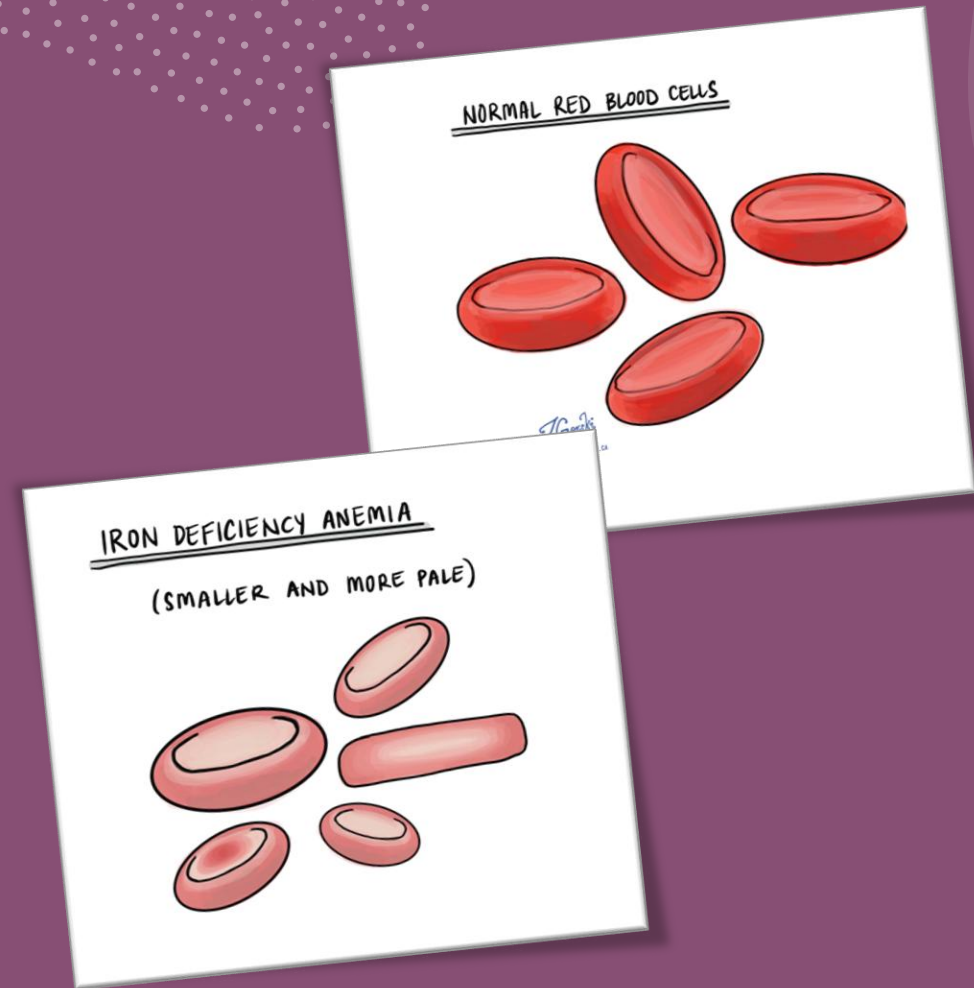


Iron Deficiency Anaemia : Identification, Investigation and Management

A practical approach for Primary Care
Dietitians, including B12 and folate
management

Hannah Farrall

Advanced Clinical Practitioner –
Gastroenterology



IDA: Why it Matters

- Common
 - Most common micronutrient deficiency globally
 - Accounts for 50% of all anaemias
- Impacts Quality of life & if severe can be life threatening
- Can be a sign of sinister pathology (Colorectal, Cancer, Renal cancers in particular Gynecological in non-menstruating women)
- May be the first to see it as part of routine screening and monitoring of other chronic conditions like diabetes
- 57000 hospital admission per year
- Costs NHS 55 million per annum

Learning Objectives

By the end of the session, you should be able to:

