Bolton NHS
NHS Foundation Trust

Management of Anaemia in Primary Care Pathway

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Version control

Version	Type of Change	Date	Revisions from previous issues
1	New guideline	November 2015	Not applicable.

Equality Impact

Bolton NHS Foundation Trust strives to ensure equality of opportunity for all service users, local people and the workforce. As an employer and a provider of healthcare Bolton NHS FT aims to ensure that none are placed at a disadvantage as a result of its policies and procedures. This document has therefore been equality impact assessed to ensure fairness and consistency for all those covered by it regardless of their individuality. The results are shown in the Equality Impact Assessment (EIA).

Contents

Purpose and Scope

The purpose of the pathway is to maximise identification, investigation and treatment of anaemia in primary care, ensuring GP's have appropriate diagnostic and treatment guidance, and clear access to secondary care services and pathways (hosted on DXS Point-of-Care™). This is intended to avoid unnecessary outpatient referrals and inpatient admissions, and to ensure patients referred for elective surgery have their haemoglobin optimised. Avoidance of post-operative anaemia reduces the requirement for blood transfusion, reduces post-op morbidity and length of stay. Specifically, Iron Deficiency Anaemia (IDA) is classed as a chronic ambulatory care sensitive condition (ACSC) and the active prevention of ACSC admissions is the responsibility of the CCG.

The pathway provides a framework for current best practice in anaemia management and optimisation of patients for elective surgery, and has received expert clinical review and approval by:

Sharran Grey (Principal Clinical Scientist/Blood Transfusion Clinical Lead, Bolton NHS Foundation Trust)

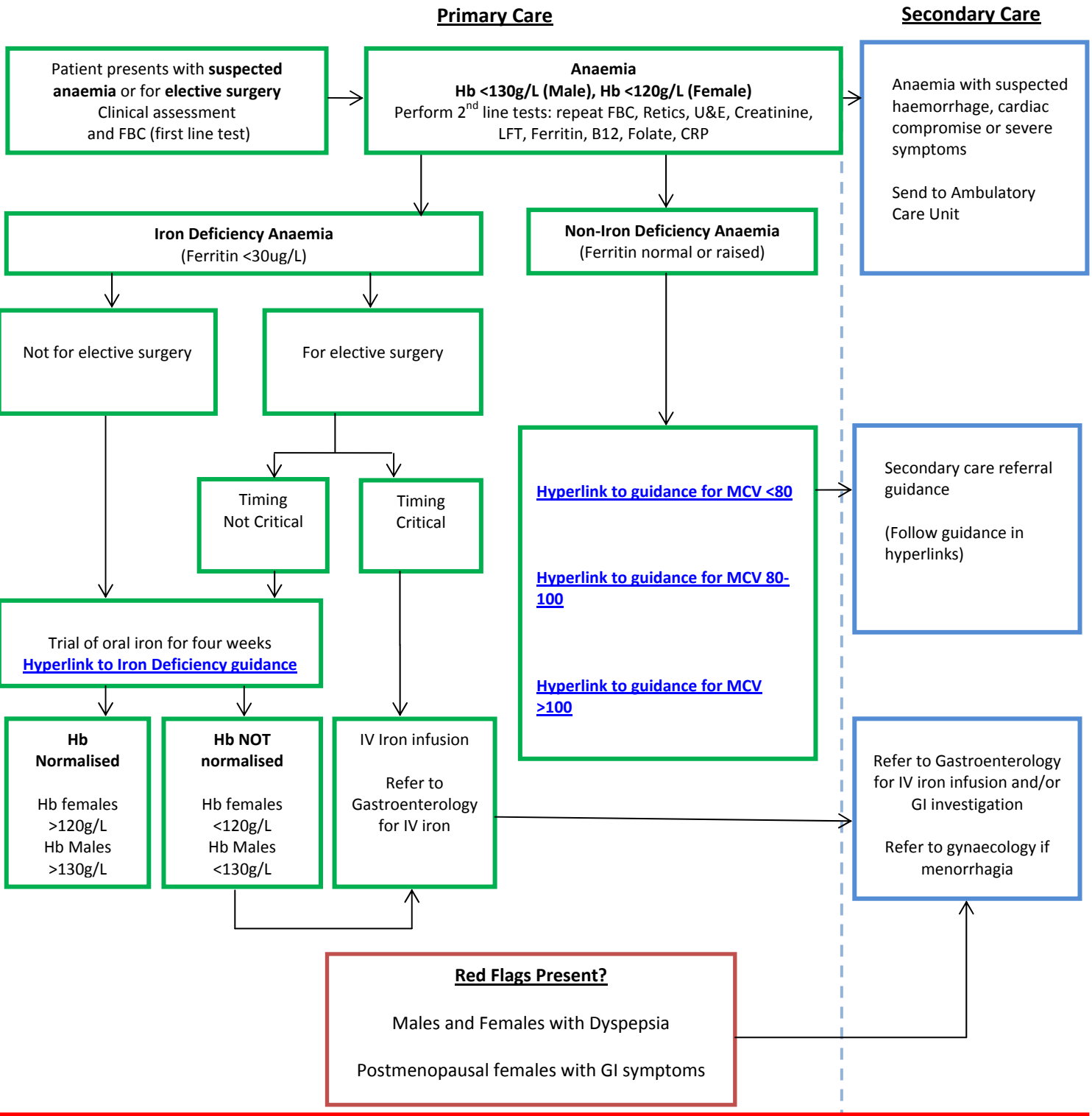
Suzanne Roberts (Consultant Haematologist, Bolton NHS Foundation Trust)

