

Guidelines for prescribing in primary care: Vitamin D

Implementation date: March 2015

Review date: March 2017

This guideline has been prepared and approved for used within Gateshead in consultation with Gateshead CCG and Secondary Care Trusts.

Approved by:

Committee	Date
Gateshead Medicines Management Committee	11 th March 2015

This guideline is not exhaustive and does not override the individual responsibility of health professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Full details of contra-indications and cautions for individual drugs are available in the BNF or in the Summary of Product Characteristics (available in the Electronic Medicines Compendium) www.emc.medicines.org.uk

Vitamin D Guidelines: Summary

Sources

The main sources of vitamin D are sunlight and oily fish, including cod liver oil

Common groups at risk of vitamin D deficiency / insufficiency

- Non-white skin, lack of sunlight exposure (including concealing clothing)
- Vegetarians (in particular non-fish eaters)
- Pregnant & breastfeeding women, babies, children and adolescents
- Older housebound or institutionalised people
- Liver and renal disease
- On medication such as anticonvulsants, rifampicin, Highly active antiretroviral therapy (HAART)

When to measure vitamin D Levels

It is recommended that vitamin D levels be measured in the following groups of patients:

- With bone diseases that may be improved with vitamin D treatment
- Patients with bone diseases, prior to specific treatment where correcting vitamin D deficiency is appropriate
- Patients with musculoskeletal symptoms which could be attributed to vitamin D deficiency

Measurement of vitamin D levels is not recommended in:

- Asymptomatic patients
- Patients with osteoporosis or fragility fracture who may be prescribed a vitamin D supplement with an oral antiresorptive treatment

Management

In a patient with symptoms/ skeletal deformity suggestive of rickets confirm clinical suspicion by measuring serum 25-hydroxyvitamin D (25-OHD)

- 25-OHD below 30 nmol/l = deficiency so requires high dose calciferol treatment
- 25-OHD between 30 and 50 nmol/l = insufficiency so requires lifestyle (sun exposure and diet) and supplementation advice
- 25-OHD above 50nmol/l = levels adequate (reinforce dietary and lifestyle advice)

Universal supplementation

- Recommended in pregnancy
- Important for breast-fed babies and recommended by DoH for all infants and children <5yrs

Target patient groups for supplementation and lifestyle advice

- All non-Caucasian individuals
PLUS
- All people with restricted sun exposure (e.g. doesn't have outdoor activity through work or leisure, wears a veil, uses sun-block regularly, photosensitive skin disorder, previous skin cancer)
AND / OR
- People with limited dietary fish intake (particularly vegetarians, those with poor diet)

