BNSSG Adult Guidelines for Vitamin D Deficiency

Healthier Together
Improving health and care in Bristol, North Somerset and South Gloucestershire

Signs and Symptoms of vitamin D deficiency:

- Fragility fracture(s)
- Suspected osteomalacia which may present as lower back pain, bone pain in the shoulder, ribs, pelvis or legs, muscle pain and weakness, waddling gait; and impaired physical function

Risks and predisposing factors for low vitamin D

Adults who are at higher risk of vitamin D deficiency:

- Aged 65 years and over
- Low or no exposure to the sun e.g. housebound, care home resident, individuals and those who cover their skin, or those confined indoors for long periods
- Patients with darker pigmentation skin e.g., African, African-Caribbean, or South Asian origin
- Taking certain drugs that increase the risk of vitamin D deficiency
- Obesity (BMI>30)
- Gastrointestinal or malabsorption disorder, or following weight-loss surgery
- Severe liver disease or end stage CKD
- Pregnant or breastfeeding

Also, consider vitamin D deficiency in patients with:

- Fragility fractures, osteoporosis or high fracture risk.
- Dietary factors - vitamin D restrictive diets e.g. vegan

Assessing the patient
DO NOT ROUTINELY MONITOR VITAMIN D IN ASYMPTOMATIC PATIENTS

No risk/predisposing factors
No signs or symptoms

- No Investigations
- Lifestyle advice
- Consider recommending OTC supplement of 400 units daily, particularly in Autumn/winter (Table 1)

Risk/predisposing factors present
No signs or symptoms

- No investigation
- Lifestyle advice
- Consider recommending OTC supplement (Table 1)
- If high risk, consider prescribing a supplement

Symptoms present with or without risk/predisposing factors OR if clinical reason present

- Check bloods for Vitamin D (if not done in previous 6 months) and U&Es, LFTs, Ca^{2+}, PO_4^{3}

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Table 1 – Standard Maintenance and Prevention Doses

Dose	Preparations
400 to 1000 units daily	A range of products are available from community pharmacies, supermarkets and health food stores. Clinicians to use clinical judgement when advising on suitable dose.
Recommend patients purchase maintenance and prevention doses OTC, unless high risk (see below) where dose may be prescribed.	

NICE recommend that **pregnant and breastfeeding** women take 400 units daily. Purchase OTC unless eligible for free vitamins from the NHS via the Healthy Start Scheme

Lifestyle Advice

- Safe sun exposure
- Dietary intake of vitamin D (oily fish, egg yolk, meat, mushrooms)
- Adherence to long-term supplements (if applicable)

High risk patients who may be prescribed vitamin D

Housebound/severe frailty, surgery that results in deficiency or malabsorption, fragility fractures, osteoporosis, coeliac, RA, IBD, hyperthyroid, hyperparathyroid, COPD, active TB, drugs that reduce vit D levels (colestyramine, rifampicin, antiepileptics, orlistat ,corticosteroids, thiazide diuretics, digoxin, calcium-channel blockers, antacids, and highly active antiretroviral treatment), asylum seeker/refugee (where vitamin D is initiated/recommended by The Haven Service and they are not able to access via the community pharmacy Haven LES)

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Vitamin D (25-hydroxyvitamin D) levels (nmol/litre)

<25 (Deficiency)

Is rapid correction indicated? E.g. if symptomatic, prior to starting a potent antiresorptive agent

Yes

Rapid correction*
- Treat with high strength Vitamin D. Aim for cumulative dose of 300,000 units per treatment course (Table 2) – see exceptions below.
- Follow all treatment courses with OTC maintenance vitamin D (Table 1) or prescribe if high risk.
- Lifestyle advice

No

Non-urgent correction
- Advise patient to start maintenance therapy (800 – 2000 units daily) (Prescribe if high risk)
- Lifestyle advice

25 – 50 (Insufficiency)
- Recommend purchase of supplement (Table 1)
- If high risk, prescribe supplement (appendix 1)
- Lifestyle advice

