

**NI Medicines Management Formulary (Adult)
BNF Chapter 9 – Nutrition**

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Chapter 9: Nutrition and Blood

General Notes

- All prescribing of vitamins and minerals should be in line with an ACBS approved indication i.e. only in the management of actual or potential vitamin or mineral deficiency; they are not to be prescribed as dietary supplements or as a general 'pick-me-up'.
- Deprescribe vitamin products where there is no clinically appropriate indication for their continued use, GP Practice staff can refer to '[Vitamin Deprescribing SOP](#).'
- If patients still want to take vitamins and minerals for dietary supplementation or as a 'pick-me-up' they should be advised that they can be purchased as self-care over-the-counter with the support of the community pharmacist
- Some patients e.g. low income may be eligible for NHS Healthy Start vitamins:
 - Healthy Start women's vitamin tablets contain Folic acid, Vitamin C and Vitamin D
 - Health Start children's vitamin drops contain Vitamin A, Vitamin C and Vitamin D

Further details on who is eligible and how to get Healthy Start vitamins can be accessed here <https://www.healthystart.nhs.uk/healthcare-professionals/>

9.1 Anaemias and some other blood disorders

9.1.1 Iron deficiency anaemia

9.1.1.1. Oral iron

1 st choice	Ferrous fumarate 305mg capsules(100mg iron)	Dose: Prophylactic, 1 capsule daily; Therapeutic, 1 capsule twice daily
	Or Ferrous sulphate 200mg tablets (65mg iron)	Dose: Prophylactic, 1 tablet daily; Therapeutic, 1 tablet 2-3 times daily

Prescribing notes

- The oral dose of **elemental iron** for iron-deficiency anaemia should be 100 to 200 mg daily.

- Treatment with an iron preparation is justified only in the presence of a demonstrable iron-deficiency state. Before starting treatment, it is important to exclude any serious underlying cause of the anaemia.
- Oral iron should be continued until 3 months after the iron deficiency has been corrected. Once normal, the haemoglobin concentration and red cell indices should be monitored 3 monthly for 1 year then again after a further year.
- If side effects occur, the dose may be reduced; alternatively another iron salt may be used, but an improvement in tolerance may simply be the result of a lower content of elemental iron.
- Spatone[®] is not recommended for HSC prescription. It contains 5mg of elemental iron per sachet and is therefore inadequate for the treatment or prevention of iron deficiency.
- Modified release preparations have no therapeutic advantage and should not be used.
- Combination preparations:
 - Some oral preparations contain ascorbic acid to aid absorption of iron but the therapeutic advantage of such preparations is minimal and these products are more costly.
 - There is no need to routinely prescribe a combined iron/folic acid preparation in pregnancy
 - There is no justification for the inclusion of other ingredients, such as the B group of vitamins
- Parenteral iron should be reserved for where there is intolerance or non-compliance with oral preparations. Please note this is a red list drug.
- There is insufficient evidence to support the prescribing of ascorbic acid to improve iron absorption.

9.1.2 Drugs used in megaloblastic anaemias

Megaloblastic anaemia is usually due to vitamin B₁₂ or folate deficiency; the specific deficiency and underlying cause must be identified. Treatment is usually only started once a firm diagnosis is made. In emergencies, where delayed treatment may be dangerous, both folate and vitamin B₁₂ may be required initially, until assay results are known. Folate must not be used alone in undiagnosed megaloblastic anaemia due to the risk of B₁₂ deficiency leading to peripheral neuropathy.

(a) Vitamin B₁₂ Deficiency

First choice	Hydroxocobalamin injection 1mg/1ml	<p>Dose: By intramuscular injection</p> <p>Pernicious anaemia and other macrocytic anaemias without neurological involvement, initially 1 mg 3 times a week for 2 weeks then 1 mg every 3 months</p> <p>Pernicious anaemia and other macrocytic anaemias with neurological involvement, initially 1</p>
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		<p>mg on alternate days until no further improvement, then 1 mg every 2 months</p> <p>Prophylaxis of macrocytic anaemias associated with vitamin B₁₂ deficiency, 1 mg every 2–3 months</p>
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Prescribing notes

- Non diet-related vitamin B₁₂ deficiencies are attributable to malabsorption, therefore there is little place for the use of low-dose oral vitamin B₁₂.
- In cases of dietary deficiency (without neurological symptoms or anaemia) an oral preparation of cyanocobalamin 1000 microgram (1mg) daily is an alternative option. Cyanocobalamin 1mg tablets are available as a food supplement or as a prescription only medicine (significantly more expensive). These products may be purchased over the counter or prescribed if necessary. Reserve prescribing for medically diagnosed deficiency, including for those patients who may have a lifelong or chronic condition or have undergone surgery that results in malabsorption. Prescribers should explain to patients the risk of using unlicensed products.
- There is **no** justification for prescribing multiple ingredient vitamin preparations containing vitamin B₁₂ or folic acid.