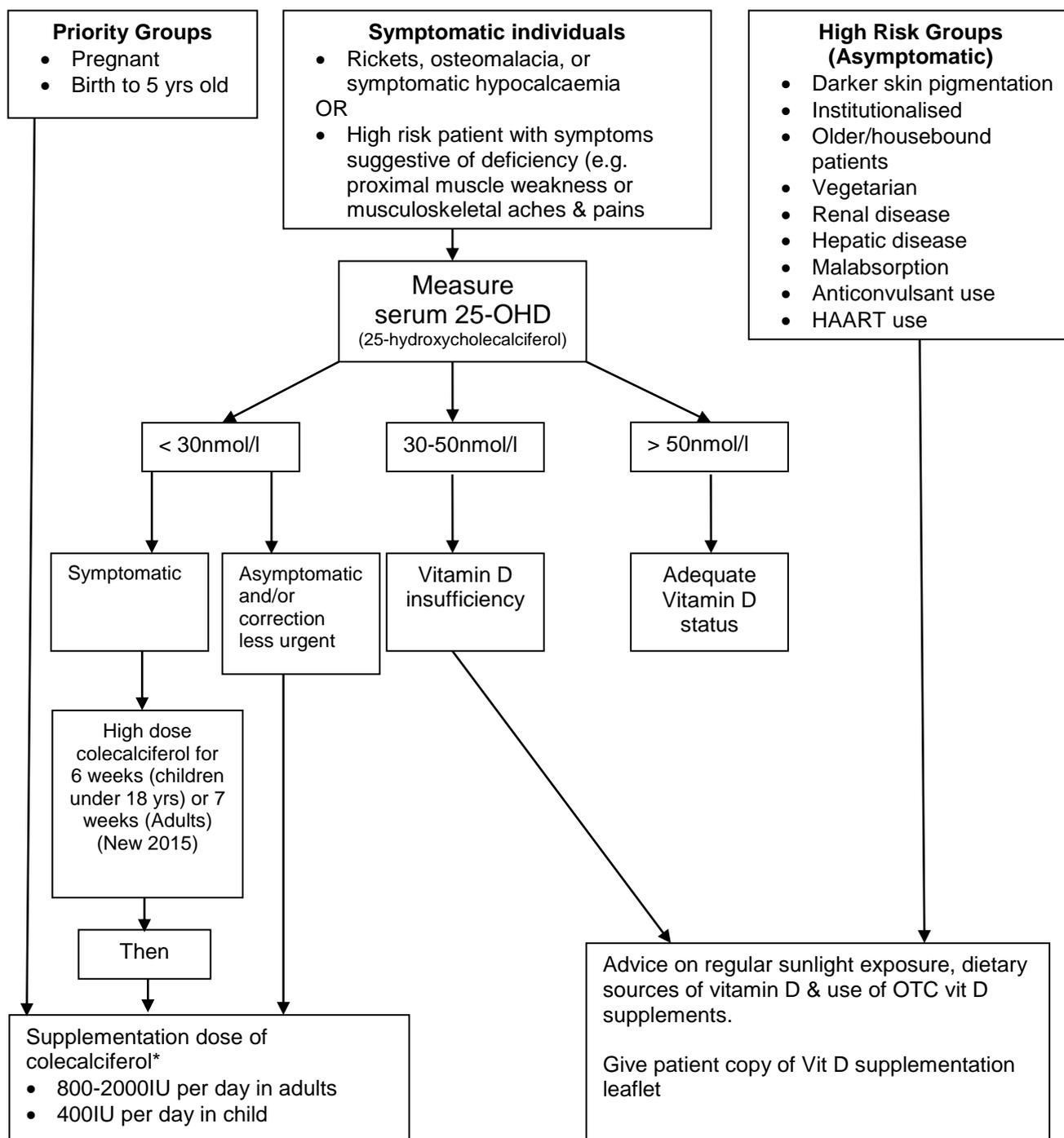
Refer to secondary care specialist

- Any child who has symptomatic hypocalcaemia or symptoms of vitamin D deficiency
- If lack of clinical response to vitamin D therapy
- Persistent focal bone pain
- Suspicion of unrecognised underlying problem (e.g. malabsorption)
- Those with vitamin D deficiency and concurrent hypercalcaemia
- Those with vitamin D deficiency and concurrent hyper-parathyroidism

Key prescribing points

- Vitamin D insufficiency/ deficiency is very common in children and adults with non-white skin
- Supplementation will often need to be lifelong, as lifestyle changes may not be effective

Vitamin D deficiency/insufficiency Treatment Algorithm



Prescribing Notes

- High dose colecalciferol
 - ADULT = 20,000 units twice a week for 7 weeks (new 2015)
 - CHILD 0 to 12 YRS = 25,000 units every two weeks for 6 weeks (new 2015)
 - CHILD 12 to 18 YRS = 20,000 units every two weeks for 6 weeks (new 2015)
- * Supplementation in majority of cases should be lifelong, or lifelong during winter months
- Check serum 25-OHD 6 months after commencing treatment and serum Calcium 6 to 8 weeks after commencing treatment

GATESHEAD MEDICINES MANAGEMENT COMMITTEE

Protocol for Recommended use of Vitamin D Supplementation for Primary Vitamin D Deficiency

Aims of Guideline

- 1) Advice on the diagnosis and management of Vitamin D deficiency in adults and children.
2. Clinical and cost effective investigation of suspected Vitamin D deficiency.
- 3) Clinical and cost effective prescribing of Vitamin D therapy and choice of supplements.
- 4) An appropriate balance between patient lifestyle, self management and medical treatment.

Introduction

Vitamin D regulates calcium and phosphate absorption and metabolism, which is essential for healthy bones and muscle development. It may also help to maintain a healthy immune system and regulate cell growth and differentiation. The main source of vitamin D is from the action of UVB sunlight on the skin, which results in the formulation of vitamin D₃ (colecalciferol). The rest comes from the diet as either vitamin D₂ (ergocalciferol) from plant sources or vitamin D₃ from animal sources. Vitamins D₂ and D₃ must undergo hydroxylation, first in the liver to form 25-hydroxycholecalciferol (25OHD), then a further hydroxylation in the kidney to form 1 α , 25-dihydroxycholecalciferol (1 α ,25(OH)₂D).