Kadukkavil Padmakumar (Consultant Gastroenterologist, Bolton NHS Foundation Trust)

Muhammad Athar (General Practitioner Lead, Bolton Clinical Commissioning Group)

The pathway and guidance section of this document in held by Bolton CCG, and exists in this document controlled format for use by Bolton NHS Foundation Trust. Document review and audit will be performed jointly across both organisations.

Anaemia Management in Primary Care



Key messages (hyperlink to general principles)

Most anaemic patients will have Iron Deficiency Anaemia, and the majority will respond to oral iron.

Patients who are to be referred for elective surgery must be screened for anaemia and their haemoglobin must be optimised prior to surgery.

Refer to appropriate secondary care specialty to investigate the underlying cause of anaemia (e.g. GI, gynaecological, haematological, renal).

Step 1

Establish presence of anaemia
FBC: Hb, MCV, MCH

WHO / BCSH classification of anaemia (Hb)
Males: < 130 g/l
Females: < 120 g/l
Pregnancy: < 110 g/l (T1), < 105 g/l (T2), < 100 g/l (T3)

Step 2

Initial Work-Up
Repeat FBC (to exclude spurious anaemia)
Reticulocytes (blood film is automatically performed where indicated)
Ferritin, B12, Folate, U&E, creatinine, LFTs, CRP
Clinical history and examination

Clinical history should include
- Drug history
- Family history
- Social history inc diet, alcohol and ethnic origin

Step 3

Establish type of anaemia
Commence appropriate corrective therapy
Further appropriate investigation, if required, to establish cause

Type of anaemia and any further investigation will be guided by the MCV (May be multifactorial)
Corrective treatment (e.g. Iron) must be commenced immediately even if definitive investigation remains outstanding