(b) Folate deficiency

First choice	Folic acid 5mg tablets	Dose: Folate-deficient megaloblastic anaemia, 5mg daily for 4 months (until term in pregnant women); up to 15mg daily may be required in malabsorption states
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Prescribing notes:

- Folic acid has few indications for long-term therapy since most causes of folate deficiency are self-limiting or will yield to a short course of treatment.
- Do not use in undiagnosed megaloblastic anaemia unless vitamin B₁₂ is administered concurrently otherwise neuropathy may be precipitated.
- For prophylaxis in pregnancy, see Supplementations in Pregnancy below
- Where folic acid is prescribed to reduce methotrexate toxicity, the 5mg tablet should be used, not 400microgram. The usual dose is folic acid 5mg weekly, one to two days after methotrexate.

Supplementations in Pregnancy

See also [PHA folic acid and vitamin D guidelines for healthcare professionals](#)

Folic acid for prevention of Neural Tube Defects		
For all women who could become pregnant	Folic acid 400 microgram tablets Advise to purchase OTC	Dose: Women at low risk of neural tube defects, 400micrograms daily until week 12 of pregnancy
High risk neural tube defects	Folic acid 5mg tablets	Dose: Women at high risk of neural tube defects, including those with BMI of 30 and above, 5mg daily until week 12 of pregnancy
Vitamin D Encourage ALL pregnant women to take 10micrograms of Vitamin D throughout pregnancy and whilst breastfeeding. Advise to purchase OTC See section 9.6.4 Vitamin D (add link)		

Prescribing notes

Folic acid supplements taken before and during pregnancy can reduce the occurrence of neural tube defects. The risk of a neural tube defect occurring in a child should be assessed and folic acid given as follows:

- Women at a low risk of conceiving a child with a neural tube defect should be advised to take folic acid as a medicinal or food supplement at a dose of 400 micrograms daily before conception and until week 12 of pregnancy. Women who have not been taking folic acid and who suspect they are pregnant should start at once and continue until week 12 of pregnancy.
- Women at high risk of neural tube defects who wish to become pregnant (or who are at risk of becoming pregnant) should be advised to take folic acid 5mg daily and continue until week 12 of pregnancy. Women with sickle-cell disease should continue taking their normal dose of folic acid 5mg daily (or to increase the dose to 5mg daily) and continue this throughout pregnancy.

9.4 Oral Nutrition

Add link to Oral Nutrition Guidance (*refer to accompanying document*)

9.5 Minerals

Follow specialist advice

Add Link to general notes

9.5.1.1 Calcium supplement

First choice	Adcal chewable tablets, calcium carbonate 1.5g (Calcium 600mg or Ca ²⁺ 15mmol)	Dose: Dietary deficiency and as an adjunct in osteoporosis therapy; 2 chewable tablets per day, preferably one tablet each morning and evening
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Prescribing notes

- Calcium supplements are usually only required if dietary calcium intake is deficient
- Link to section 6.6 for treatment of osteoporosis and 9.6.4 for calcium and vitamin D supplementation

9.6 Vitamins


General Notes

- Vitamins are used for the prevention and treatment of specific deficiency states or where the diet is known to be inadequate; they may be prescribed in the HSC for actual or potential vitamin or mineral deficiency in-line with an ACBS approved indication. but should not be prescribed as dietary supplements.
- The use of vitamins as general 'pick-me-ups' is of unproven value and, in the case of preparations containing Vitamin A or D, may actually be harmful if patients take more than the prescribed dose. Mega-vitamin therapy with water-soluble vitamins, such as ascorbic acid and pyridoxine, is unscientific and can be harmful.
- Deprescribe vitamin products where there is no clinically appropriate indication for their continued use, GP Practice staff can refer to '[Vitamin Deprescribing SOP](#).'
- Claims that vitamin C ameliorates colds have not been proven.