Inadequate exposure to sunlight decreases skin synthesis of vitamin D and increases likelihood of primary vitamin D *deficiency*, as does a diet inadequate in vitamin D. In adults, vitamin D *insufficiency* can be asymptomatic or may present with onset of non-specific musculoskeletal aches. Even vitamin D deficient patients may be asymptomatic or have muscle weakness, localised or generalised bone pain, tenderness and even fractures.

Who gets Vitamin D deficiency?

The following groups are at increased risk of developing vitamin D deficiency or insufficiency:

- Non-white skin, lack of sunlight exposure (including concealing clothing)
- Vegetarians (in particular non-fish eaters)
- Pregnant & breastfeeding women, or those who have recently had children particularly with short intervals between pregnancies.
- Older housebound or institutionalized people
- Liver and renal disease
- Malabsorption (e.g. coeliac disease, short bowel syndrome)
- On medication such as anticonvulsants, rifampicin, Highly active antiretroviral therapy (HAART)
- All babies, particularly those who have had prolonged breast feeding without supplementation.

How to Investigate / Monitor Vitamin D

Pre-treatment: Vit D – only to be checked in symptomatic individuals. In the vast majority of patients suspected of having vitamin D deficiency there is no need to check a Vit D level prior to treatment except in secondary care, many patients can simply be advised to change their lifestyle (sun exposure and diet) or take a supplementary dose of vitamin D without measuring serum 25-OHD.

During treatment:

- Vit D – 6 months after commencing treatment
- Serum Calcium – 6 to 8 weeks after commencing treatment
 - if result above 2.8 then stop Vit D and re-check calcium
 - if result above 2.6 but below 2.8 then continue Vit D but re-check calcium without tourniquet or fist clenching

Routine testing of Vitamin D may be unnecessary in patients with osteoporosis or fragility fracture, who may be co-prescribed vitamin D supplementation with an oral antiresorptive treatment.

Serum 25-OHD concentration	Vitamin D status	Manifestation	Management
<30 nmol/l	Deficient	Rickets Osteomalacia	Symptomatic or due zoledronate/denonsumab: Treat with high-dose colecalciferol All other patients: commence maintenance therapy without need for loading dose
30-50 nmol/l*	Insufficient	Associated with disease risk	Commence maintenance therapy without need for loading dose
50-75 nmol/l	Adequate	Healthy	Lifestyle advice
>75 nmol/l	Optimal	Healthy	None

*Levels of 25-OHD between 30 and 50nmol/L are a grey area and advice to take vitamin D supplementation will depend on the exact level within this range, the season of the year when the sample was taken, and likelihood of lifestyle/dietary advice in being effective. In most advice on the use over the counter vitamin D supplements will be effective.

Adults - Deficiency (25-OHD less than 30nmol/L)

Recommendations:

- Where rapid correction of vitamin D deficiency is required, such as in patients with symptomatic disease or about to start treatment with a potent antiresorptive agent (zoledronate or denosumab), the recommended treatment regimen is based on fixed loading doses followed by regular maintenance therapy.
- Where correction of vitamin D deficiency is less urgent and when co-prescribing vitamin D supplements with an oral antiresorptive agent, maintenance therapy may be started without the use of loading doses.

Dose	Dose of Colecalciferol	Route	Length of Course	Product to Use/Prescribing Notes
20,000 IU	Twice weekly (new 2015)	Oral	7 weeks (new 2015)	Fultium-D3 20,000IU capsules(New 2015)

SECONDARY CARE ONLY OPTIONS:

20,000 IU	Twice a day	Oral	10 days	Fultium D3 20,000IU capsules (e.g. for rapid loading prior to zoledronate or denosumab)
300,000 IU	Twice	IM injection	Two stat doses, one month apart	Ergocalciferol Injection 300,000 IU/ml Use this option if malabsorption present or compliance is problematic.

A maintenance dose of 800 to 2,000units of colecalciferol daily **may** be required once deficiency has been corrected for those patients who were severely deficient and are still considered to be at risk. In some cases this may be lifelong therapy.