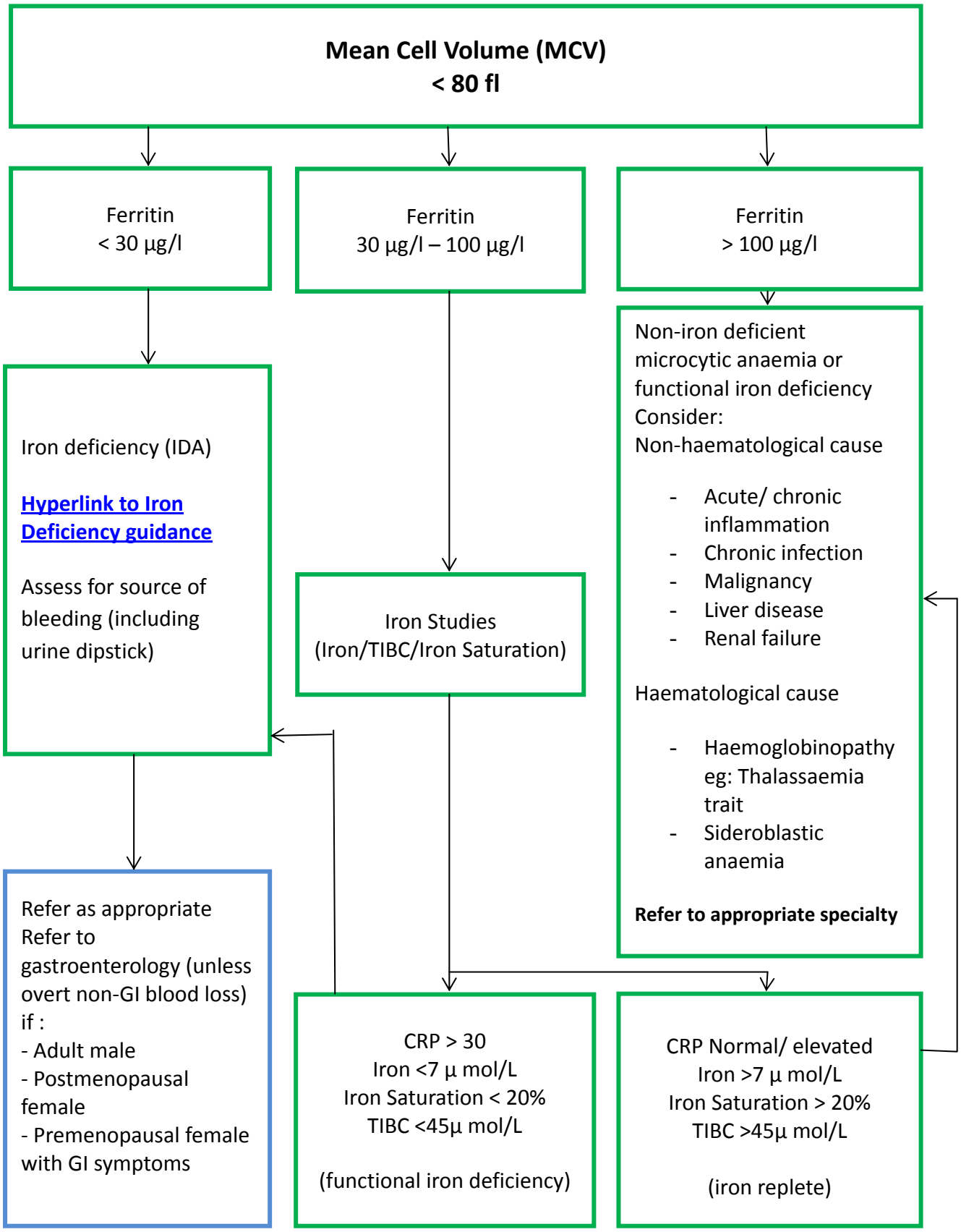
Step 4

Monitor response to corrective treatment
Treat cause
(Unless not in patient's best interests)

Red Flags
Anaemia with abnormal blood film/ white cells/ platelets
- Refer to haematology

GI Symptoms
- Follow dyspepsia/ colorectal guidelines

Microcytic Anaemia



Iron Deficiency

Classically presents with reduced MCV and MCH (Microcytic, hypochromic).
However, in early iron deficiency and anaemia of chronic disease (where there may be a functional iron deficiency), MCV and MCH can be normal.
There may also be an associated iron deficiency with chronic blood loss and haemolysis.
Ferritin, B12 and folate should be assessed in all cases of anaemia, irrespective of MCV

All patients with iron deficiency anaemia should be screened for coeliac disease with TTG antibody

Treatment of iron deficiency anaemia
Oral replacement. 100 - 200mg elemental iron daily (e.g. 200mg bd ferrous sulphate)

- Take on an empty stomach with a glass of unsweetened orange juice
- Avoid simultaneous administration of other medications/antacids
- Ascorbic acid 500mg daily
- For nausea/ epigastric discomfort, prescribe preparation with lower iron content

Dietary advice

Parenteral iron, if

- Poor oral iron tolerance/ non-compliance
- Impaired GI absorption
- Haemodialysis
- Functional iron deficiency
- Major surgery in < 8 weeks