9.6.2 Vitamin B group

Prescribing notes

- Deficiency of the B vitamins, with the exception of vitamin B₁₂, is rare in the UK and is usually treated by preparations containing thiamine (B₁), riboflavin (B₂), and nicotinamide.

- Oral vitamin B complex preparations are considered by the BNF to be 'less suitable for prescribing' . They should not be considered as drugs of first choice
- For vitamin B supplementation in alcohol dependence, see section 4.10 ([add link](#))
- Refeeding syndrome describes a potential fatal medical condition that may affect malnourished and /or ill patients in response to an inappropriately high protein calorie intake. This occurs following the introduction of nutritional support, either orally or by enteral or parenteral feeding. Patients may be discharged on a regimen of vitamins, usually a combination of thiamine, vitamin B compound strong and a multivitamin for 10 days.

9.6.4 Vitamin D

Prescribing notes

- The Department of Health (NI) issued advice to the public on how much vitamin D they need and how to obtain it. Full details can be found [here](#).
- Vitamin D is available as either D2 (ergocalciferol) or D3 (colecalciferol) salts. Colecalciferol has been reported to raise serum vitamin D concentrations more effectively than ergocalciferol and is the drug of choice.

Prevention of deficiency:

- Advising individuals to purchase a vitamin D preparation over-the-counter is the preferred option for prevention of deficiency. They are reasonably low cost, depending on brand. For those on low-income, Healthy Start Vitamins may be available.
- If a prescription is issued:
 - generic prescribing should be avoided to ensure expensive 'specials' are not dispensed ('specials' is a general term widely used to describe unlicensed medicines made to meet the special clinical need of an individual patient and can only be supplied when there is no available licensed medicine which fully meets the patient's needs)
 - a licensed product (see table) or a nutritional supplement should be selected. Food supplements are however not subject to the same assessments for quality, safety and efficacy as licensed medicines.
 - Muslim women are shown to be particularly at risk of vitamin D deficiency and will need a Halal certified vitamin D preparation. An example halal nutritional supplement is Pro D3 and example licensed products are Fultium D3 or Invita D3.

Treatment of deficiency:

- See NICE CKS [‘Vitamin D deficiency in adults-treatment and prevention’](#) on when to treat for deficiency
- In patients requiring treatment does, generic prescribing should be avoided as above and a licensed vitamin D product should be chosen, not a nutritional supplements or ‘special’. Please see below for a table of licensed vitamin D products.
- Pharmacists are asked to order vitamin D preparations via usual pharmacy wholesalers, rather than placing an order for a ‘special’ as this is associated with higher costs.

Licensed Vitamin D Preparations

Licensed Vitamin D Preparations		
	Dosage	Price (28 days) As per DM+D May 2020
400IU Daily		
Invita D3® 400IU (10mcg) caps	1 daily†	£1.85
†note this dose is off-label		
Invita D3® 2400IU/ml drops ‡ (1 drop contains 67 IU)	6 drops daily (400IU/10mcg)	£3.36
‡only licensed in children, pregnancy and breastfeeding		
800IU Daily		
Aviticol®800IU (20mcg) caps	1 daily	£2.08
Strivit D3® 800IU (20mcg) caps	1 daily	£2.33
Invita D3® 800IU (20mcg) caps	1 daily	£2.50
Desunin® 800IU (20mcg) tabs	1daily	£3.36
Fultium D3® 800IU (20mcg) caps	1 daily	£3.36
Thorens® 10,000IU/ml drops (1 drop contains200IU)	4 drops daily (800IU/20mcg)	£1.31
1000IU Daily		
Stexerol D3® 1000IU (25mcg) tabs	1 daily	£2.50
5600IU weekly		
Invita D3® 5600IU (140mcg) caps	1 weekly	£2.50
3200IU daily		
Fultium D3® 3200IU (80mcg) caps	1 daily	£12.43
Strivit D3® 3200IU (80mcg) caps	1 daily	£8.70
4000IU daily		
Desunin® 4000IU (100mcg) tabs	1 daily	£6.36
Stexerol D3® 1000IU (25mcg) tabs	4 daily	£10.00
20,000IU weekly		
Strivit D3® 20,000IU (500mcg) caps	1 weekly	£3.84
Fultium D3 20,000IU caps	1 weekly	£4.54

