Flowchart 2: Vitamin D: Deficiency in Adults in the context of (or at increased risk of) osteomalacia, osteoporosis or increased risk of fracture

**Box A: Measuring Vitamin D levels**
When to Measure Vitamin D:
1. Patients with low adjusted serum calcium (<2.1 mmol/L) and/or possible osteomalacia.
2. Patients with malabsorption syndromes
3. CKD (eGFR <30), measurements will be carried out by specialist clinics only.

**Box B: Special Considerations**
1. If fracture / osteoporosis and for IV zoledronic acid or SC denosumab, give 100,000 units colecalciferol orally once only and then treat with appropriate ongoing calcium and vitamin D preparation or if calcium contraindicated with separate colecalciferol supplement.
2. Patients with malabsorption such as celiac disease / pancreatic insufficiency (e.g. cystic fibrosis) or with chronic liver disease, & low Vitamin D should be treated as for patient with a vitamin D level of <25 nmol/L unless osteomalacia in which case follow guidance above.
3. Patients with chronic kidney disease (eGFR <30) merit discussion with specialists.
4. Vitamin D <25 nmol/L may be inadequate in some people. Consider maintenance 800-1000 units vitamin D supplementation. See point 1 in Box B: special considerations.

Notes – The use of vitamin D in patients with Primary Hyperparathyroidism should be determined through specialist referral to Endocrinology. Potent vitamin D analogues such as calcitriol or alfacalcidol are typically reserved for patients with renal osteodystrophy or for patients with Primary Hypoparathyroidism and should be used in the context of guidance from appropriate specialists – as they carry risk of hypercalcaemia / hypercalciuria.