Once primary course is complete, commence supplementation with:

Accrete D3 tablets – 1 BD OR Calfovite D3 1 sachet OD

If patient requires a product without additional calcium intake e.g. hypercalcaemia or adequate dietary calcium intake:

Desunin 800IU tablets or Fultium D3 800IU capsules – 1 OD

Adults – Insufficiency (25-OHD 30-50nmol/L)

Treatment of patients with insufficiency is a grey area and advice to take vitamin D supplementation will depend on the exact level within this range, the season of the year when the sample was taken, and likelihood of lifestyle/dietary advice in being effective. In most advice on the use over the counter vitamin D supplements will be effective.

Treatment is advised in patients with the following:

- Fragility fracture, documented osteoporosis or high fracture risk
- Treatment with antiresorptive medication for bone disease
- Symptoms suggestive of vitamin D deficiency
- Increased risk of developing vitamin D deficiency in the future because of reduced exposure to sunlight, religious/cultural dress code, dark skin, etc.
- Raised PTH
- Medication with antiepileptic drugs or oral glucocorticoids
- Conditions associated with malabsorption.

If there is a clinical need to prescribe vitamin D, treat as per maintenance dose following correction of deficiency i.e.

Accrete D3 tablets - 1 BD OR Calfovite D3 1 sachet OD

If patient requires a product without additional calcium intake e.g. hypercalcaemia or adequate dietary calcium intake:

Desunin 800IU tablets or Fultium D3 800IU capsules – 1 OD

Children – Deficiency (25-OHD < 30nmol/L)

Age	Dose of Calciferol	Route	Length of Course	Product to Use
0 months to 12 years	25,000IU every two weeks (New 2015)	Oral	6 weeks (New 2015)	InVita D3 25,000IU / mL oral solution ampoules (New 2015)
12-18 years	20,000IU every two weeks (New 2015)	Oral	6 weeks (New 2015)	Fultium D3 20,000IU capsules (New 2015)

A maintenance dose of 800 to 1,000units of colecalciferol daily **may** be required once deficiency has been corrected for those patients who were severely deficient and are still considered to be at risk. In some cases this may be lifelong therapy.

Once primary course is complete, commence supplementation with:

Age up to 1 year – Abidec or Dalivit 0.3ml daily

Age over 1 year – Abidec or Dalivit 0.6ml daily

Children – Insufficiency (25-OHD 30-50nmol/L)

Treatment of patients with insufficiency is grey area and advice to take vitamin D supplementation will depend on the exact level within this range, the season of the year when the sample was taken, and likelihood of lifestyle/dietary advice in being effective. In most advice on the use over the counter vitamin D supplements will be effective.

If there is a clinical need to prescribe vitamin D, treat as per maintenance dose following correction of deficiency i.e.

Age	Dose of Calciferol	Route	Length of Course	Product to Use
Up to 1 year	400 IU daily recommended 200 IU daily available from product	Oral	Indefinite	Dalivit or Abidec oral solution. Give 0.3ml daily (maximum recommended dose due to content of other vitamins)
Over 1 year	400-800 IU daily recommended 400 IU daily available from product	Oral	Indefinite	Dalivit or Abidec oral solution. Give 0.6ml daily (higher dose not recommended due to content of other vitamins)

Adverse Effects of Vitamin D Supplementation

These are very rare in vitamin D deficient patients:

- Early: weakness, headache, dry mouth, constipation, muscle pain.
- Late: polyuria, polydipsia, nocturia, weight loss, irritability, conjunctivitis (calcific), generalised vascular calcification, nephrocalcinosis.
- Symptoms of hypercalcaemia e.g. anorexia, nausea, vomiting, diarrhoea, confusion

Cautions with Vitamin D Supplementation

- Renal impairment – the effect on calcium and phosphate balance should be closely monitored.
- Concomitant treatment with phenytoin, barbiturates or corticosteroids can reduce the effect of Vitamin D by decreasing its half-life.
- Cardiac glycosides (e.g. digoxin) - effects of may be increased by supplementation with calcium and vitamin D. Strict medical supervision is needed in this case with monitoring of ECG and calcium concentrations as appropriate. See further info below.
- Thiazide diuretics – concomitant use leads to increased risk of hypercalcaemia.
- Pregnancy and breastfeeding - assessment of risk versus benefit required.

