

Who to test (£19 per test)

- Patients with diseases that may be improved with treatment e.g. confirmed osteomalacia, osteoporosis (testing not needed if prescribing calcium/vitamin D and bisphosphonate).
- Patients with musculoskeletal symptoms that could be attributed to deficiency e.g. suspected osteomalacia, chronic widespread pain.

Do not test:

- Asymptomatic individuals at risk of deficiency (treat as per DH guidance).
- Universal population screening of asymptomatic healthy individuals is not recommended.

Follow up:

- Check adjusted serum calcium levels within one month of completing high-dose vitamin D treatment.
- Check serum 25-hydroxyvitamin D (25-OHD) levels after 3-6 months of treatment with high-dose vitamin D.

Additional Notes

- In patients with **primary hyperparathyroidism** the low vitamin D level can be a compensatory change. Check serum calcium and in patients with high serum calcium and normal or high parathyroid hormone, discuss their case with an endocrinologist before initiating treatment.
- Some drug treatments represent an additional risk factor for lowering vitamin D levels, these include; some anticonvulsants, corticosteroids, rifampicin and antiretrovirals. Vitamin D supplements (+/- calcium) should be considered for these patients.
- For others at risk where calcium and vitamin D supplements may be appropriate, see the DH correspondence "Vitamin D – advise on supplements for at risk groups."

	Serum 25-OHD concentrations	Recommended treatment and Duration for colecalciferol	Prescriber
Vitamin D deficiency Other treatment regimes have been used and the following is only a guide.	< 30 nmol/L	Total loading dose of approximately 300,000 units given either as weekly or daily split doses. E.g. 50,000 units once a week for 6 weeks (300,000 units) 20,000 units twice a week for 7 weeks (280,000 units) 4000 units daily for 10 weeks (280,000 units) Maintenance : 800 units to 2,000 units daily (occasionally up to 4,000 units daily),	Primary care or Hospital Consultants Maintenance OTC only
Vitamin D insufficiency Most people may have adequate calcium absorption.	30-50nmol/l Potentially at risk	800 units to 2,000 units daily (occasionally up to 4,000 units daily), given daily or intermittently at a higher equivalent dose . E.g. 25,000 units once a month 800 units once a day	Primary Care or Hospital
Vitamin D replete	>50nmol/L	Vitamin D supplementation with 10 micrograms (400 units) is recommended for those considered "at risk" as per DH Guidance	OTC only

Vitamin D products: as Colecalciferol or Ergocalciferol

- Ergocalciferol in doses of up to 300,000 units is available for injection preparation. It should be considered for patients with severe malabsorption and will need discussion with a specialist.
- Colecalciferol or Ergocalciferol: 400 units = 10 micrograms
- Combination calcium and vitamin D products with a minimum of 400 units Vitamin D may be prescribed in supplementation therapy when additional calcium is required.
- Please refer to the [medal rankings](#) or [online formulary](#) for further detail on both vitamin D supplement preparations and calcium with vitamin D choices. Prescribing support software will also guide prescribers to current 1st line preparation.
- May not be suitable for use in pregnancy, consult individual summary of product characteristics or seek specialist advice.

Recommendations to patients

- Regular but sensible exposure to sunlight - 20-30 minutes around midday on the face and forearms 2-3 times a week during the months of April-October. Exposure may need to be longer in darker skinned people.
- Dietary source: principally found in oily fish / fish oils – 2-3 portions a week. Also in egg yolk and some breakfast cereals.

References and further reading:

- Diagnosis and Management of Vitamin D Deficiency. BMJ 2010;340:142
- East & South East England Specialist Pharmacy Service. Vitamin D Deficiency and insufficiency; using appropriate products. April

2012

- UK Medicines information (UKMi). What Dose of Vitamin D. October 2010
- CMO letter to GPs. Vitamin D – vitamin D supplements for at risk groups
- National Osteoporosis Society. Vitamin D and Bone Health.

