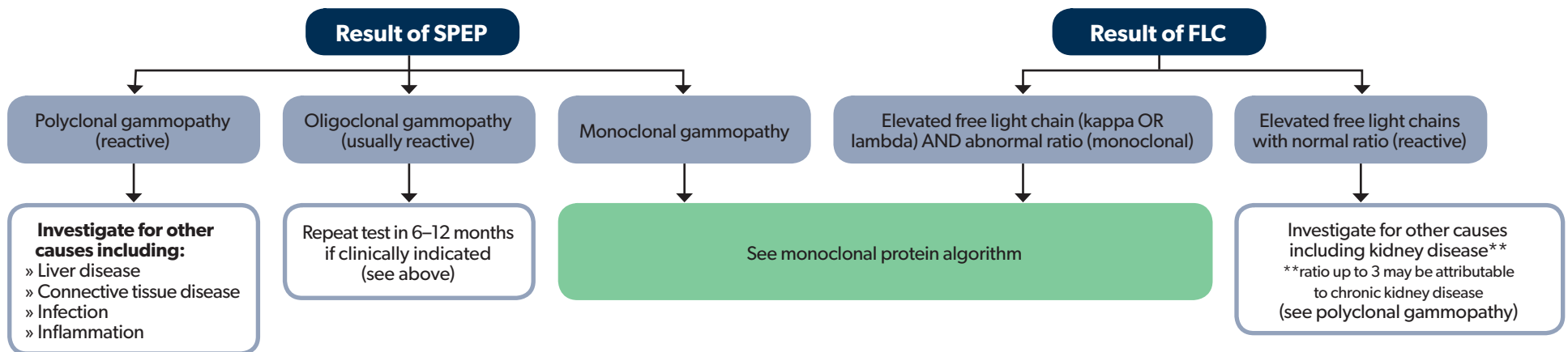
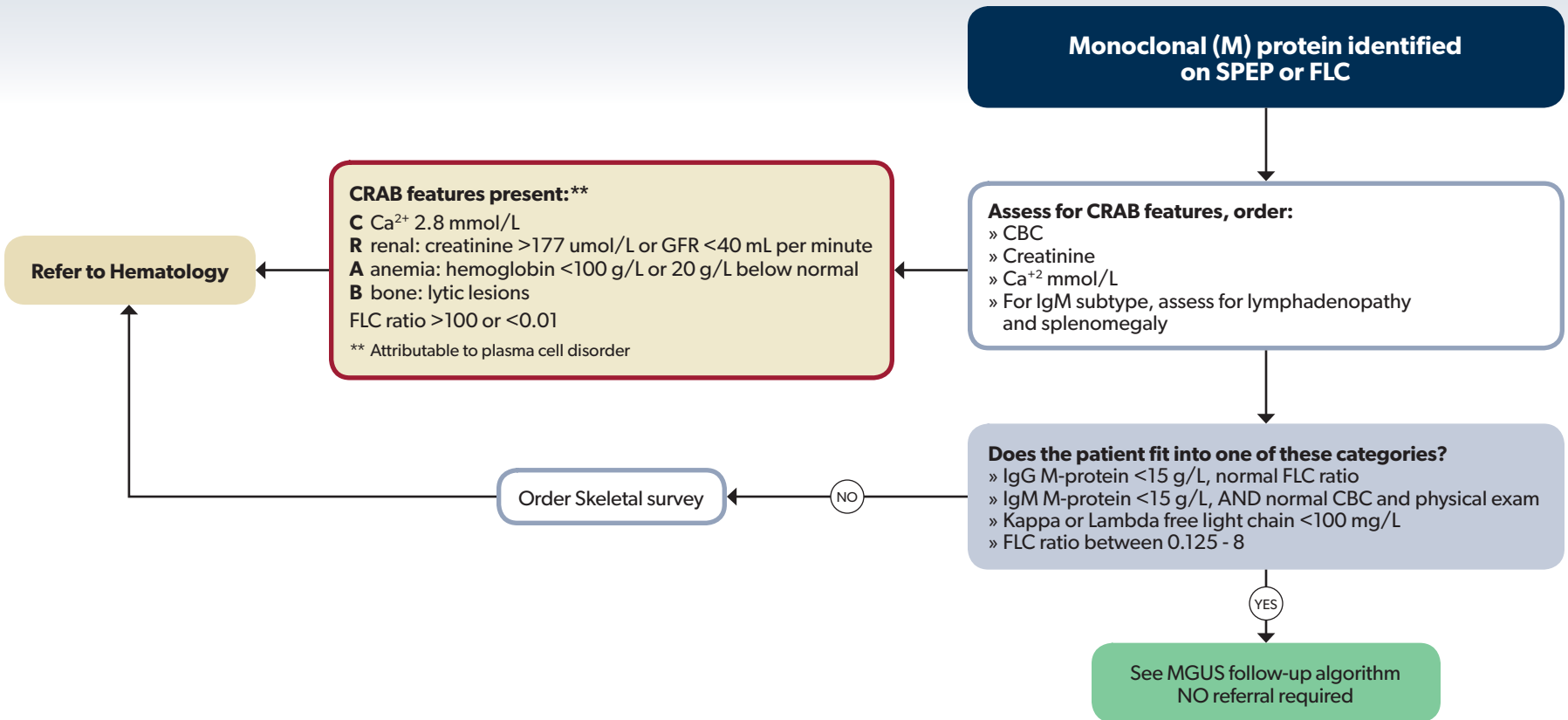


