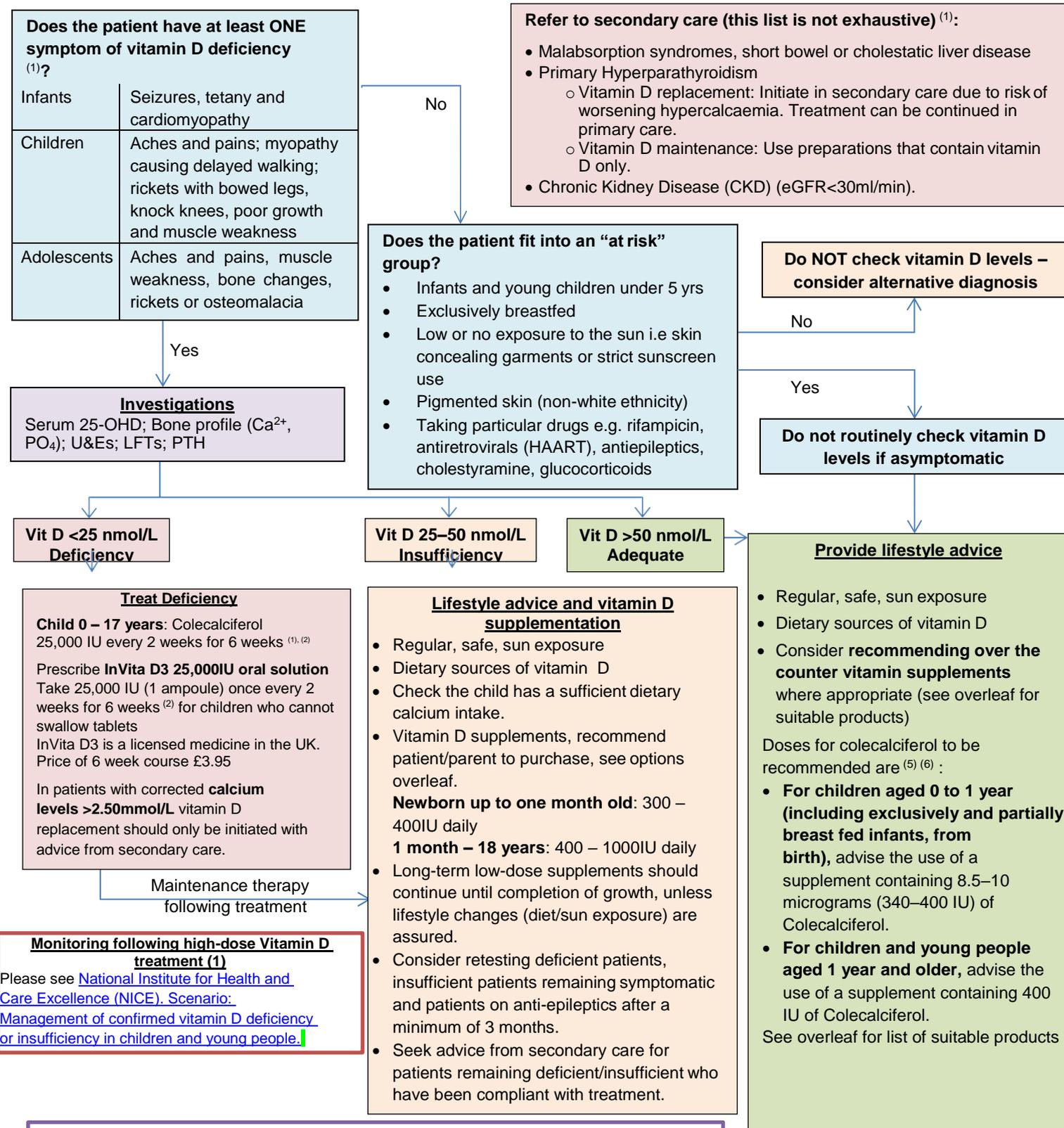


Primary Care Pathway for the Treatment of Vitamin D Deficiency in Paediatric patients (Child 0- 17 years) with eGFR \geq 30ml/min

Serum 25-OHD concentration ⁽¹⁾	Vitamin D status	Manifestation	Management
<25nmol/L	Deficient	Rickets, Osteomalacia	Treat with high dose colecalciferol
25-50nmol/L	Insufficient	Associated with disease risk	Vitamin D supplementation
50-75nmol/L	Adequate	Healthy	Lifestyle advice
>75nmol/L	Optimal	Healthy	None



Paediatric Vitamin D Deficiency Pathway Continued

Sun Exposure

- Over 90% of the body's vitamin D is produced from the action of sunlight on the skin. Sun exposure, without sunscreen, from 10am to 3pm from April to October for 5-15mins should be sufficient to improve vitamin D status.
- Two or three sunlight exposures per week can achieve adequate vitamin D levels in the summer so long as the individual has sufficient levels to begin with.