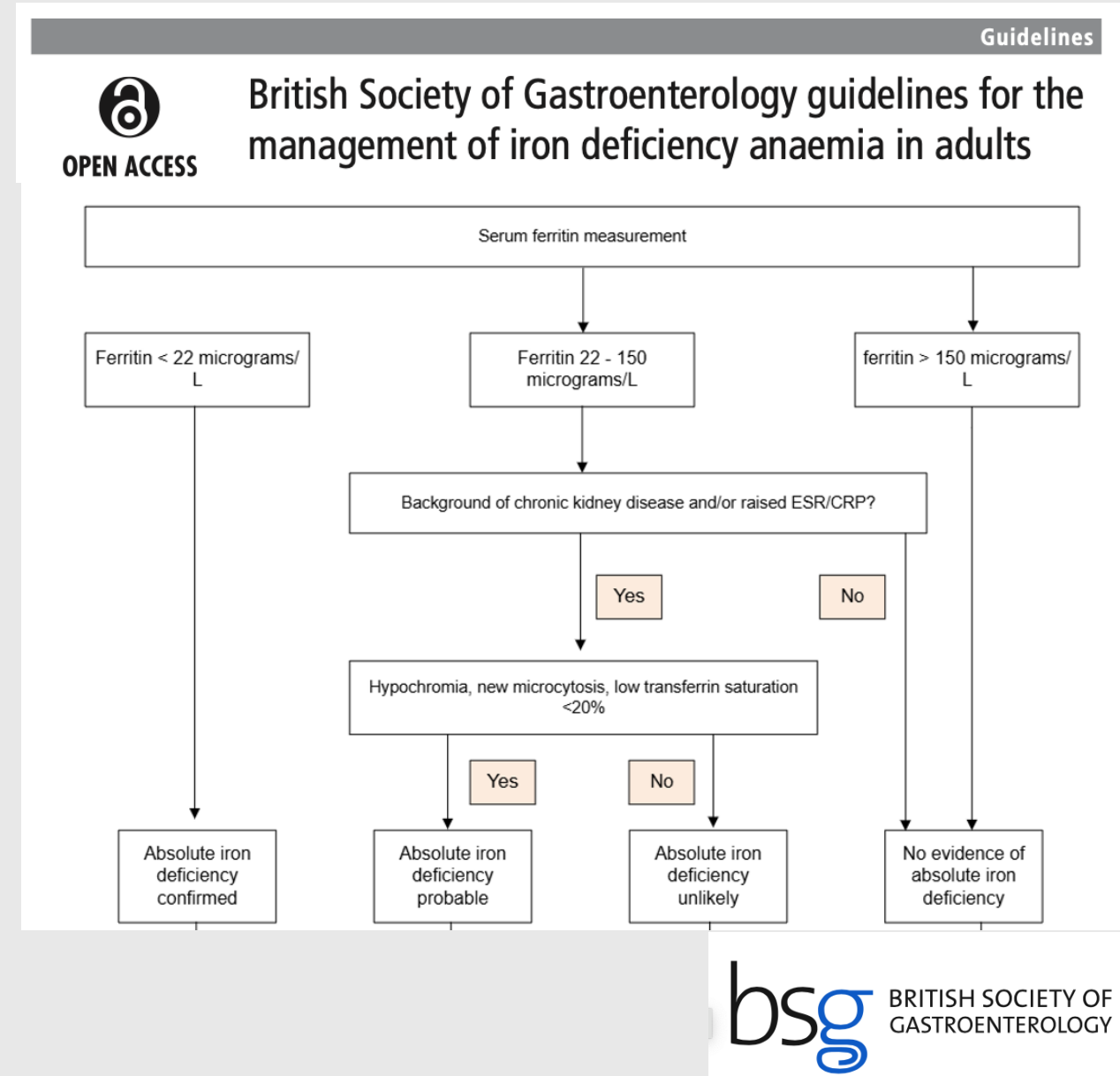
- Interpret iron studies accurately
- Request appropriate primary care investigations
- Recognise need for onward referral
- Recognise if oral vs IV iron replacement is appropriate
- Give advice on taking oral iron supplements effectively

B12 & Folate deficiency

- Who needs Parenteral Cyanocobalamin, and correct B12/folate dosing and sequencing

What is Iron Deficiency Anaemia

- Anaemia + evidence of iron deficiency
- Ferritin < 30
 - Unreliable in inflammation



Symptoms

Fatigue

Shortness of Breath (on Exertion)

Chest pain (if severe)

Palpitations

Feeling faint or syncope

- Pica
- Hairloss
- Restless leg syndrome
- Cold intolerance (especially hands and feet)
- Pruritus
- Insomnia
- Headaches and dizziness
- Brittle spoon-shaped nails
- Sore tongue