How to interpret the SPEP and FLC

When to order an SPEP and FLC:

- » Unexplained anemia
- » Osteopenia, osteolytic lesions, spontaneous fractures
- » Renal insufficiency with bland urinary sediment
- » Heavy proteinuria or Bence Jones proteinuria
- » Hypercalcemia with normal PTH
- » Hypergammaglobulinemia
- » Immunoglobulin deficiency

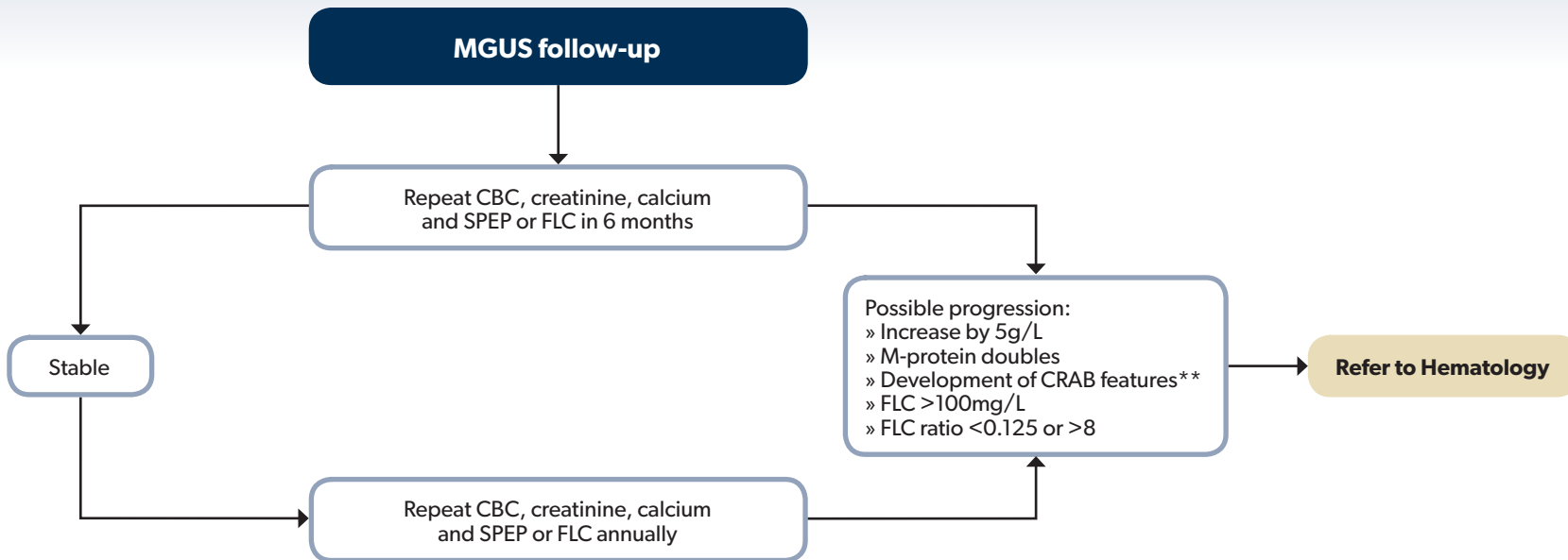




MGUS = monoclonal gammopathy of undetermined significance

SPEP = serum protein electrophoresis

FLC = free light chain



MGUS = Monoclonal Gammopathy of Undetermined Significance

FLC = Free Light Chain

CRAB features present:**

C Ca²⁺ 2.8 mmol/L

R renal: creatinine >177 umol/L or GFR <40 mL per minute

