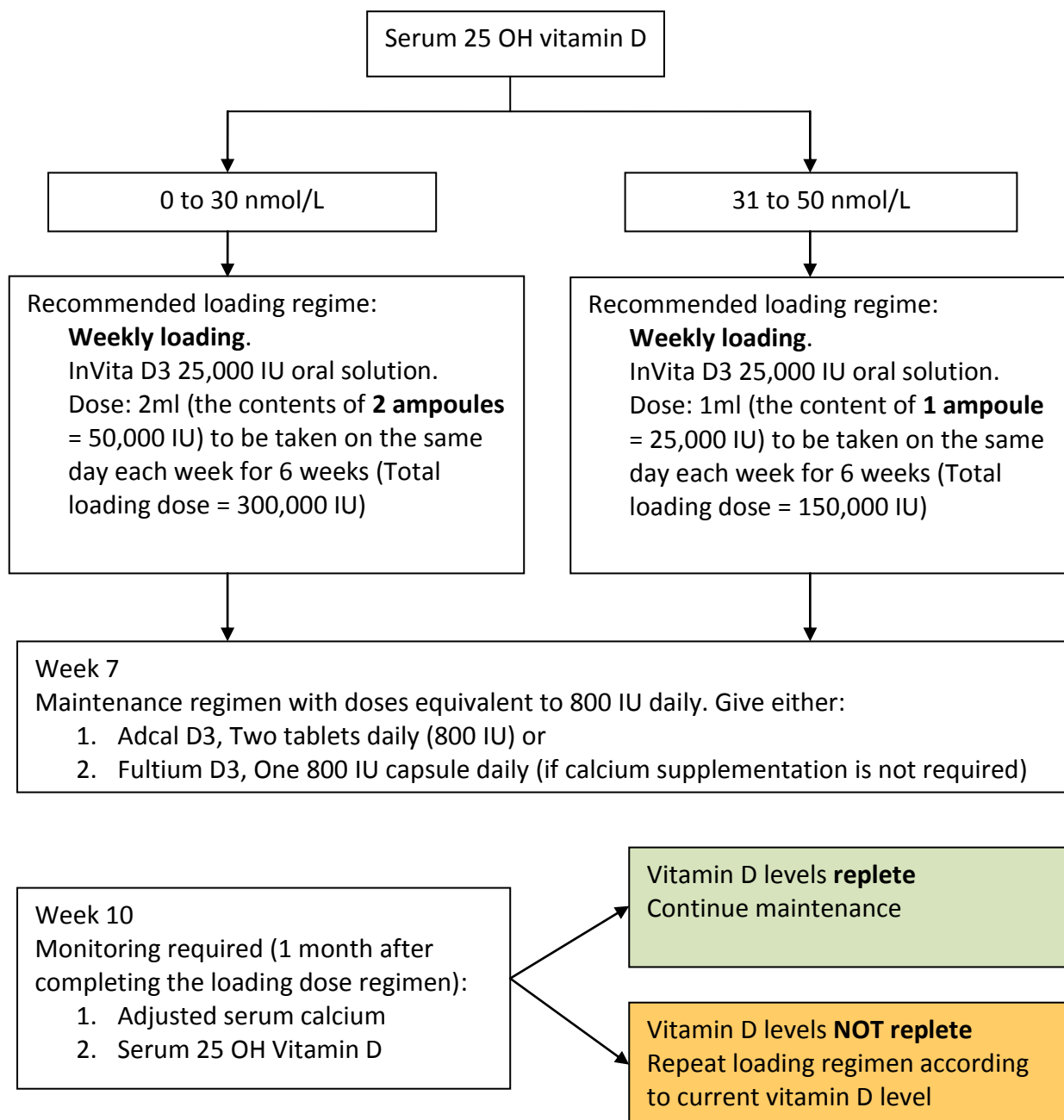


**Clinical Guideline for management of Vitamin D Deficiency
in patients with renal function with a GFR >30ml/min**

Vitamin D thresholds (in accordance with IOM and DH Guidelines)	
Deficiency	Serum 25OHD <30 nmol/L
Insufficiency	Serum 25OHD 30-50 nmol/L
Replete	Serum 25OHD >50 nmol/L
Toxicity	Serum 25OHD >400 nmol/L

Protocol for management



Calcium/vitamin D combinations should not be used as sources of vitamin D for the above loading regimens, given the resulting high dosing of calcium.

Indications to measure vitamin D:

Absolute	Discretionary
Fragility fracture > 50 years	Widespread chronic musculoskeletal pain
Falls in > 65years	Other conditions e.g. intestinal malabsorption
Patient starting bone specific therapy e.g. denosumab, zoledronate	Lifestyle associated with vitamin D deficiency. People with low or no exposure to the sun e.g. full cover clothing when outside, other reasons to avoid sunlight such as adverse drug reactions
Enzyme inducing antiepileptic drugs e.g. Carbamazepine, lamotrigine, oxcarbazepine, phenobarbitone, phenytoin, primidone, topiramate	

- Universal screening of asymptomatic populations is not recommended.

Monitoring required:

- Adjusted serum calcium should be checked 1 month after completing the loading or after starting vitamin D supplementation in case primary hyperparathyroidism has been unmasked.
- Serum 25 OH Vitamin D should be checked 1 month after completing the loading regimen.
- Routine monitoring is generally not necessary but may be appropriate in patients with symptomatic vitamin D deficiency or malabsorption and where poor compliance with medication is suspected.
- Routine testing is not necessary in patients taking calcium and vitamin D supplementation with oral bisphosphonates or strontium ranelate.

For the on-going management of these patients:

- Maintain vitamin D in the range 50 to 200 nmol/L
- Continue Adcal D3 or Fultium-D3 long-term
- In elderly patients with low bone mass consider addition of bisphosphonates after 12 months. Continue calcium and vitamin D supplementation.

Estimated daily dietary calcium intake	Dose of Adcal D3	Dose of Fultium-D3
<500mg	1 tablet bd (800 IU)	Not recommended
500mg- 800mg	1 tablet daily	Consider Adcal D3 1 tablet daily
>800mg	Not required	1 capsule daily (800 IU)

Estimating patient's daily dietary calcium intake (approximate values)

1 pint milk (or equivalent)	= 600 - 650mg	Sardines in oil	= 500mg/100g
1 serving cheese	= 200mg/oz	Tuna in oil	= 12mg/100g
1 small pot of yoghurt	= 150 - 200mg		

Calcium rich food leaflet is available to download at:

<http://www.nos.org.uk/NetCommunity/Document.doc?id=395>

Reference:

1. National Osteoporosis Society: Vitamin D And Bone Health: A Practical Clinical Guideline For Patient Management. <http://www.nos.org.uk/document.doc?id=1352> . [accessed 30/07/2014]
2. Vitamin D – advice on supplements for at risk groups. Letter from the Chief Medical Officers for the United Kingdom. [accessed 30/07/2014] <https://www.gov.uk/government/publications/vitamin-d-advice-on-supplements-for-at-risk-groups>