Contra-Indications

- Hypersensitivity to colecalciferol,
- Hypercalcaemia or metastatic calcification.
- Primary hyperparathyroidism (patients only treated under specialist supervision)
- Severe hypercalciuria
- Certain brands of Vitamin D supplement and Calcium & Vitamin D are contraindicated in patients with peanut or soya allergy.

Vitamin D and Cardiac Glycosides

Vitamin D-mediated hypercalcaemia can occur with vitamin D or its analogues. This is reported to be a common adverse effect of calcitriol and ergocalciferol, usually occurring with excessive doses. Although calcium levels should be monitored in patients taking these drugs, it is particularly important to ensure that this is done in patients also taking cardiac glycosides.

Bear the possibility of an interaction in mind should digoxin adverse effects (such as bradycardia) occur and monitor digoxin levels if toxicity is suspected.

When to Refer

Children

All children with vitamin D deficiency should be referred to a paediatrician for their care, or simply for advice.

Adults

Adults with vitamin D deficiency do not require routine referral to secondary care. Referral to secondary care should only be necessary when there is doubt about the diagnosis, atypical biochemistry (e.g. low vitamin D but high calcium), or if the patient fails to respond to treatment.

Pregnancy & Breastfeeding

- Breast milk from women taking pharmacological doses of vitamin D can cause hypercalcaemia if given to an infant (BNF advises to monitor serum-calcium concentration).
- NICE recommend advising women of the importance of vitamin D intake during pregnancy and breastfeeding (10 micrograms per day). Ensure women at risk of deficiency are following this advice.
- For further information please see Appendix 1: Gateshead Health NHS Foundation Trust, Division of Women & Children's Services, Guideline for Vitamin D Supplementation in Pregnancy
- Breast fed babies are at particularly high risk, and all should receive supplementary vitamin D drops. This is particularly important for the babies of all non-white mothers particularly those with additional risk factors such as use of concealing garments or vegetarian diet.
- UK Teratology Information Service (UKTIS) should be consulted where any clinical decision is uncertain e.g. testing indicates significant deficiency. They can be contacted via 0844 892 0909

Preschool children

All children from 6 months to age 5 in the North of the UK are recommended to take vitamin D supplements. These can be easily administered as Abidec or Dalivit drops (under 1 year 0.3ml/day, over 1 year 0.6mls/day). Whilst supplementation is recommended for all patients in this age group it is not necessary for these products to be supplied on prescription and over-the-counter supplementation may be appropriate. (New 2015)

Gelatin Free & Halal Products

Most vitamin D preparations contain gelatin which is an animal derived product. Not all gelatin products are forbidden to Muslims; porcine-derived gelatin and that from non-Halal sources are not allowed. Fish gelatin is considered Halal and is acceptable. Similarly, gelatin of bovine origin is acceptable if the source is Halal. However, it is difficult to determine whether the gelatin used in the manufacture of pharmaceutical products is Halal as manufacturers generally do not have this information. There is pragmatic advice available in the form of a WHO statement agreed with the Islamic Organisation for Medical Sciences which advises that all gelatin used in pharmaceuticals can be considered Halal. However, some Imams do not agree with this statement, so a number of other options are detailed below. To ensure a pharmacological dose of vitamin D which is devoid of gelatin the options include:

- InVita D3 oral solution is gelatin free (New 2015)
- The gelatin used in the manufacture of Fultium-D3 capsules is Halal and Kosher certified. (New 2015)

Dietary and Lifestyle Advice

Sun exposure

For a fair-skinned person, 20 to 30 minutes of ('sub-erythematous') sunlight exposure at midday on the face and forearms two or three times weekly between April and October are sufficient to achieve healthy vitamin D levels in summer in the UK. However, for individuals with pigmented skin, and to a lesser extent the elderly, exposure time or frequency needs to be increased two- to ten- fold to get the same vitamin D synthesis (depending upon skin pigmentation). While recognising the importance of avoiding sunburn and sunbeds, total avoidance of sun exposure is a clear risk factor for vitamin D deficiency.