A anemia: hemoglobin <100 g/L or 20 g/L below normal

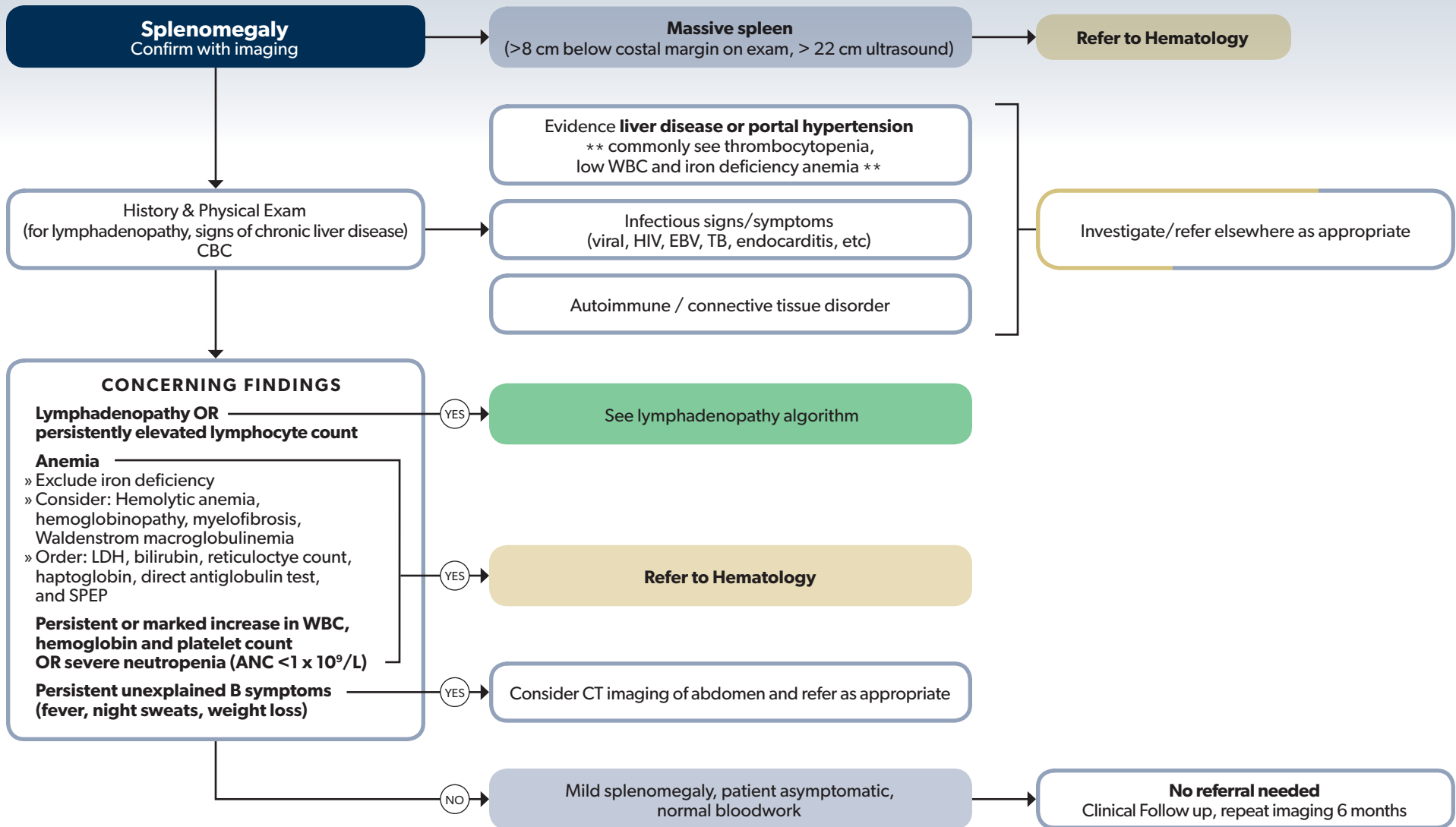
B bone: lytic lesions

FLC ratio >100 or <0.01

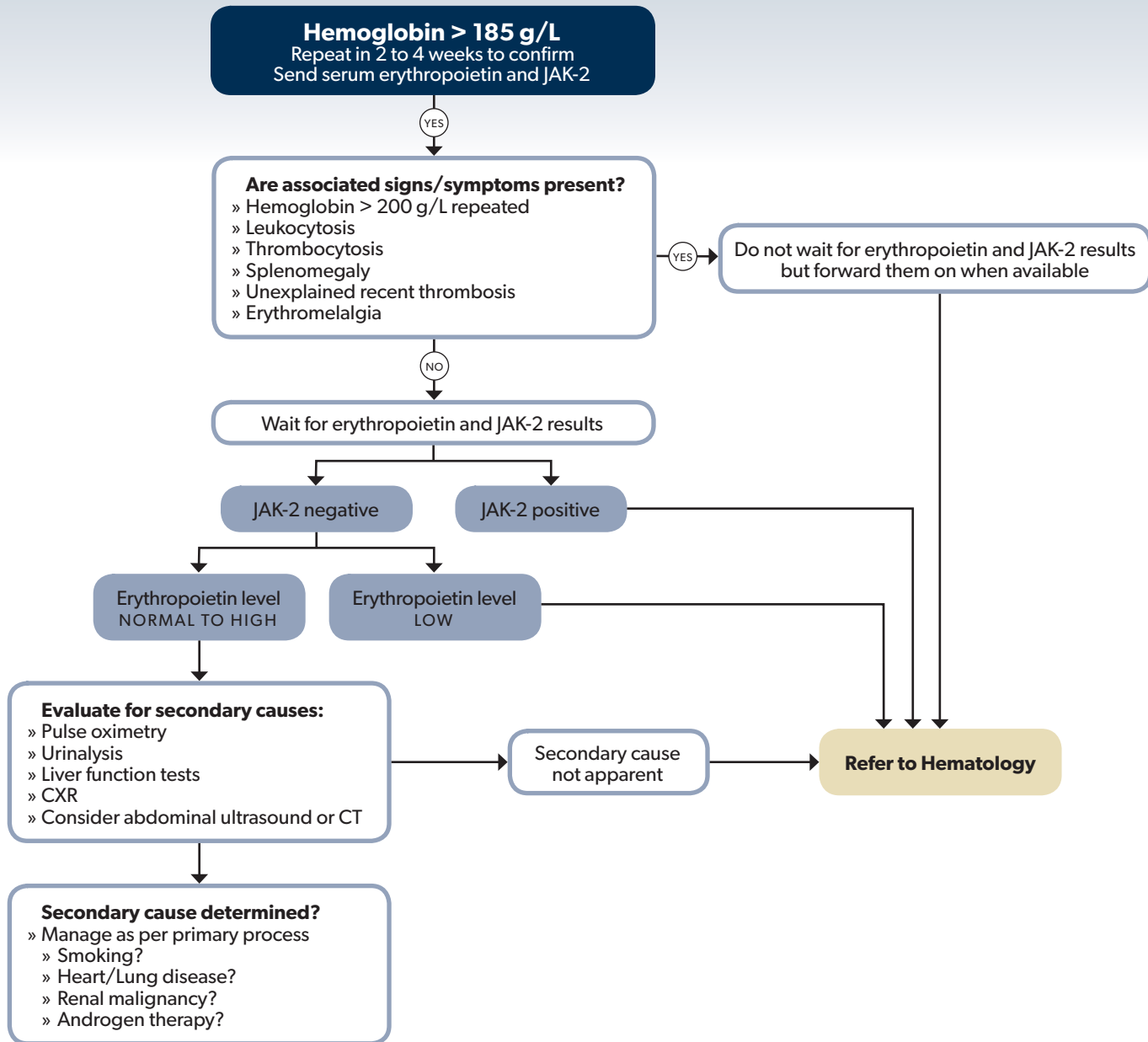
** Attributable to plasma cell disorder

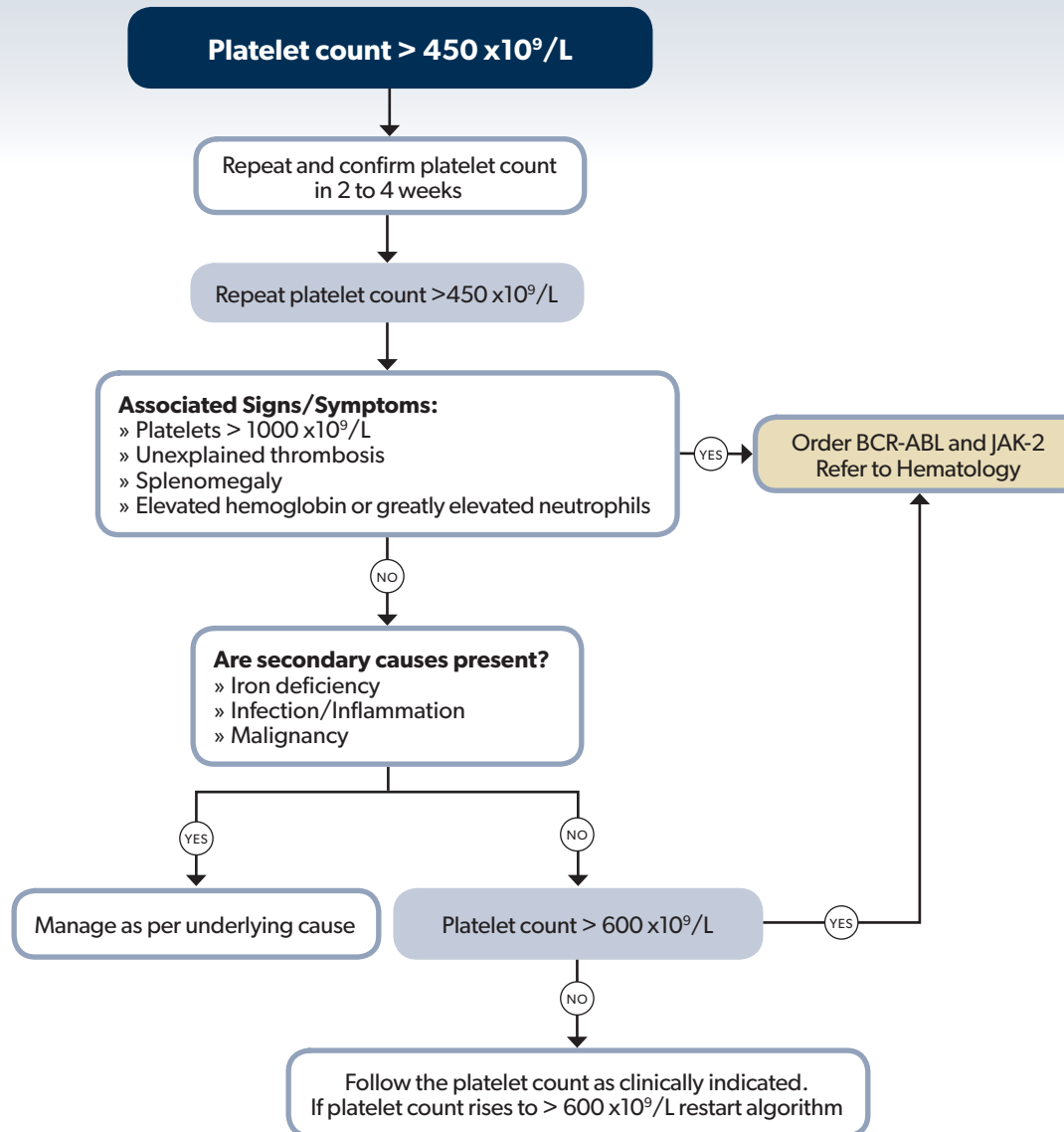
ANNUAL RISK OF PROGRESSION FOR MGUS SUBTYPES