Often
multifactorial

Causes of Iron Deficiency Anemia



Physiological*

Infancy

Adolescence

Pregnancy**

*Increased iron demands

**Total iron loss about 1000 mg



Inadequate intake

Poor nutrition

Vegans

Vegetarians



Decreased absorption

Celiac disease

Bariatric surgery

Atrophic gastritis

Gastrectomy

Medications***

H. pylori

Genetic IRIDA

*** e.g., proton pump inhibitors



Chronic blood loss

Menstrual****

GI tract

GU system

IV hemolysis

Frequent blood
donation

Excessive blood
draws

**** Iron loss about 1 mg/day

Abbreviations: GI, gastrointestinal; GU, genitourinary; IV, intravascular; IRIDA, iron-refractory iron deficiency anemia

Differentiating Anaemias based on Full Blood Counts

	ACD	IDA	B12 /Folate
FBC	Low	Low	Low
Platelets	Normal	Normal or Raised	Normal
MCV	Normal	Low	High
MCH	Normal	Low	High
Neutrophils	Normal	Normal	Normal
WCC	Normal	Normal	Normal

Anaemia may be the only clue on the FBC in all three, and mixed deficiency or coexisting ACD can blur this pattern, so treat it as a guide, not a rule

Interpreting Iron studies

	ACD	IDA
MCV	Normal	Low
Ferritin	Normal/high	Low
% Saturation	Normal (>20%)	Low (< 20%)
TIBC	Normal	High

Lab View	03/Jul/2025 12:43 BST
General Haematology	
☐ ESR	9
☐ WBC	4.5
☐ PLT	225
☐ HB	(L) 100
☐ RBC	4.76
☐ HCT	(L) 0.32
☐ MCV	(!) 66
☐ MCH	(L) 21.1
☐ MCHC	(L) 318
☐ NEUTS	2.90
☐ LYMPHS	1.30
☐ MONOS	0.40
☐ EOS	0.00
☐ BASO	0.00

☐ Ferritin level, blood	* (L) 1.8
☐ Vitamin B12	351
☐ Folate	* 8.6
☐ UIBC	82.2
☐ % Saturation	2
☐ Iron	(L) 2.1
☐ Transferrin	3.99

☐ Sodium	138
☐ Potassium	4.2
☐ Bicarbonate	26
☐ Urea level, blood	4.2
☐ Creatinine level, serum	74
☐ Bilirubin	9
☐ ALT	17
☐ Albumin	39
☐ Total protein	65
☐ Calcium	2.44
☐ Phosphate	1.03
☐ ALP	72
☐ Globulins	26
☐ CRP	<1
☐ corrected Ca	2.46
☐ eGFR (EPI)	* > 90

80yo M: CCF, SB Angiodysplasia Cirrhosis

General Haematology	
☐ WBC	4.7
☐ PLT	122
☐ HB	(L) 101
☐ RBC	(L) 3.03
☐ HCT	(L) 0.29
☐ MCV	96
☐ MCH	(H) 33.4
☐ MCHC	347
☐ RDW	(H) 15.9
☐ NEUTS	2.5
☐ LYMPHS	1.5
☐ MONOS	0.5
☐ EOS	0.2
☐ BASO	0.0

Haematinics	
☐ Ferritin level, blood	198.1; 198.1
☐ UIBC	45.5
☐ % Saturation	22
☐ Iron	* 12.6
☐ Transferrin	2.50
☐ TIBC	58

General Biochemistry	
☐ Sodium	139
☐ Potassium	4.1
☐ Urea level, blood	10.8
☐ Creatinine level, serum	87
☐ Bilirubin	* 7
☐ ALT	14
☐ GGT	(H) 62
☐ Albumin	38
☐ Total protein	70
☐ ALP	(H) 182
☐ Globulins	32
☐ eGFR (EPI)	* 72

37yo M Eczema and Fatigue, romanian, No GI symptoms, no weight loss,

☐ WBC	5.8
☐ PLT	(H) 464
☐ HB	(L) 129
☐ RBC	(H) 6.41
☐ HCT	0.39
☐ MCV	(!) 61
☐ MCH	(L) 20.1
☐ MCHC	332
☐ RDW	
☐ NEUTS	3.50
☐ LYMPHS	1.50
☐ MONOS	0.70
☐ EOS	0.10
☐ BASO	0.10
☐ HbA1C (Diagnostic)	

Haematinics	
☐ Ferritin level, blood	58.8
☐ Vitamin B12	412
☐ Folate	* 11.0
☐ UIBC	41.6
☐ % Saturation	29
☐ Iron	16.9
☐ Transferrin	2.50
☐ TIBC	58