Transfusion

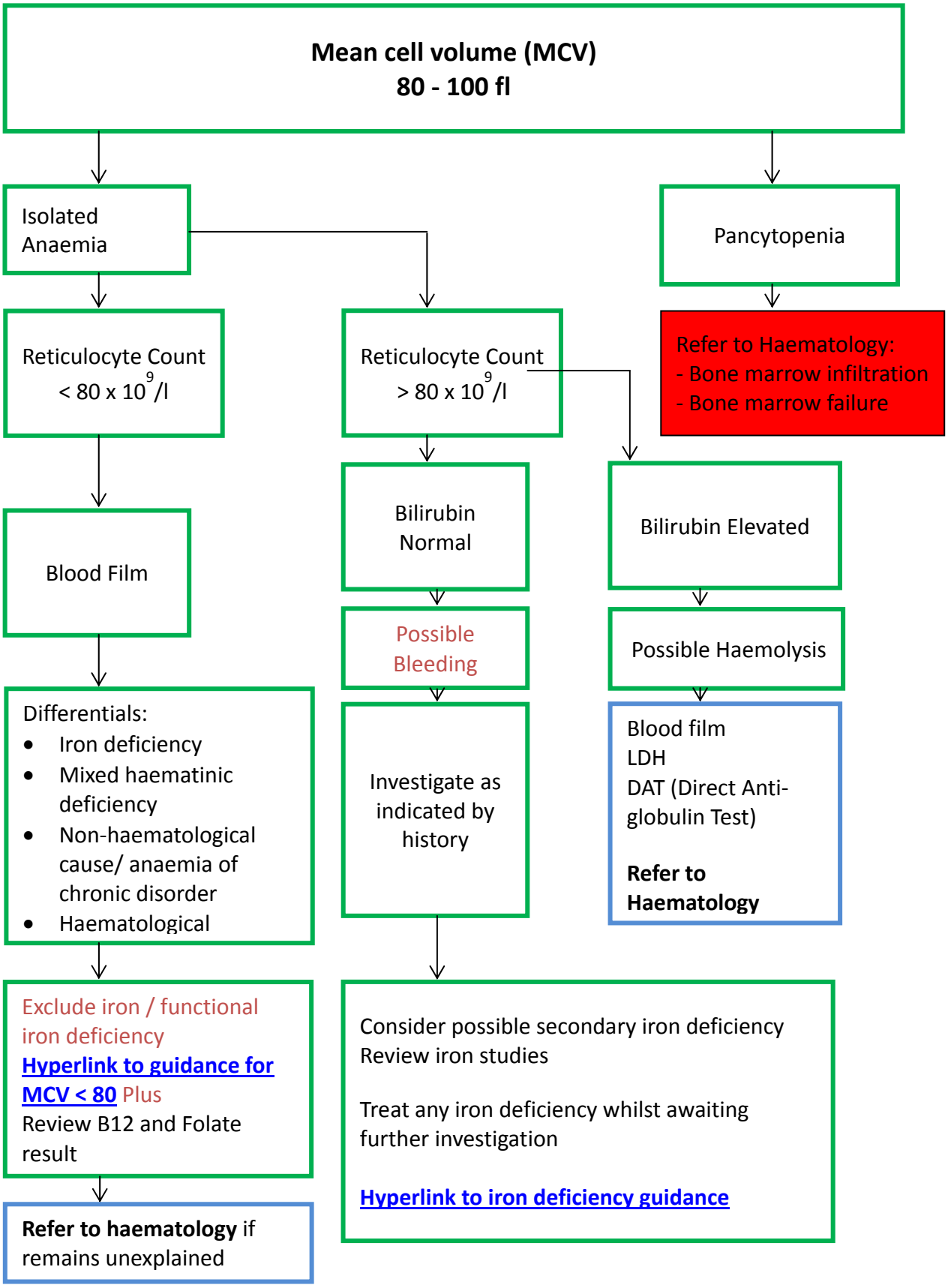
Transfusion should only be considered in cases of massive haemorrhage, imminent cardiac compromise or severe symptoms

Monitoring response to iron replacement
Repeat FBC after 4 weeks treatment. If improvement in Hb (10 – 20 g/l):