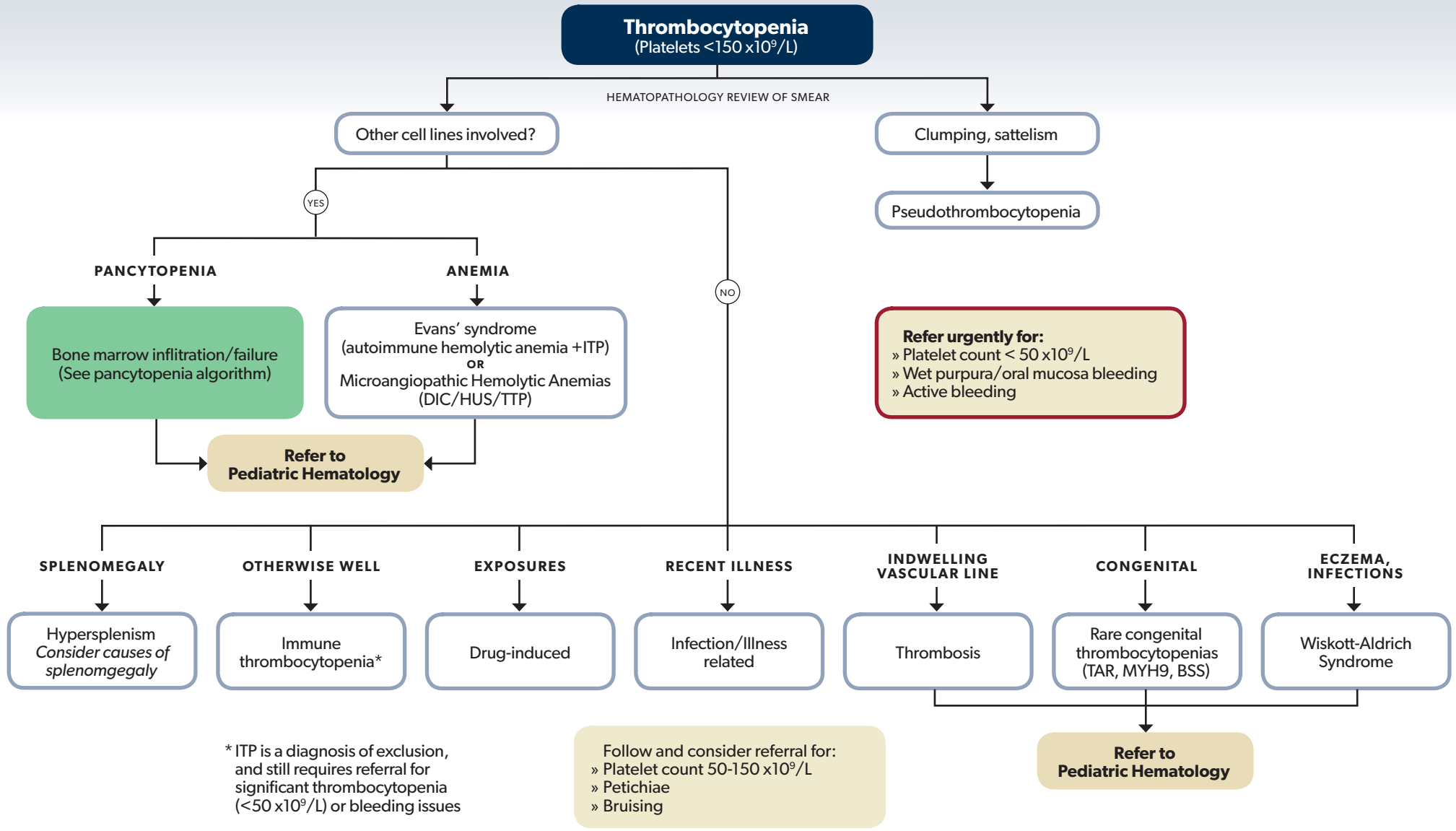
MGUS Subtype	Risk	Associated disorders
IgM MGUS	1% per year	Waldenstroms macroglobulinemia
Non-IgM MGUS	0.5% per year	Multiple myeloma, plasmacytoma, amyloidosis
Light chain MGUS	0.3% per year	Light chain myeloma, amyloidosis
Low risk MGUS (IgG, <15 g/L, normal FLC)	2% lifetime risk	