Dietary sources of vitamin D

- 2-3 portions (100-150g per portion) weekly of oily fish including trout, salmon, mackerel, herring, sardines, anchovies, pilchards or fresh tuna. Because of the concerns of heavy metal contamination in the marine food chain, it is recommended that these amounts should not be exceeded in pregnancy, or in women who may conceive.
- Cod liver oil and other fish oils.
- Egg yolk.
- Some breakfast cereals are supplemented.
- Margarine and infant formula milk have statutory supplementation in the UK

Prescribable Options (for reference)

Calcium & D3 supplements (all licensed medicines)

Accrete D3 tablets

400IU colecalciferol and calcium 600mg per tablet. One tablet twice daily (i.e. 800IU D3)
Not suitable for patients with peanut or soya allergy

Calfovit D3 sachets

800 IU colecalciferol & Calcium 1200 mg per sachet. One sachet daily (i.e. 800 IU D3).
Not suitable for patients with peanut or soya allergy

N.B. For patients with a peanut/soya allergy Adcal D3 caplets may be used on a non-formulary basis.

Ergocalciferol (D2)

Intramuscular injection

300,000 IU/ml.

Ordered from UCB Pharma 01753 534655.

Colecalciferol (D3) (all licensed medicines)

Fultium-D3 Capsules

800 IU, 3,200 IU, 20,000 IU

Gelatin used is Halal and Kosher certified (New 2015)

InVita D3 Oral Solution Ampoules

25,000 IU / mL (New 2015)

Desunin tablets

800 IU tablets.

To be used in patient who do not require additional calcium supplementation.

All the above products are on the Gateshead Formulary and are suitable for prescribing by GPs and Secondary Care Clinicians.

Over the Counter Options (for reference)

Cod liver oil capsules typically contain 200 IU per capsule but contain too much Vitamin A to be used as the sole source of vitamin D. Similarly multivitamins generally contain too little vitamin D in relation to other vitamins to be used as the sole source of vitamin D. There are many OTC options than those listed.

Gateshead Medicines Management Committee

Publication Date: March 2015

Review Date: March 2017

This list is not considered an endorsement of the specific supplements cited but purely reflects the fact that these are generally available locally from pharmacists and health food shops.

Boots Calcium, Vitamins D & K Chewable tablets

200 IU D3, 60 mg Vitamin K, 800 mg Ca per tablet. Take 3 tablets daily (i.e. 600 IU D3).

N.B Contains Vitamin K and this may interact with warfarin.

Boots High Strength Vitamin D

500 IU D3 per capsule. Not Kosher or Halal approved

Holland and Barrett "Sunvite" Vitamin D3

Available as 25 µg D3 (1000 IU) tablets. Not Kosher or Halal approved.

Osteocare Original tablets

200 IU D3, Mg 300 mg, Ca 800 mg, 0.6 mg B per tablet. Take 2 tablets daily (i.e. 400 IU D3).

ProD3 capsules

Available as 400 IU, 1000 IU capsules. ProD3® capsules are suitable for vegetarians, gelatine free, Halal and Kosher approved, and contain no peanut oil/soya.

Solgar Vitamin D3

Available as 1000 IU tablets or 2200 IU capsules (amongst other preparations).

N.B. 1000 IU tablets and 2200 IU capsules are vegetable-based formulations, Kosher and Halal.

References

- Primary vitamin deficiency in adults. Drugs and Therapeutics Bulletin; April 2006, 44(4).
- Holich MF. Vitamin D deficiency. N Eng J Med 2007, 357: 266-281.
- British Society of Endocrinology Guidelines. Accessed May 2010
- Pearce and Cheetham. Diagnosis and management of vitamin D deficiency. BMJ (2010) vol. 340 pp. b5664
- BNF 63rd Edition. British Medical Association and the Royal Pharmaceutical Society of Great Britain, London, March 2012.
- UKMi Q&A 82.1 What dose of Vitamin D should be prescribed for treatment of vitamin D deficiency? Date prepared 29th October 2010.
- UKMi Q&A 195.2 Can patients with peanut allergy take calcium and vitamin D supplements? Date prepared 21st September 2011 (partial revision 25th June 2012).
- UKMi Q&A 384.1 Is there a suitable vitamin D product for a patient with peanut or soya allergy? Date prepared 25th January 2012.
- UKMi Q&Q 387.1 What vitamin D preparations are suitable for a vegetarian or vegan diet?
- East & South East England Specialist Pharmacy Services. Vitamin D deficiency and insufficiency: Using appropriate available products. April 2012
- National Institute for Health and Clinical Excellence. Guideline CG62 Antenatal Care 2008.
- North of Tyne Guidelines. NoT 24: Vitamin D Clinical Guideline. 1st June 2011.
- National Osteoporosis Society 2013. Vitamin D and Bone Health: a practical clinical guideline for patient management.
- National Institute for Health and Care Excellence. Vitamin D: increasing supplement use among at risk groups PH56, November 2014
- SPC – Fultium-D3 20,000 IU capsules (online); <http://www.medicines.org.uk/emc/medicine/29815> Accessed 15/02/2015
- Personal communication with Internis relating to Halal and Kosher status of gelatin used in the manufacture of Fultium-D3
- SPC – InVita D3 25,000 IU / mL oral liquid ampoules (online); <http://www.medicines.org.uk/emc/medicine/28998> Accessed 15/02/15

