

7.1 All women should be given dietary information to maximise iron intake and absorption. This is usually a good prevention strategy or can be used in conjunction with treatment. One of the greatest strengths of these food based strategies lies in their potential to result in multiple nutritional benefits, which in turn achieve short-term impact and long-term sustainability. Patient Information leaflet ‘Iron in your diet’ should be made available for all patients from booking.

7.2 Consumption of iron rich food like meat from cattle, fowl, fish and poultry and vegetarian foods such as legumes and green leafy vegetables.

7.3 Similarly emphasis on food that enhances absorption of iron are: fruits, vegetables and tubers, which are good sources of Vitamin A, C and Folic acid.

8.0 Staffing and Training

8.1 All qualified midwifery and obstetric staff are fully trained to take maternal blood. Some Maternal Care Assistants (MCA's) are also trained to perform maternal venepuncture. Regular updates for venepuncture are available from the Practice Development Midwife. Midwifery students may undertake venepuncture once they have received the theoretical knowledge and while under supervision of a midwife or obstetrician.

9.0 Infection Prevention

9.1 All staff should follow Trust guidelines on infection prevention by ensuring that they effectively 'decontaminate their hands' before and after each procedure. All staff should follow the Trust's guideline by using the Aseptic Non-Touch Technique (ANNT) when taking bloods.

10.0 Audit and Monitoring

10.1 Audit of compliance with this guideline will be considered on an annual audit basis in accordance with the Clinical Audit Strategy and Policy (register number 08076), the Corporate Clinical Audit and Quality Improvement Project Plan and the Maternity annual audit work plan; to encompass national and local audit and clinical governance identifying key harm themes. The Women's and Children's Clinical Audit Group will identify a lead for the audit.

10.2 As a minimum the following specific requirements will be monitored:

- Designated lead for antenatal screening in the maternity service
- Antenatal screening tests, which follow the UK National Screening Committee guidance
- System for ensuring that appropriate tests are undertaken within appropriate timescales
- System for ensuring that appropriate tests are undertaken when patients book late
- Process for the review of the results
- Process for reporting all results to patients
- Process for reporting results to other relevant healthcare professionals
- Process for ensuring that women with screen positive test results are referred and managed within appropriate timescales
- Maternity service's expectations for staff training, as identified in the training needs analysis

10.3 A review of a suitable sample of health records of patients to include the minimum requirements as highlighted in point 10.2 will be audited. A minimum compliance 75% is

required for each requirement. Where concerns are identified more frequent audit will be undertaken.

10.4 The findings of the audit will be reported to and approved by the Multi-disciplinary Risk Management Group (MRMG) and an action plan with named leads and timescales will be developed to address any identified deficiencies. Performance against the action plan will be monitored by this group at subsequent meetings.

10.5 The audit report will be reported to the monthly Directorate Governance Meeting (DGM) and significant concerns relating to compliance will be entered on the local Risk Assurance Framework.

10.6 Key findings and learning points from the audit will be submitted to the Clinical Governance Group within the integrated learning report.

11.0 Guideline Management

11.1 As an integral part of the knowledge, skills framework, staff are appraised annually to ensure competency in computer skills and the ability to access the current approved guidelines via the Trust's intranet site.

11.2 Quarterly memos are sent to line managers to disseminate to their staff the most currently approved guidelines available via the intranet and clinical guideline folders, located in each designated clinical area.

11.3 Guideline monitors have been nominated to each clinical area to ensure a system whereby obsolete guidelines are archived and newly approved guidelines are now downloaded from the intranet and filed appropriately in the guideline folders. 'Spot checks' are performed on all clinical guidelines quarterly.

11.4 Quarterly Clinical Practices group meetings are held to discuss 'guidelines'. During this meeting the practice development midwife can highlight any areas for further training; possibly involving 'workshops' or to be included in future 'skills and drills' mandatory training sessions.

12.0 Communication

12.1 A quarterly 'maternity newsletter' is issued and available to all staff including an update on the latest 'guidelines' information such as a list of newly approved guidelines for staff to acknowledge and familiarise themselves with and practice accordingly.

12.2 Approved guidelines are published monthly in the Trust's Focus Magazine that is sent via email to all staff.

12.3 Approved guidelines will be disseminated to appropriate staff quarterly via email.

12.4 Regular memos are posted on the guideline notice boards in each clinical area to notify staff of the latest revised guidelines and how to access guidelines via the intranet or clinical guideline folders.

13.0 References

British Committee of Standards in Haematology (2011) UK guidelines on the management of iron deficiency in pregnancy; July.

National Institute of Clinical Excellence (2017) Clinical guideline CG62: Antenatal Care for uncomplicated pregnancies. NICE: London.

A, F Goddard; M, W James; S, C McIntyre; B, B Scott (2011) Guidelines for management of iron deficiency anaemia. June; British Society of Gastroenterology: London

Appendix 1: Preliminary Equality Analysis

This assessment relates to: 08011 Iron Deficiency Anaemia in Pregnancy

A change in a service to patients		A change to an existing policy	x	A change to the way staff work	
A new policy		Something else (please give details)			

Questions	Answers
1. What are you proposing to change?	No - Changes made as update not required.
2. Why are you making this change? **(What will the change achieve?)**	n/a
3. Who benefits from this change and how?	n/a
4. **Is anyone likely to suffer any negative impact as a result of this change?** If **no**, please record reasons here and sign and date this assessment. If **yes**, please complete a full EIA.	no
5. a) Will you be undertaking any consultation as part of this change? **b) If so, with whom?**	Yes; refer to page 2

Preliminary analysis completed by:

Name	Rosie Newman	**Job Title**	Midwife	**Date**	21/11/2018