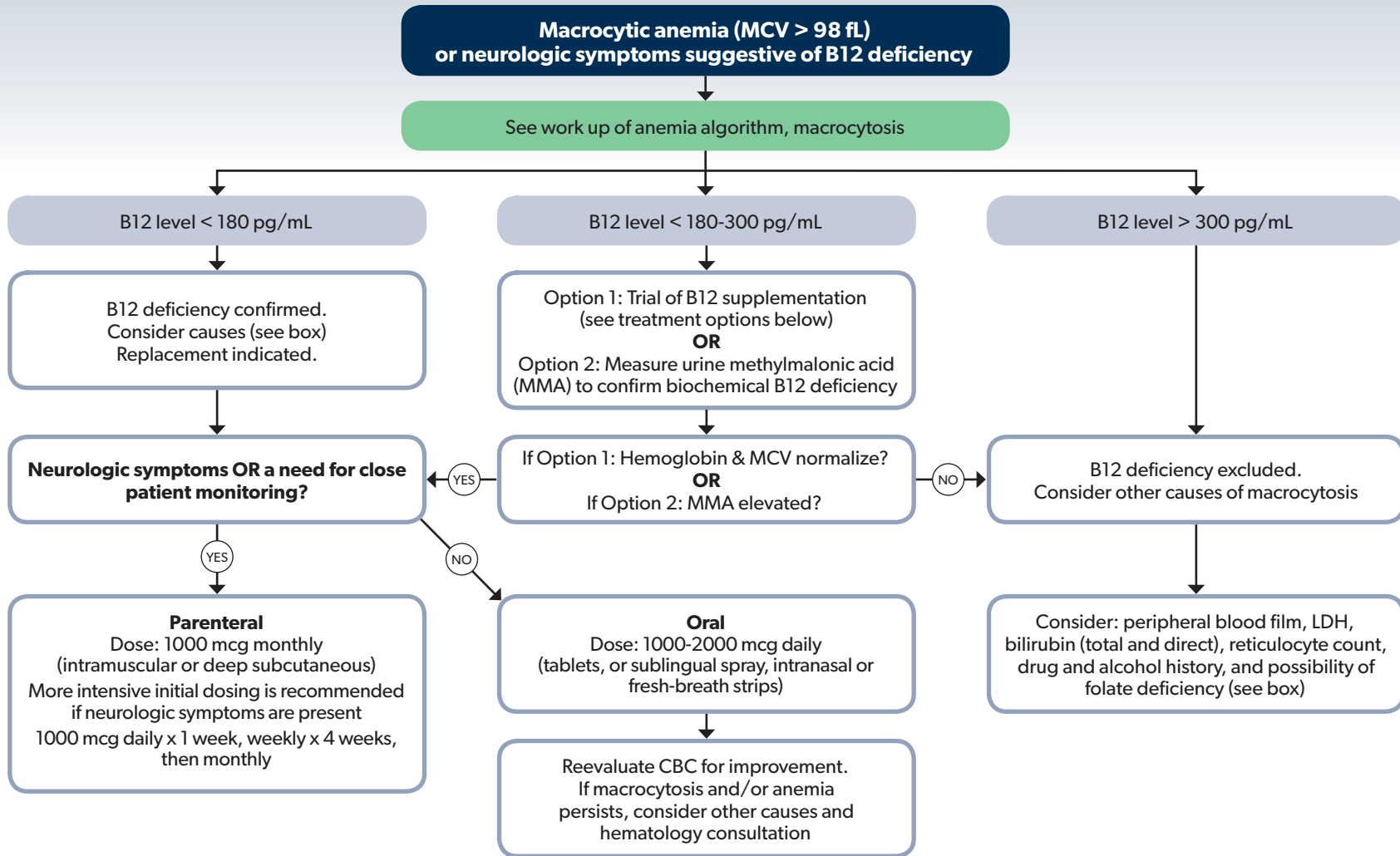
Erythrocytosis







* ITP is a diagnosis of exclusion, and still requires referral for significant thrombocytopenia ($< 50 \times 10^9/L$) or bleeding issues



© Blood Disorder Day

Pathways are subject to clinical judgement and actual practice patterns may not always follow the proposed steps in this pathway.

Causes of vitamin B12 deficiency

Gastric

- » Pernicious anemia (autoantibodies)
- » Gastrectomy/bariatric surgery
- » Gastritis

Pancreatitis

Pancreatic insufficiency

Strict vegan diet

Small bowel disease

- » Malabsorption syndrome
- » Ileal resection or bypass
- » Inflammatory bowel disease
- » Celiac disease
- » Bacterial overgrowth
- » Blind loop
- » Fish tapeworm

Agents that impair B12 absorption

- » Biguanides (e.g. metformin)
- » Proton pump inhibitors
- » Histamine-2 receptor antagonists
- » Nitrous oxide gas