Dietary Sources

- Excellent food sources (greater than 5mcg per portion) of vitamin D include 2 teaspoons cod liver oil, 70g sardines, 100g tinned salmon, pilchards or tuna, 110g of cooked mackerel or herring and 130g cooked kipper. Other sources are egg yolks, mushrooms, and fortified foods e.g. some breakfast cereals and margarine. All formula milks are fortified with vitamin D, but plain cow's milk is not fortified in the UK. Breast milk generally contains little Vitamin D.

Vitamin D product availability

Vitamin D can be purchased from supermarkets, pharmacies and health food shops. It is available to buy as oral drops, chewable tablets, capsules and tablets. If a prescription has to be issued please choose a licensed product (see below). If being prescribed on an FP10 then vitamin D preparations then to be prescribed as the brand name 'InVita D3' to ensure the correct licensed preparation is dispensed in line with local formulary choice.

Examples of vitamin D products available for children

Product	Approx. price	Source	Suitability
Healthy Start Vitamin Drops for Children Vitamin D3 300units/5 drops (also contains vitamin A and C) Licensed medicine	Free if parent meets criteria*	From Health Visitors, Children's Centres some community pharmacies and surgeries. For more info; www.healthystart.nhs.uk	Suitable for vegetarians and free from milk, egg, gluten, soya and peanut residues
Supermarkets, pharmacies and health food shops Dietary supplement	£1 - £10 depending on product and shop	Supermarkets, pharmacies, health food shops	Check product packaging or speak to a pharmacist
InVita D3 2,400 units/ml oral drops, solution Vitamin D3 400units in 6 drops	£3.60, 10ml	Prescription Only Medicine	Licensed medicine Suitable for vegetarians ⁽³⁾ and are free from peanut and soya ⁽⁴⁾
Fultium D3 capsules Vitamin D3 800units per capsule	£3.60, 30 capsules	Prescription Only Medicine	Licensed in children >12years

For further information on suitable products for specific dietary or religious beliefs please NICE Clinical Knowledge Summary Vitamin D deficiency in children: High-dose vitamin D: <https://cks.nice.org.uk/topics/vitamin-d-deficiency-in-children/prescribing-information/high-dose-vitamin-d/#available-products>

*Patients qualify for Healthy Start if they are at least 10 weeks pregnant or have a child under four years old **and** they or their family receive:

- Income Support, or
- Income-based Jobseeker's Allowance, or
- Income-related Employment and Support Allowance, or
- Child Tax Credit (but not Working Tax Credit unless your family is receiving Working Tax Credit run-on only*) **and** has an annual family income of £16,190 or less (2012/13).

Pregnant patients under 18 years old also qualify, even if they do not get any of the above benefits or tax credits.

*Working Tax Credit run-on is the Working Tax Credit you receive in the 4 weeks immediately after you have stopped working for 16 hours or more per week.

Activated vitamin D

'Activated vitamin D' preparations such as calcitriol or alfacalcidol should not be used for the treatment of simple vitamin D deficiency. They should only be used for the treatment of complex cases by specialists. They are ineffective in treating simple vitamin D deficiency and can cause severe adverse effects, particularly hypercalcaemia.

References

1. National Institute for Health and Care Excellence (NICE). **Scenario: Management of confirmed vitamin D deficiency or insufficiency in children and young people. NICE Clinical Knowledge Summaries. [Online] NICE, December 2016. [Cited: 20 08 2020.]** <https://cks.nice.org.uk/topics/vitamin-d-deficiency-in-children/management/management-of-vitamin-d-deficiency-or-insufficiency/>.
2. **UK Medicines Information (UKMi).** Medicines Q&As: Which oral vitamin D products are suitable for people with vegetarian or vegan diets. s.l. : Specialist Pharmacy Services, September 2019.
3. **UK Medicines Information (UKMi)** Medicines Q&As: Is there a suitable licensed vitamin D product for a patient with peanut or soya allergy? s.l. : Specialist Pharmacy Services, June 2018 (updated May 2020).
4. **EMC.** InVita D3 25,000 IU oral solution. *Summary of Product Characteristics.* [Online] 11 05 2017. [Cited: 20 08 2020.] <https://www.medicines.org.uk/emc/product/3259/smpc>.
5. **National Institute for Health and Care Excellence.** Clinical Knowledge Summaries (CKS): Scenario: Prevention of vitamin D deficiency in children and young people. *NICE CKS.* [Online] NICE, 12 2016. [Cited: 20 08 2020.] <https://cks.nice.org.uk/topics/vitamin-d-deficiency-in-children/management/prevention-of-vitamin-d-deficiency/#prevention>.
6. **Royal College of Paediatrics and Child Health (RCPCH).** Vitamin D for infants, children and young people - guidance. [Online] [Cited: 20 08 2020.] <https://www.rcpch.ac.uk/resources/vitamin-d-infants-children-young-people-guidance>.