Plenachol D3 20,000IU caps	1 weekly	£3.60
25,000IU weekly		
Thorens® 25,000IU/2.5ml drops	2.5ml weekly	£5.85
InVita 25,000IU caps	1 weekly	£5.26
Stexerol D3 25,000 tabs	1 weekly	£5.67
40,000IU weekly		
Aviticol® 20,000IU (500mcg) caps	2 weekly	£5.40
Fultium D3® 20,000IU (500mcg) caps	2 weekly	£9.09
Plenachol® 40,000IU (1000mcg) caps	1 weekly	£6.00
50,000IU weekly		
Invita D3® 50,000IU (1250mcg) caps	1 weekly	£8.33
Invita D3 50,000/ml oral solution	1ml weekly	£8.33
Stexerol D3® 25,000IU (625mcg) tabs	2 weekly	£11.33

** This information has been compiled to demonstrate how colecalciferol supplementation may be prescribed using different cost effective licensed preparations of various strengths. Prescribers should refer to the individual product's SPC for specifics on treatment and prevention doses and durations as well as that in pregnancy or higher risk populations e.g. obese patients, those that are hospitalised or have malabsorptive syndromes.*

Calcium and vitamin D supplements

See link to 6.6.1.1 (add jump)

Multivitamins

First choice	Advise patient to purchase an OTC once-a-day multivitamin and mineral preparation
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Prescribing notes

- All prescribing of vitamins and minerals should be in line with an ACBS approved indication i.e. only in the management of actual or potential vitamin or mineral deficiency; they are not to be prescribed as dietary supplements or as a general 'pick-me-up'.
- Where there is concern that diet is not meeting nutritional needs patients or carers should be advised to purchase an OTC once-a-day multivitamin and mineral preparation. A wide range of complete multivitamin preparations are available OTC at low cost.

- The only licensed complete oral multivitamin and mineral supplement is Forceval. Ketovite tablets and Vitamins Capsules BPC are not complete oral multivitamin and mineral supplements.
- If a nutritionally complete sip feed is necessary, and is being prescribed and taken in a therapeutic dose i.e. twice daily, it is unlikely that a multivitamin/mineral preparation will be required in addition.
- There is no evidence to support the use of bitters and tonics.

Wound management and nutrition

- Good nutrition reduces the risk of pressure ulcer development, optimises wound healing, aids immune function and reduces the risk of wound infection. Adequate energy and protein sources are essential to facilitate wound healing. Malnutrition and clinically proven deficiencies are associated with delayed wound healing and increased risk of complications.
- All patients at risk of pressure ulcers or with chronic wounds should be screened to detect those at nutritional risk using a validated screening tool (e.g. MUST). Screening tools may not identify malnutrition in overweight/obese patients with wounds therefore clinical judgement should be used.
- Vitamin and mineral supplements should be considered when deficiencies are confirmed or suspected. Vitamin C, Zinc and Iron are all involved in the synthesis of collagen, an essential component of connective tissue which plays a crucial role in wound healing. **A once-a-day multivitamin and mineral preparation should meet these requirements.** If prescribing single agent vitamins please ensure an expensive unlicensed 'special' is not inadvertently prescribed.
- If a nutritionally complete sip feed is necessary, and is being prescribed and taken in a therapeutic dose i.e. twice daily, it is unlikely that a multivitamin/mineral preparation will be required in addition.
- For further guidance on supplementation click here (clicking will access information below):

General guidance on supplementation:

Vitamin C: supplementation should provide the RNI 75mg/day in adults, (additional 35mg/day may be considered for smokers). Note: tissue saturation occurs at 200mg/day.

Iron: supplementation should provide the RNI 8.7mg/day in men (and women over 50); 14.8mg/day in women (under 50). Regular monitoring of iron profile should be undertaken and supplementation discontinued when stores are returned to normal levels. Note: excess iron intake can cause a metallic taste, affecting appetite.

Zinc: supplementation should provide the RNI 9.5mg/day in men; 7mg/day in women. Note: doses >40mg/day can cause toxicity. Excess zinc reduces the

absorption of other vitamins and minerals, which can reduce the immune response.