CRP <1, LFTs UEs all within normal range

Primary Care investigation of IDA

- FBC, U&Es, CRP, Ferritin (+/- Iron studies, B12 and folate)
 - If other cytopenias (Neutrophils <1.0 or platelets <80) Urgent haematology referral may be required
- Consider TFTs depending on the clinical picture
 - If the picture doesn't fit, request a blood film alongside referral rather than in isolation
- Screen for Coeliac with coeliac serology – anti-tissue transglutaminase antibodies
 - (about 3-5% of IDA cases turn out to be coeliac)
- Test urine for blood (urine dipstick or urine microscopy)
- Offer Faecal Immunochemical testing (FIT) (tests for occult blood loss)

Depending on local pathways/dietitian competency some of these may need to be requested via nurse practitioner or GP

Who Needs Fast-Track GI Referral?

Suspected Colorectal cancer

- Urgently refer (appointment within two weeks) people:
 - aged 60 and over with either:
 - iron deficiency anaemia
- Consider urgent referral (appointment within two weeks) for people:
 - aged under 50 with rectal bleeding and any of the following unexplained signs or symptoms:
 - abdominal pain
 - altered bowel habit
 - weight loss
 - iron deficiency anaemia.

Suspected Upper GI / Oesophago-Gastric Cancer

- Urgently refer (2 week wait) people:
 - with dysphagia, at any age
 - aged 55 and over with weight loss, plus upper abdominal pain, reflux, or dyspepsia
- Consider urgent referral for people:
 - aged 55 and over with dyspepsia that hasn't responded to PPI treatment
 - with upper abdominal pain and low haemoglobin (i.e. IDA)
 - with a raised platelet count plus nausea, vomiting, weight loss, reflux, dyspepsia, or upper abdominal pain
- ***Some areas run a specific combined IDA fast-track pathway (e.g. Merseyside) – always check local pathways***
- ***BSG: men and non-menstruating women with IDA warrant bidirectional endoscopy even without GI symptoms – via routine (non-fast-track) gastroenterology referral***

Who Needs Fast-Track Gynae or Urology Referral?

Gynaecology

- Urgently refer women (2 week wait) who are:
 - aged 55 and over with postmenopausal bleeding (unexplained vaginal bleeding more than 12 months after the menopause)
- Consider urgent referral for women aged under 55 with postmenopausal bleeding

Urology

- Urgently refer people (2 week wait) who are:
 - aged 45 and over with unexplained visible haematuria without a UTI, or that persists/recurs after treatment of a UTI
 - aged 60 or over with unexplained non-visible haematuria, plus dysuria or a raised white cell count
- ***Iron deficiency anaemia alone doesn't meet gynae or urology fast-track criteria – refer on associated red-flag symptoms, not IDA in isolation***

Who Needs Urgent Haematology Referral?