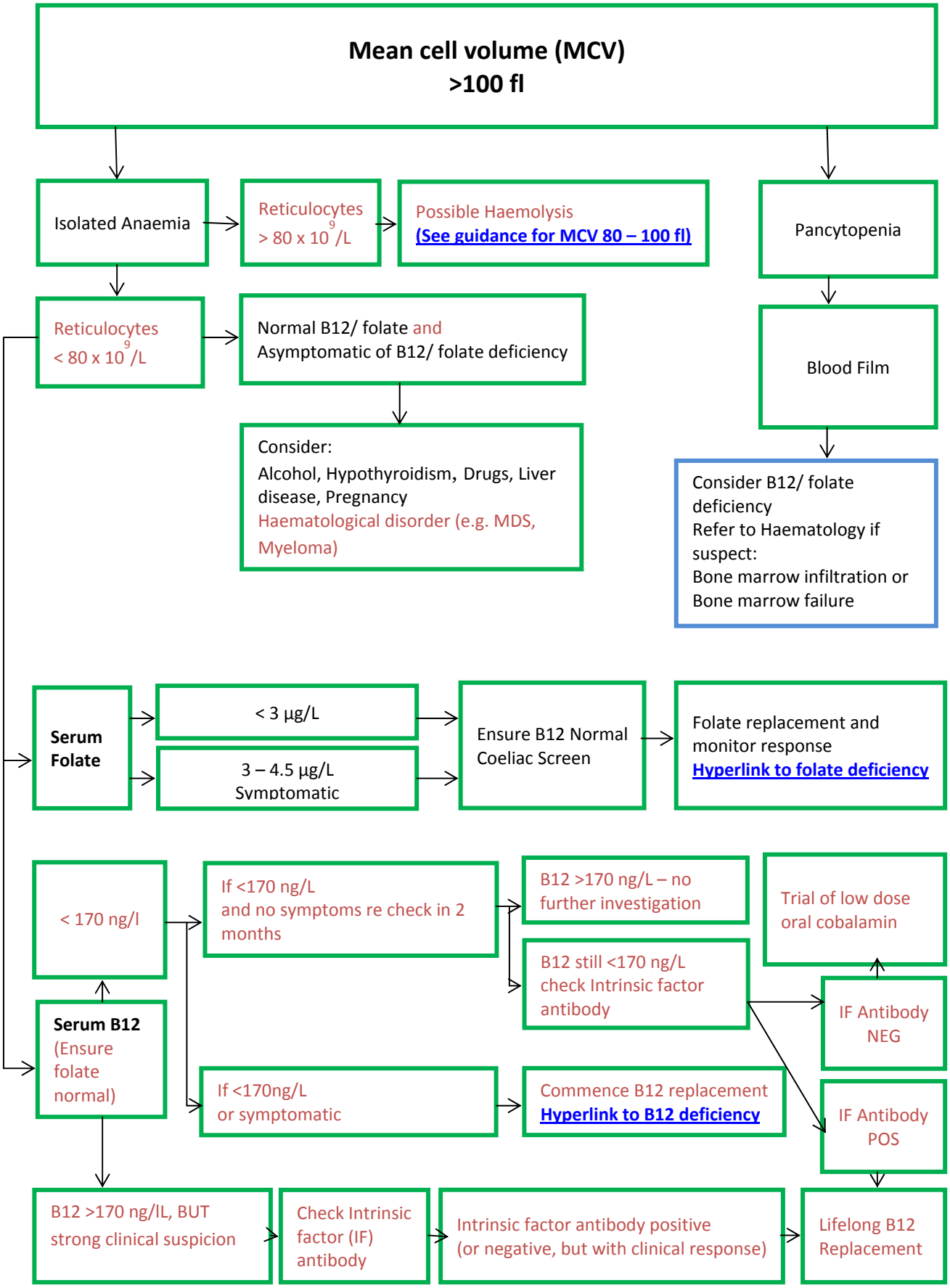
- Continue replacement for 2 – 4 months, then re-check Hb
- If Hb normalised, continue iron replacement for 3 months
- If no improvement, consider switch to parenteral iron

Iron Salt	Amount	Ferrous Iron
Fumerate	200mg	65mg
Sulphate, dried	200mg	65mg
Sulphate	300mg	60mg
Gluconate	300mg	35mg

Normocytic/Normochromic Anaemia



Macrocytic Anaemia



Folate Deficiency

Macrocytic anaemia with megaloblastic changes (macrocytic red cells and hyper-segmented neutrophils seen on blood film)

Causes of folate deficiency

Dietary

Deficient diet, Alcoholism

Malabsorption

e.g. Coeliac disease, tropical sprue, IBD, jejunal resection)

Excess requirements

e.g Physiological – Pregnancy, prematurity/ infancy, Malignancy, Haemolytic anaemia (inc Sickle Cell), Inflammation (e.g. TB, Crohn's disease)

Medication

e.g. Methotrexate, Sulfalazine, Cholestyramine, Anticonvulsants

Metabolic

Excess urinary excretion

e.g. Congestive heart failure, chronic dialysis, acute liver damage)

Treatment

- Ensure vitamin B12 levels normal/ replaced to avoid development of sub-acute combined degeneration of the cord
- Dietary advice
- Folic acid 5mg daily for 4 months (may require prolonged treatment if cause persists)