>50 (Adequate)
- Consider recommending purchase of supplement (Table 1)
- If high risk, prescribe supplement (appendix 1)
- Lifestyle advice

Table 2– High strength doses available to prescribe for rapid correction

The recommended treatment is based on fixed loading doses of vitamin D_3 (up to a total of about 300,000 international units [IU]) given either as weekly or daily split doses

Total dose & cost	Product	Duration	Dietary considerations (*Manufacturers may change their products' formulation or the suppliers of their excipients. Current status of the product ingredients should therefore be obtained from the manufacturer*)			
			Suitable in soy allergy	Suitable in peanut allergy	Kosher certified	Halal certified
280,000 units = £9.21	**Strivit-D3® (Colecalciferol) 20,000 units capsules** (preferred brand in primary care)	40,000 units (two caps) **weekly** for seven weeks	Yes	Yes	Gelatin Yes	Gelatin Yes
300,000 units = £9.90	Colecalciferol 50,000 units **capsules** (Invita D3®)	50,000 units (one cap) **weekly** for six weeks	Yes	Yes	Gelatin Yes	Gelatin Yes
			Other excipients not sourced from slaughtered animals			
280,000 units =£10.50	Colecalciferol 40,000 units **capsules** (Plenachol®)	40,000 units (one cap) **weekly** for seven weeks	No	No	Yes	Yes
300,000 units = £12.50	Colecalciferol 50,000 units/1ml **oral solution** SF (Invita D3®)	50,000 units (one oral amp) **weekly** for six weeks	Yes	Yes	No	No
			Suitable for vegetarians			

Patient should be advised that oral D_3 (colecalciferol) is the preparation of choice for treating deficiency. Colecalciferol is mainly animal derived (from sheep's wool in most instances). Ergocalciferol D_2 or a vegan colecalciferol product may be prescribed, however, there are no current MHRA licensed pharmaceutical strength products suitable for vegans. Alfacalcidol oral drops are an off-label option.

* The high strength vitamin D loading dose regime applies to primary care and secondary care. However, some secondary care teams may recommend more rapid loading for specific patient groups with vitamin D insufficiency in line with the trust guidance (e.g. for patients requiring potent antiresorptive agents or who have had osteoporotic fracture(s) and are at high risk of refracture) or to support compliance.

Follow up

- There is **no need to routinely re-test vitamin D levels** unless the patient remains symptomatic and has been compliant with treatment for 6 months or longer.
- Check adjusted serum calcium one month after treating with loading doses of vitamin D or starting lower dose maintenance treatment to detect calcium deficiency/unmasked primary hyperparathyroidism or hypercalcaemia.
- Patients at risk of fragility fracture with inadequate calcium intake should be prescribed a suitable calcium and vitamin D supplement (aim for 800 units of colecalciferol in any preparation used). For example, Evacal D3 1500 mg/400 units take one twice a day)
- Re-iterate lifestyle advice

Vitamin D Deficiency in Renal Impairment

- Colecalciferol preparations are contraindicated by the manufacturers in patients with severe renal impairment (eGFR <30) due to reduced renal 1α-hydroxylation activity and are at risk of hypocalcemia and secondary hyperparathyroidism.
- Offer colecalciferol or ergocalciferol to treat vitamin D deficiency in people with CKD and vitamin D deficiency
- Alfacalcidol and calcitriol have no routine place in the management of primary vitamin D deficiency and should be reserved for use in renal disease (eGFR < 30), liver disease and primary hypoparathyroidism.
- In patients with chronic kidney disease (CKD) and dialysis dependent renal failure, colecalciferol is not routinely recommended in the absence of vitamin D deficiency.

When to seek specialist advice

Seek specialist advice prior to starting treatment if a person:

- has medical conditions which predisposes them to hypercalcaemia (e.g. granulomatous disease, metastatic bone disease, some lymphomas, primary hyperparathyroidism)
- Has active or history renal stones
- Has severe liver disease or end-stage CKD
- Has a gastrointestinal or malabsorption disorder likely to need intensive high-dose replacement
- Is pregnant and laboratory tests confirm vitamin D insufficiency or deficiency

Guideline exclusions and exceptions

- NICE CKS suggests re-checking serum vitamin D after 3-6 months in some patient cohorts. However, it was agreed that this is not in line with our local guidance and re-testing vitamin D should only be done if patient remain symptomatic despite being compliant with medication .