Symptoms & Signs

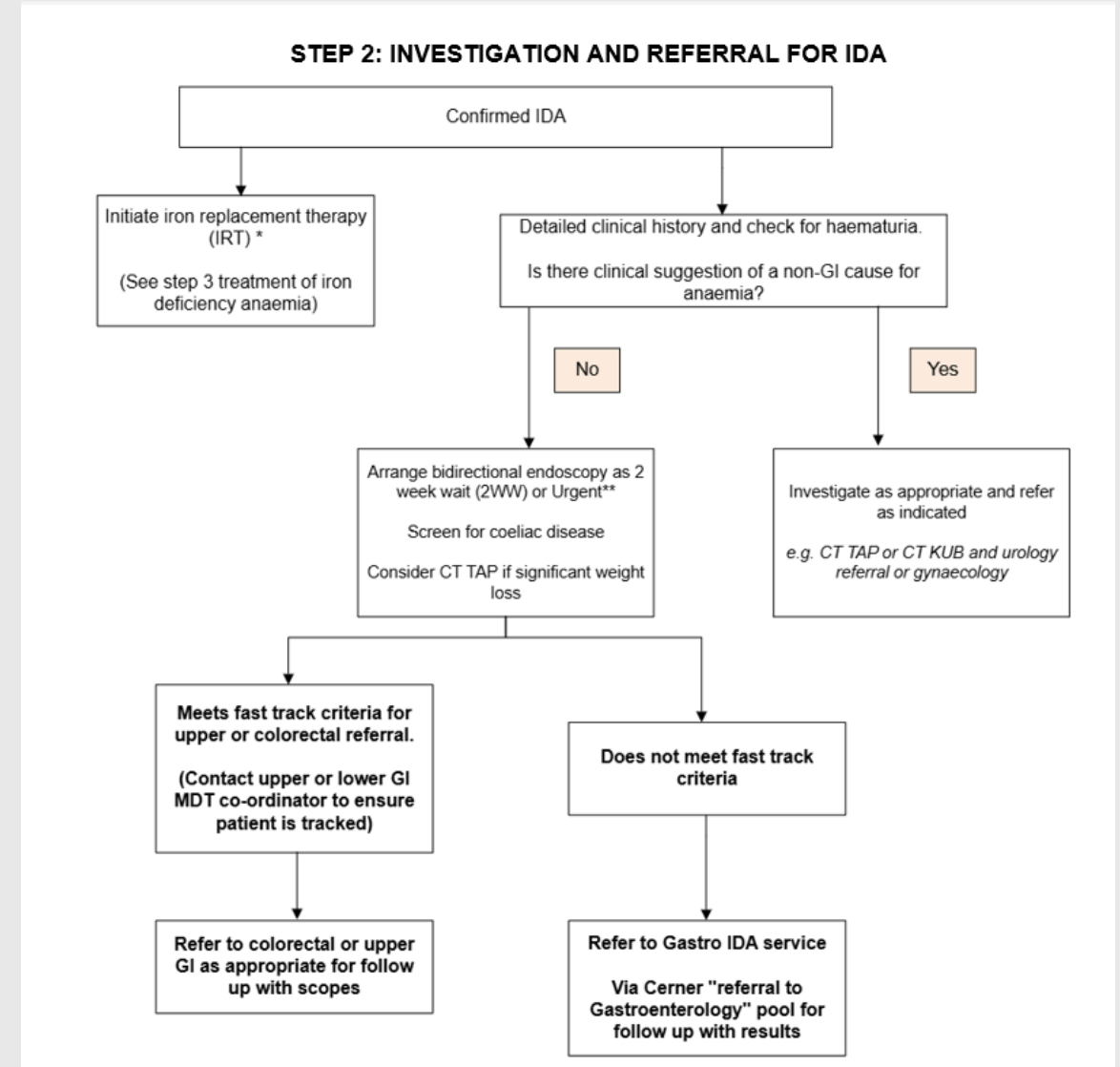
- Unexplained fatigue or pallor out of keeping with the Hb
- Unexplained fever or night sweats
- Unintentional weight loss
- Recurrent or unusual infections
- Easy bruising, bleeding gums, or petechiae
- Bone pain, especially back pain (myeloma)
- Persistent, non-tender lymphadenopathy
- Abdominal fullness or early satiety (splenomegaly)

Blood Count Red Flags

- Neutrophils <1.0 or platelets <80
- Blast cells reported on the film
- Rouleaux formation or a very high ESR
- Persistent unexplained lymphocytosis
- Unexplained hypercalcaemia
- Any cytopenia not explained by iron, B12, or folate deficiency
- ***Any of these alongside anaemia warrants urgent haematology referral rather than a routine IDA workup***

Investigation of IDA

- Delay Oral iron if colonoscopy/CTC likely to occur within 2 weeks
- Recent Bidirectional investigation + recurrence may benefit from small bowel investigation (or sooner if IBD features, B12 deficiency)
- CT TAP/CXR should be referred for patients with additional risk factors for cancer (significant weight loss, long smoking history)



Treatment – IRT + treat underlying cause

Oral Iron

- 1st line OD or EOD Ferrous sulphate (Fumerate)
 - Sodium feredate liquid or ferric maltol alternatives
- Taken on an empty stomach(away from PPIs)
- Hb rise >10 within 2-4 weeks
- Continue for 3 Months once Hb normalised
- Failure may be malabsorption

IV Iron

- Urgent need for correction
- Previous weight loss surgery
- Heart Failure with reduced Ejection fraction on echocardiograms EF < 40
- CKD 3 or more eGFR <35-40
- Active IBD (consider maltol if quiescent)
- Intolerance to PO iron (two forms)

Optimising Oral iron Therapy

- No more than once a day – alternate may be better (hepcidin mediates absorption)
- Side effects relate directly to amount of iron per dose
- Take on an empty stomach with water
 - Away from
 - Thyroxine
 - Antacids PPIs, H2 antagonists
 - Calcium Supplements
 - alendronic acid
 - Mycophenolate
 - Parkinson meds
 - Tea, coffee and phytates (wholegrains, legumes) inhibit absorption

OTC Iron Supplements: How Much Elemental Iron?