Version 2

**Vitamin D Supplementation
in Pregnancy**

Approved by: **Divisional SafeCare Team**

Date of approval: **5 February 2013**

Effective from: **6 February 2013**

Next Review Date:	Author:
January 2016	H Brandon (Consultant Obstetrician)
	J Weaver (Consultant Physician)

This clinical guideline/protocol supersedes all previous issues.

Gateshead Health NHS Foundation Trust
Division of Women & Children's Services

Guideline for Vitamin D Supplementation in Pregnancy

Introduction

Vitamin D is essential in the maintenance of normal skeletal growth and bone health. Approximately 90% of vitamin D is derived from the exposure of skin to sunlight with the rest obtained from dietary sources. An individual's vitamin D status is determined by their serum level of 25-hydroxyvitamin D (25-OHD).

Vitamin D supplementation is recommended in women at risk of deficiency..

Deficiency is often found in women of South Asian, African, Caribbean or Middle Eastern ethnic origin, women who have limited exposure to sunlight and women with a pre-pregnancy BMI of more than 30.

Vegetarians are also at risk of vitamin D deficiency.

Antenatal care

There is no evidence that routine vitamin D supplementation of healthy pregnant women improves pregnancy outcomes. However, there is good evidence that vitamin D supplementation during pregnancy improves vitamin D status and improves growth in the first year of life in South Asian babies. It is believed that the incidence of rickets will decrease as a result of this in groups who are at risk of vitamin D deficiency.

At risk group who may benefit from vitamin D supplementation include:

Women of South Asian, African Caribbean, or Middle Eastern family origin. (Dark skinned people do not absorb much sunlight through the skin and may also wear clothing that limits exposure to the sun for cultural reasons)

Women who have limited exposure to sunlight such as women who are predominantly housebound or usually remain covered when outdoors

Women who eat a diet particularly low in vitamin D (women who consume no oily fish, eggs, meat, and vitamin D fortified margarine or breakfast cereal)

Women with a pre – pregnancy BMI above 30kg/m²

At booking appointment

Verbal and written Information should be offered to women at risk on the benefits of taking vitamin D during pregnancy and while breast-feeding

Leaflets are available in all health centres

Health professionals must document all discussion and information given.

Women with known deficiency (as demonstrated by lab testing) require a higher dose: 20 microgram Vitamin D3 (800i.u.)

A single dose of Ergocalciferol 2.5mg IM can be administered in third trimester in high risk women who have not had oral supplementation.

Babies:

Supplementation may be necessary for mothers who are breast-feeding.

It is not recommended that bottle-fed infants receive routine supplementation.

MONITORING

In line with divisional policy, the compliance and effectiveness of this guideline will be monitored via clinical audit on at least one occasion during the guideline review cycle and more frequently if the need arises.

The audit will be performed by an appropriate professional within the division as allocated by either, the Consultants, the Midwifery Management team or the Risk Management team.

The audit will be registered with the trust Safe Care Department (as per trust policy) and the results/findings will be presented for multidisciplinary review at the divisional Safe Care meetings. Any recommendations from the audit will be taken forward as an action plan and implemented. Monitoring of such action plans will occur regularly throughout the division at various forums and may require this guideline to undergo a process of re-audit.

If this guideline becomes a requirement of the CNST Maternity Risk Management Standards, then, at the very least, it is expected that the audit performed will monitor compliance of this guideline in relation to the minimum requirements outlined in the level three criterion for this standard.

References:

Duckworth S, Mistry HD, Chappell LC. Vitamin supplementation in pregnancy. *The Obstetrician & Gynaecologist* 2012;14:175–178.

NICE Public Health Guidance 11; Maternal and Child nutrition: Vitamin D Recommendation

Author: H. Brandon

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Ratified: 5th February 2013

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Next review: January 2016