SUGGESTED ORAL VITAMIN D (colecalfiferol) MEDAL RANKING

Medal rankings provide prescribers with a quick overview on cost-effective prescribing in areas where the formulary product choices have little therapeutic difference.

Please prescribe the agents offering greatest overall value to the health economy

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Summary Deficiency

Choice	Price/Pack Size	Total Cost of Treatment	Suggested Dosage Instructions	Approval
Invita D3 50000iu Caps	£4.95 for 3 Capsules	£9.90	ONE capsule ONCE a WEEK for 6 weeks Course started	GOLD
Invita D3 25000iu Caps*	£3.95 for 3 Capsules	£15.80	TWO capsules ONCE a WEEK for 6 weeks Course started	SILVER
Invita D3 Drops 50000iu/ml	£6.25 for 3 ml	£12.50	1ml (50,000iu) ONCE a WEEK for 6 weeks Course started	BRONZE
Aviticol 20000iu Caps/ Fultium-D3 20000iu Caps	£29 for 30 Capsules	£13.53	TWO capsules ONCE a week for 7 weeks Course started	
Desunin 4000iu Tab	£15.90 for 70 tablets	£15.90	ONE capsule ONCE a DAY for 10 weeks Course started	

* This option aligns prescribing with YFTH in secondary care, however costs slightly more than Invita Drops.
Prices are taken from the Drug Tariff October 2017.

- Use first line
 Use second line
 Try to avoid, use third line if needed
 No formal commissioning position, avoid use
 Not commissioned. **Do not use**

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Summary Insufficiency

Choice	Price/Pack Size	Cost of Treatment for 28 days	Suggested Dosage Instructions	Approval
Invita D3 25000iu Caps**	£3.95 for 3 Capsules	£1.32	ONE capsule ONCE a MONTH (Specify which day of the month on prescription)	GOLD
Stexerol D3 25000iu Tabs**	£17 for 12 Tablets	£1.42	ONE tablet ONCE a MONTH (Specify which day of the month on prescription)	SILVER
Thorens 10000iu (200iu/drop)	£5.85 for 10ml	£1.31	4 drops (800ui) ONCE a DAY	BRONZE
Thorens Drops 25000iu/2.5ml	£5.85 for 10ml	£1.46	2.5ml (25,000ui) ONCE a MONTH (Specify which day of the month on prescription)	
Invita D3 Drops 25000iu/ml	£4.45 for 3ml	£1.48	1ml (25,000ui) ONCE a MONTH (Specify which day of the month on prescription)	
Aviticol 1000iu Caps	£2.34 for 30 Capsules	£2.18	ONE capsule ONCE a DAY	

** These options align prescribing with YFTH in secondary care, however cost slightly more than Thorens Drops. Prices are taken from the Drug Tariff October 2017.

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Summary Replete

Vitamin D supplementation with 10 micrograms (400 iu) is recommended for those considered “at risk” as per DH Guidance. These are not routinely prescribed and the following nutritional supplements are available to purchase:

Boots Vitamin D 10 µg, 90 tablets - £2.29
 Holland & Barrett Vitamin D3 10 µg tablets, 100 tablets - £3.59
 Tesco Vitamin D 10 µg tablets, 90 tablets - £3.00
 Superdrug Vitamin D 12.5mcg tablets, 90 tablets - £2.15
 Lloyds Vitamin D 25µg Food Supplement tablets, 90 Tablets
 Valupak Vitamin D3 1000unit tablets, 60 tablets - £0.75

Fish oil products such as cod liver oil also contain vitamin D, these preparations typically contain 2.5 micrograms to 5 micrograms per dose. Supplements that also contain vitamin A (including cod liver oil) are unsuitable for pregnant women.

A range of supplement are available from a variety of pharmacies, please speak to your local pharmacist for further information.

Choice	Price/Pack Size	Cost of Treatment for 28 days	Approval
All medications under 800iu	various	various	

Prices are taken from the Drug Tariff October 2017.