Further investigation and referral

- Generally, dictated by the likely aetiology
- If history consistent with malabsorption – screen for coeliac disease (anti-transglutaminase antibodies (TTG))
- Haematology referral/advice – aetiology uncertain, suspected haematological malignancy
- Gastroenterology referral – Suspected malabsorption, positive coeliac screen
- Consider referral to dietician

Monitoring response to folate replacement

1. FBC and reticulocytes 10 days following initiation of treatment
   - Improvement in Hb
   - Reticulocyte count above normal level
2. Repeat FBC at 8 weeks and completion of treatment to ensure normalisation of Hb

Vitamin B12 Deficiency

Macrocytic anaemia with megaloblastic changes (macrocytic red cells and hyper-segmented neutrophils seen on blood film)

Causes of vitamin B12 deficiency

1. Gastric – (e.g. gastrectomy, atrophic gastritis, *H. pylori*)
2. Intestinal – (e.g. resection, malabsorption, ileal Crohn's, chronic tropical sprue)
3. Dietary
4. Drugs – (e.g. colchicine, neomycinm anticonvulsants, PPIs/ H2 receptor antagonists)
5. Pernicious Anaemia

Apparent vitamin B12 deficiency

1. Metformin – Check intrinsic factor antibodies if B12 levels reduced. Treat if positive or strong clinical suspicion of deficiency (with yearly B12 monitoring)
2. Pregnancy – Levels drop 30% by T3. Only treat if strong clinical suspicion of deficiency or <100 ng/L.
3. Oral contraceptives/ HRT – Only investigate further / treat if B12 < 150 ng/l or strong clinical suspicion of deficiency

Treatment

- Patients with neurological symptoms - Do not delay treatment
  Initially: 1000mcg hydroxycobalamin (IM) every 2nd day until no further improvement
  Maintenance: 1000mcg hydroxycobalamin (IM) every 2 months for life

- Patients with no neurological symptoms

  Initially: 1000mcg hydroxycobalamin (IM) 3x/ week for 2 weeks
  Maintenance for non-dietary cause: 1000mcg hydroxycobalamin (IM) every 3 months for life

- Dietary cause: 1000mcg hydroxycobalamin (IM) twice per year or 50 – 150mcg cyanocobalamin (PO) daily (vegans/ proven dietary deficiency)
  If dietary deficiency corrected, B12 can be stopped once levels normalised. Give dietary advice.

Further investigation and referral: Generally, dictated by the likely aetiology. Haematology referral/ advice – Pregnancy, Neurological symptoms, aetiology uncertain, suspected haematological malignancy. Gastroenterology referral if suspected malabsorption (other than pernicious anaemia), Pernicious anaemia *with* GI symptoms. Consider referral to dietician.

Monitoring response to Vitamin B12 replacement: Perform FBC and reticulocytes 10 days following initiation of treatment. Expect improvement in Hb and Reticulocyte count above normal level. Check folate if no improvement. Repeat FBC at 8 weeks and completion of treatment to ensure normalisation of Hb. Haematology advice if persistent symptoms despite replacement.

Monitoring Compliance

Area to be monitored	Methodology	Who	Reported to	Frequency
Medical patients	Audit of secondary care referrals where primary cause is anaemia	Blood Transfusion Clinical Lead	Hospital Transfusion Committee	Every 2 years
Elective surgical patients	Audit of pre-op anaemia, post-op morbidity and length of stay	Blood Transfusion Clinical Lead	Hospital Transfusion Committee	Every 2 years

Appendix: References

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Equality Impact Assessment

		Yes/No	Comments
1.	**Does the document/guidance affect one group less or more favourably than another on the basis of:**		
	• Race	no	
	• Ethnic origins (including gypsies and travellers)	no	
	• Nationality	no	
	• Gender (including gender reassignment)	no	
	• Culture	no	
	• Religion or belief	no	
	• Sexual orientation	no	
	• Age	no	
	• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	no	
2.	**Is there any evidence that some groups are affected differently?**	no	
3.	**If you have identified potential discrimination, are there any valid exceptions, legal and/or justifiable?**	no	
4.	**Is the impact of the document/guidance likely to be negative?**	no	
5.	**If so, can the impact be avoided?**	na	
6.	**What alternative is there to achieving the document/guidance without the impact?**	na	
7.	**Can we reduce the impact by taking different**	na	

	action?		