References

Public Health Guideline 56. Vitamin D: Supplement use in specific population groups 2017. Overview | Vitamin D: supplement use in specific population groups | Guidance | NICE

National Institute for Clinical Excellence (NICE), Clinical Knowledge Summary. Vitamin D deficiency in adults – treatment and prevention Dec 2020. Vitamin D deficiency in adults | Health topics A to Z | CKS | NICE

National Institute for Clinical Excellence. COVID-19 rapid guideline: managing COVID-19 (NG191). June 2023. Overview | COVID-19 rapid guideline: managing COVID-19 | Guidance | NICE

KDIGO. CKD-Mineral and Bone Disorder (CKD-MBD). 2017. CKD-Mineral and Bone Disorder (CKD-MBD) – KDIGO

NICE. Chronic kidney disease in adults: assessment and management (NG203). November 2021. Overview | Chronic kidney disease: assessment and management | Guidance | NICE

Specialist Pharmacy Service. Vitamin D: Is there a licensed product suitable for a patient with peanut or soya allergy? September 2020. Vitamin D: Is there a licensed product suitable for a patient with peanut or soya allergy? – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice

Specialist Pharmacy Service. Choosing an oral vitamin D preparation for vegetarians or vegans. December 2021. Choosing an oral vitamin D preparation for vegetarians or vegans – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice

Specialist Pharmacy Service. Dosing and monitoring for treatment of Vitamin D deficiency in pregnancy. December 2021. Dosing and monitoring for treatment of Vitamin D deficiency in pregnancy – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice

NHS England. Conditions for which over the counter items should not routinely be prescribed in primary care: Guidance for CCGs. March 2018. NHS England » Conditions for which over the counter items should not routinely be prescribed in primary care: Guidance for CCGs

Appendix 1 – Standard prevention/maintenance dose products

As part of the self-care strategy, in line with NHS England guidelines, vitamin D should not be prescribed for the routine maintenance and prevention of deficiency. As per table 1, vitamin D can be readily purchased as a food supplement. BNSSG guidelines expand on this, and prescribing vitamin D is appropriate for high-risk patients (see Page 1 - High risk patients who may be prescribed vitamin D)

Standard prevention/maintenance dose preparations available to prescribe to those who fit the criteria for prescribing					
Product	**Cost for quantity 30 (£)**	**Dietary considerations** *(Manufacturers may change their products' formulation or the suppliers of their excipients. Current status of the product ingredients should therefore be obtained from the manufacturer)*			
		Suitable in soy allergy	**Suitable in peanut allergy**	**Kosher certified**	**Halal certified**
Strivit-D3® (colecalciferol) 800 units capsules (preferred brand in primary care)	**2.50**	**Yes*** *does include refined soybean oil	**Yes**	**Gelatin Yes**	**Gelatin Yes**
Colecalciferol 1000 units tablets (Stexerol D3®)	3.16	**No**	**No**	**Yes**	**Yes**
Colecalciferol 1000 units capsules	6.31				
Colecalciferol 800 units capsules (Fultium D3®*)	3.60	**Yes**	**Yes**	**Yes**	**Yes**
Colecalciferol 800 units tablets	5.01				
Colecalciferol 400 units capsules** (Invita D3®)	1.98	**Yes**	**Yes**	**Gelatin Yes**	**Gelatin Yes**
		Other excipients not sourced from slaughtered animals			

Fultium D3 800 unit and 3,200 units capsules are the only low dose vitamin D preparations that are licensed for use in pregnancy and breastfeeding under medical supervision. Please check the electronic medicines compendium for current information.
** Please note that 400 units tablets are not included in the drug tariff and an alternative preparation should be prescribed.