Causes of Folate deficiency

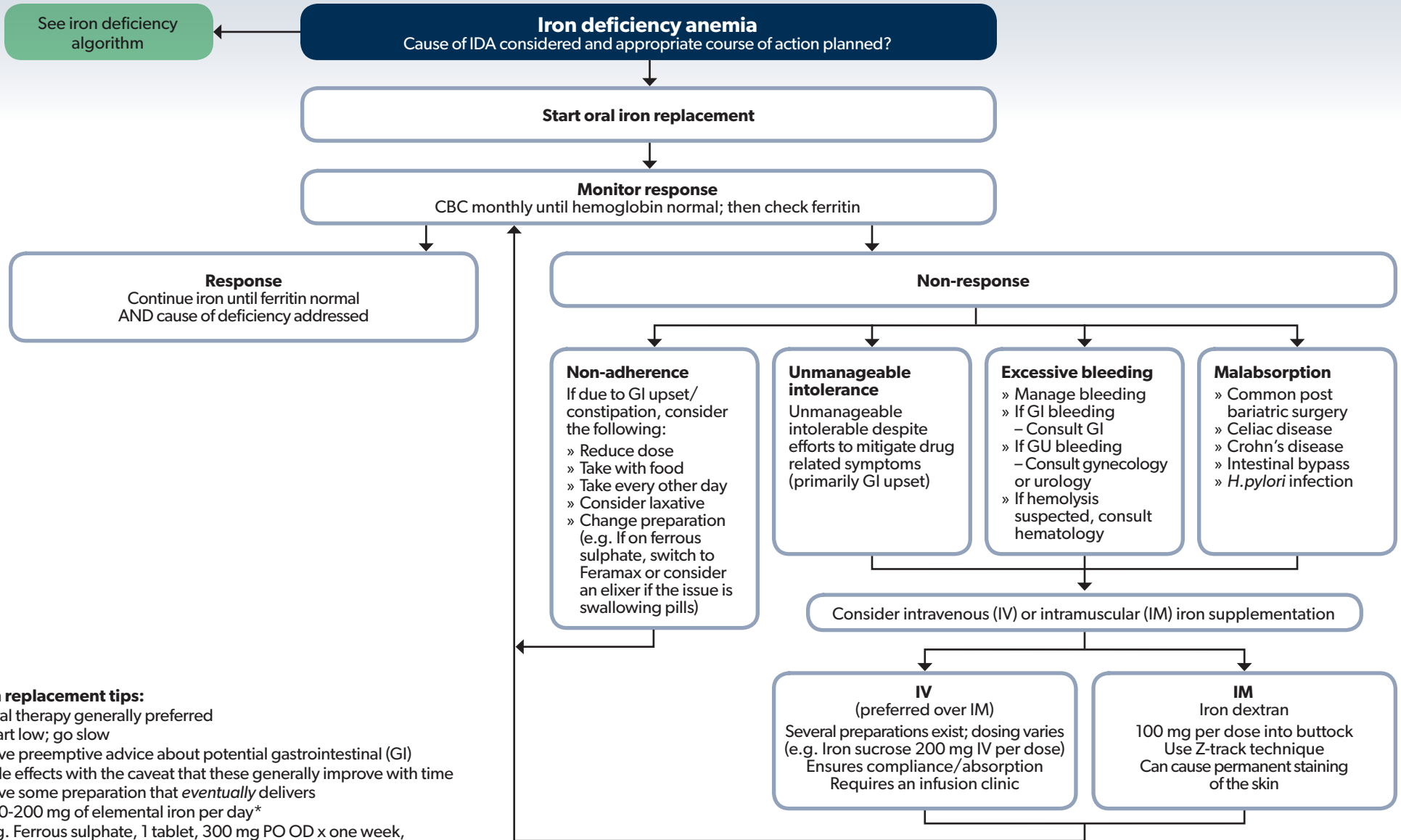
Malabsorption

- » Celiac disease
- » Inflammatory bowel disease
- » Intestinal bypass

Folate inhibition

- » Methotrexate
- » Dilantin
- » Alcoholism

Patients with any of the above should receive folate supplementation. No need to measure folate level. NOTE: mandatory staple food fortification has eradicated dietary folate deficiency



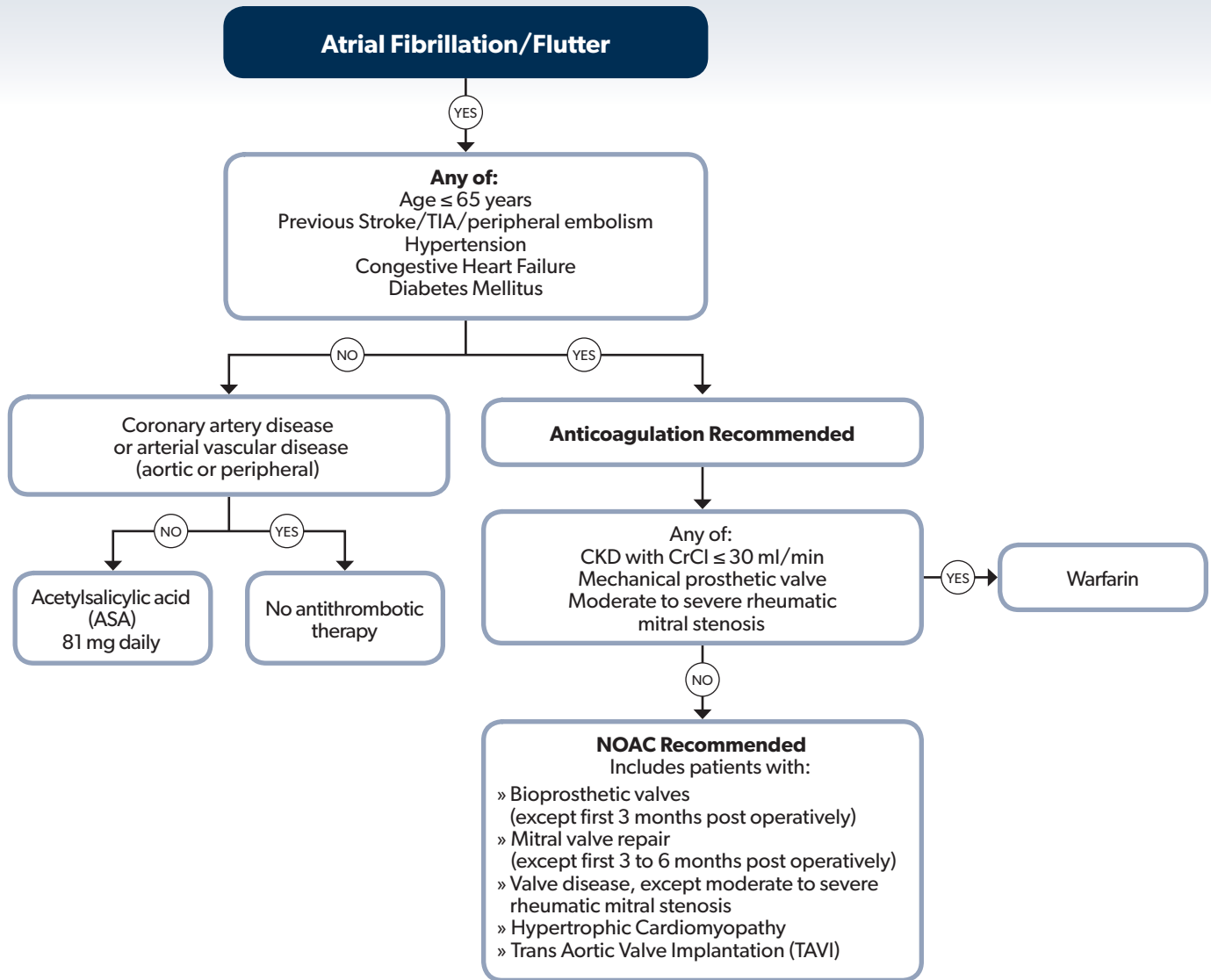
Iron replacement tips:

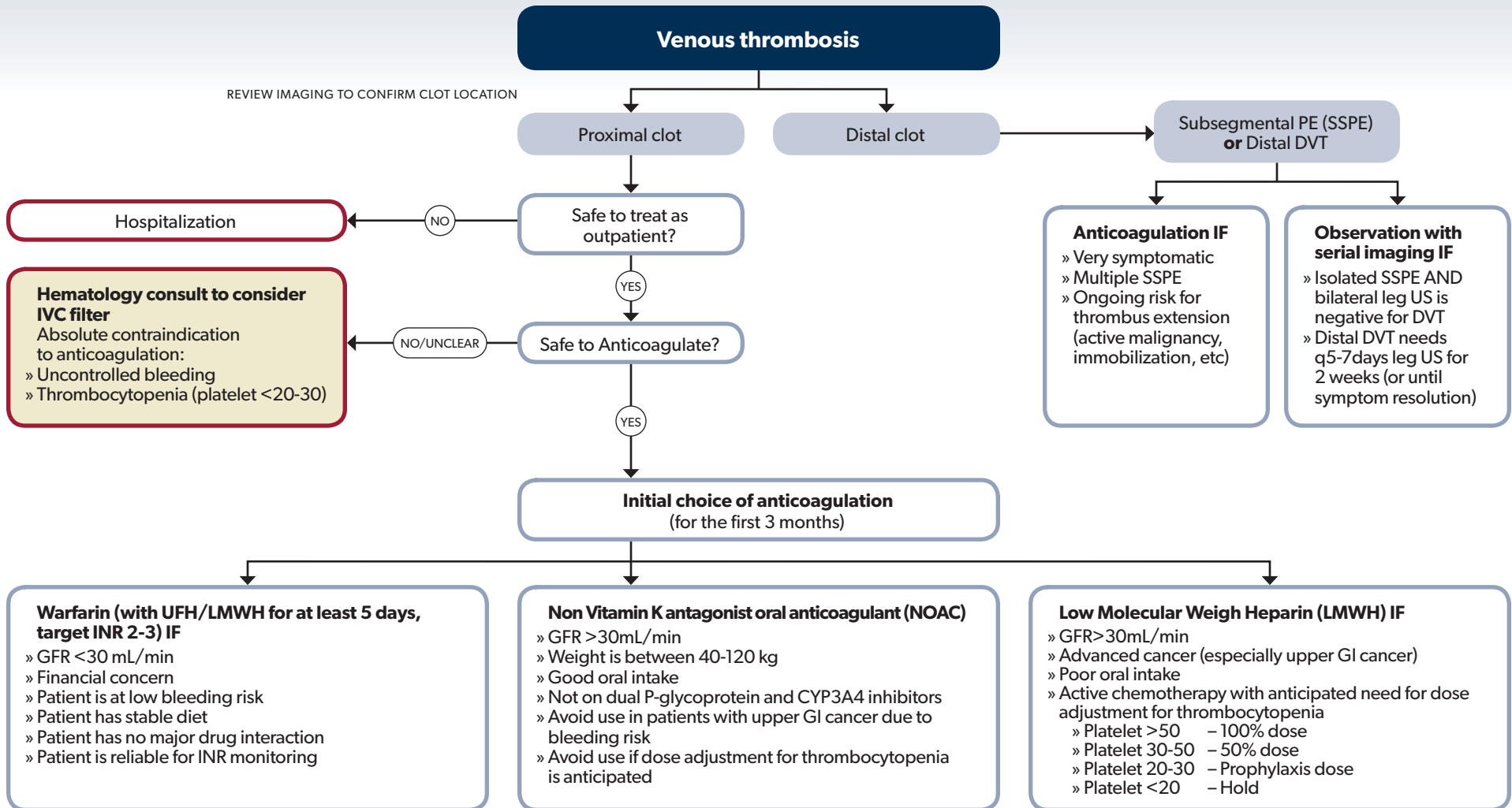
- » Oral therapy generally preferred
- » Start low; go slow
- » Give preemptive advice about potential gastrointestinal (GI) side effects with the caveat that these generally improve with time
- » Give some preparation that *eventually* delivers 150-200 mg of elemental iron per day*
e.g. Ferrous sulphate, 1 tablet, 300 mg PO OD x one week, then 1 tab BID x one week, then (if tolerating well) 1 tab TID until deficiency corrected

*Suggested to start by taking iron before bed to reduce GI upset.

Consider Referral to Cardiology in Patients with:

- » Cardiomyopathy
- » Moderate to severe valvular disease
- » Symptoms (dyspnea, presyncope)
- » Difficult to control ventricular rates
- » Especially those over age >75 on 2 or more rate controlling agents (for possible AV node ablation/pacemaker insertion)
- » Age less than <60
- » Recurrent atrial flutter (for possible ablation)
- » Recent myocardial infarction and stent insertion
- » High risk for bleeding
- » Professional driver's/pilot's licenses





CONTINUED »