Product	Elemental Iron per Dose	Comment
Spatone (sachet)	~5mg	Naturally occurring iron-rich water
Floradix (liquid, per 10ml)	~7.5–10mg	Ferrous gluconate, herbal/fruit-based formulation
Feroglobin (liquid, per 20ml)	~14–17mg	Ferrous gluconate, plus B12/folic acid/vitamin C
<i>Prescribed (for comparison)</i>		
Ferrous sulphate 200mg (prescribed)	65mg	Standard treatment dose, shown for comparison
Sodium feredetate – Sytron (liquid, per 10ml)	~55mg	Alternative when standard ferrous salts not tolerated
Ferric maltol – Feraccru (30mg capsule, one BD)	30mg (60mg/day)	Used in IBD or where standard salts not tolerated

OTC products contain a fraction of a treatment dose – useful for mild top-up or maintenance, not for correcting diagnosed IDA

Who Needs Parenteral B12 Replacement

Intrinsic Factor Antibody

- Single most useful additional test in primary care when B12 is low
- Positive result picks up pernicious anaemia
- These patients need parenteral replacement – no role for oral B12
- Also needs gastroenterology referral for OGD
 - At risk of atrophic gastritis
 - May need long-term adenocarcinoma surveillance, so baseline OGD is important

Straight to Parenteral B12

- IBD with small bowel disease or terminal ileal disease specifically
 - Can't absorb oral cyanocobalamin
- History of right hemicolectomy
 - Terminal ileum removed with the resection
- Gastrectomy
 - No stomach means no intrinsic factor – total gastrectomy is a lifelong indication
- Bariatric surgery (Roux-en-Y gastric bypass)
 - Bypasses the duodenum and proximal jejunum – sleeve gastrectomy carries a lower but non-zero risk

B12 & Folate Replacement: Dosing and Sequencing

B12 Dosing

- **Paraesthesia, numbness, ataxia, visual disturbance, or cognitive change – needs same-day medical assessment**
 - Don't delay treatment pending results if these are present
- Oral cyanocobalamin (dietary deficiency only): 50–150 micrograms daily
- Parenteral hydroxocobalamin, no neuro involvement:
 - 1mg IM 3x/week for 2 weeks, then 1mg IM every 2–3 months
- Parenteral hydroxocobalamin, with neuro involvement:
 - 1mg IM on alternate days until no further improvement, then 1mg IM every 2 months

Folate Dosing & Sequencing

- Folic acid 5mg daily for 4 months (up to 15mg/day if malabsorption)
- **Never start folic acid until B12 status is known**
 - Folate alone can precipitate or worsen subacute combined degeneration of the cord in undiagnosed B12 deficiency
- If both are deficient, treat B12 first or concurrently – never folate alone first
- Correcting B12 deficiency accelerates erythropoiesis and increases iron demand – watch for a coexisting iron deficiency being unmasked

Case to consider

- Individual with Normocytic anaemia (BG: TI Crohn's or ETOH XS)
- c/o fatigue, pins and needles in toes.
 - Haematinics show significant B12 deficiency & iron deficiency
 - Not suitable for Oral iron replacement

How will you manage his iron and B12 replacement and why ?

Useful Free Online Learning Resources

NHSBT: Anaemia -The only introduction you need

- <https://learninghub.nhs.uk/Resource/4392/Item>

Anaemia of inflammation and chronic disease online module

- <https://content.learninghub.nhs.uk/content/76cb36cb-6e93-4cd0-8951-63c37efb5446/scormcontent/index.html#/>

Primary care Society for Gastroenterology Ingest Podcast: IDA

- <https://www.pcsg.org.uk/podcast/iron-deficiency-anaemia/>

NICE Clinical Knowledge Summary On Iron deficiency Anaemia

- <https://cks.nice.org.uk/topics/anaemia-iron-deficiency/>

BMJ article: Iron deficiency anaemia: pathophysiology, assessment, practical management

- <https://bmjopengastro.bmj.com/content/9/1/e000759>

Anaemia of inflammation and chronic disease: Case studies

- <https://learninghub.nhs.uk/Resource/8648/Item>

NICE CKS: Anaemia – B12 and folate deficiency

- <https://cks.nice.org.uk/topics/anaemia-b12-folate-deficiency/>