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Rationale

Historically there have been few licensed options for oral vitamin D treatment. Since greater recognition of the risk of low vitamin D levels in the population in recent years, there has been a greater requirement for vitamin D supplementation. This has led to the use of unlicensed food supplements to treat and prevent low vitamin D levels. Now there are more licensed options available the CCG has put together this medal ranking to move prescribers away from unlicensed products and to provide guidance as to the most cost effective product choice. Replete patients should purchase their own supplements in line with the CCG's policy on medications that can be purchased over the counter.

See 'Management of Vitamin D Deficiency and Insufficiency in Adults guidance' for the latest dosing guidance:

[York & Scarborough Net Formulary](#)

Please see the below table for additional information to inform prescribing choice.

	Thorens Drops (Croydon CCG The Medicines Optimisation Team, 2017)	Desunin Tablets (Dudley CCG, 2015)	Aviticol Capsules (Coventry and Warwickshire ACP, 2017)	Fultium D3 20000unit Capsules (manufacturer, Internis)	Invita D3 Drops (Dudley CCG, 2015)	Stexerol D3 Tablets (Croydon CCG The Medicines Optimisation Team, 2017)	Invita D3 Capsules (manufacturer, consilient health)
Gluten/ Lactose free	✓	✗	✓	✓	✓ (lactose free)	✓ (lactose free)	✓
Suitable for vegetarians	✓	✓	✗	✗	✓	✓	✗
Suitable for vegans	✗	✗	✗	✗	✗	✗	✗
Suitable for those with nut/ soya allergies	✓	✓	✓	✓	✓	✓	✓
Sugar Free	✓	N/A	N/A	N/A	✓ (25000iu only)	N/A	N/A
Halal/ Kosher Compliant See disclaimer	✓	✓	✗	✓	✓	✓	✗ Halal/Kosher gelatin used in capsule, overall product not certified as halal/kosher
Pregnancy	There are no or limited amounts of data from the use of cholecalciferol in pregnant women. Vitamin D overdose causes physical and mental disability and congenital heart and eye conditions, due to hypercalcaemia, when administered during pregnancy (EMC). Consult individual Summary of Product Characteristics for full prescribing information.						

Disclaimer: Statements made by manufacturers regarding the terms 'halal' or 'kosher' certification or suitability are subject to interpretation. Individuals' religious belief systems are known to vary considerably and the authors of this document cannot broadly advise on the religious acceptability of products. To support patients and healthcare professionals in selecting an acceptable product, manufacturers contact details can be supplied so that the individuals are able to find out whether the products comply with their own belief systems.

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Illustrative cost saving

Currently the VoY CCG is spending approximately £313,000 per year on vitamin D preparations. It is estimated that £26,000 is spent on unapproved vitamin D preparations. Based on current prescribing rates, if the GOLD choice is prescribed there will be significant decrease in the overall spend each year.

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Actions

Review patients acute and repeat prescriptions in line with this ranking and change from any unlicensed supplements to the most cost effective licensed option as described in the table above.

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References

- Coventry and Warwickshire ACP. (2017, 06). *Vitamin D prescribing guidelines*. Retrieved 10 16, 2017, from Coventry and Warwickshire APC: <http://www.coventrywarksapc.nhs.uk/DocLib/d0244f67-513b-4583-b7df-6a3188efa422>
- Croydon CCG The Medicines Optimisation Team. (2017, 01). *The Medicines Optimisation Team, Croydon CCG*; Retrieved 10 16, 2017, from Croydon CCG: <http://croydonlpc.org.uk/wp-content/plugins/download-attachments/includes/download.php?id=6953>
- Dudley CCG. (2015, 01). *GUIDELINES FOR THE MANAGEMENT OF VITAMIN D DEFICIENCY*. Retrieved 09 23, 2015, from Dudley Joint Formulary: <http://www.dudleyformulary.nhs.uk/formulary/284/964-vitamin-d>
- EMC. (n.d.). Retrieved 09 23, 2015, from Electronic Medicines Compendium: Electronic Medicines Compendium

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