Macrocytosis +/- anaemia or **strong clinical suspicion with no other identifiable cause**

e.g. visual disturbance, memory loss, psychiatric abnormalities, peripheral neuropathies, oral glossitis/ulceration, malabsorption syndromes and cytopenias

Tiredness alone is not an indication for testing

Check Vitamin B12

If patient is anaemic or macrocytic **request reticulocyte count** and **folate** and see 'Vit B12 initial tests & monitoring'

B12 <180

Intrinsic Factor Ab (IFAB) will be added by the lab for results <180

See 'Vit B12 initial tests & monitoring'

B12 >180

B12 deficiency unlikely

Look for other causes for symptoms

Neurological symptoms

(see 'Vit B12 & neurological symptoms'

In the event of combined B12 and folate deficiency, always start B12 24hrs ahead of folate to protect neurones.

No neurological symptoms

IFAB +ve

Pernicious anaemia

IFAB -ve

Non dietary B12 deficiency

eg gastric surgery, malabsorption, or coeliac (poorly controlled/new diagnosis only)

See 'Vit D & GI conditions' for further info

Presumed dietary B12 deficiency

IM hydroxocobalamin 1mg every other day

until no symptomatic improvement

(see 'Vit B12 & neurological symptoms' for additional info and exceptions)

IM hydroxocobalamin 1 mg x3/wk for 2 weeks

B12 <145

B12 145 - 180

IM hydroxocobalamin 1 mg x3/wk for 2 weeks

Then 1mg IM every 3 months

If neuro symptoms present (or return on longer dosing interval) consider 2 monthly injections.

Give dietary advice

or consider

oral cyanocobalamin

between meals

Recheck B12 levels after 6 months

Coeliac Disease

Other Causes

B12 <180

Start oral cyanocobalamin / increase dose if not already on treatment/max dose

B12 >180

Dietary B12 Deficiency

Continue IM treatment for 1 year and then recheck B12 levels

Continue IM injections long-term. There is **no need to monitor** serum vitamin B12 levels in patients receiving regular IM B12.

FBC can be used to check response if ever symptomatic, but long-term monitoring not required

The BNF recommends a standard 3 monthly IM regime, shortened to 2 monthly where necessary. The evidence base for doses more often than 3 monthly is poor, and in general these should only be considered if there is clear evidence of insufficient replacement, such as persistently low B12 levels, or persistence / return of neurological symptoms on longer dosing interval.

Recheck B12 levels after 6 months

If B12 <180 despite 150mcg oral cyanocobalamin then consider a diagnosis of

IFAB Negative Pernicious Anaemia

Intrinsic Factor (IF) Ab is poorly sensitive: up to half of individuals with pernicious anaemia are IF Ab negative. Gastric parietal cell Abs are also not fully sensitive and are poorly specific so checking these is unlikely to be useful

Diagnosis of pernicious anaemia in IF Ab negative individuals therefore relies on clinical evaluation. e.g. pts who fail to respond to oral therapy.

See 'Vit B12 initial tests & monitoring' for more detail on immunological testing

If on cyanocobalamin consider continuing current dose depending on clinical picture.

In vegans, treatment may need to be **life-long**, whereas in other people with dietary deficiency replacement treatment **can be stopped** once the **vitamin** B12 levels have been corrected and the diet has improved.

See 'Vit B12 - step down / discontinuation' and 'Vit B12 & associated medications & conditions'

B12 >180

If there is good control and low tTG antibody levels, then generally B12 supplementation can be stopped with no further monitoring.

(see 'Vit D & GI conditions' if further info required)

hydroxocobalamin 1 mg IM every 3 months

Stopping IM hydroxocobalamin, converting to oral,

or **discontinuing oral B12**

See 'Vit B12 - step down / discontinuation' / 'Vit B12 & associated medications & conditions' for more detail.

If the cause of the B12 deficiency has likely been reversed e.g. improved diet, metformin discontinued (but see below)

If cause has clearly been reversed no further follow up checks required. If in doubt, consider a B12 check at 1 year.

After this recheck B12 level again only if indicated.

If the cause of the B12 deficiency is unclear or may persist

Recheck B12 levels after 6 months and 1 year

Further checks for up to 5 years may sometimes be appropriate depending on the clinical picture.

See 'Vit B12 - step down / discontinuation' for further info