9. Nutrition and blood

9.1 - Anaemia and some other blood disorders

9.1.1 Iron deficiency anaemias

9.1.1.1 Oral Iron

First Choice
- Ferrous sulfate

Second Choice
- Ferrous fumarate
- Sodium feredetate (Sytron®)

Prescribing points

- Haemoglobin should rise by 20g/litre over 3-4 weeks. Once it has reached the reference range, treatment should continue for a further 3 months to replenish iron stores.
- Gastrointestinal side effects are common. Although iron is absorbed better on an empty stomach, taking it with food may reduce these side effects.
- Vitamin C in the form of orange juice aids absorption of iron and may also counteract constipation caused by iron preparations.
- Due to reduced absorption patients should be advised to avoid taking tea, coffee, antacids and milk at the same time as iron.
- Sustained release iron products should not be used as they have no therapeutic advantage and can result in lower absorption of iron.
- Liquid formulations of iron should only be used for treatment of iron deficiency in children or in adults unable to swallow tablets or in those not able to tolerate tablet/capsule formulations.
- Combined iron/folic acid products e.g. Pregaday® should not be routinely prescribed. They should be restricted to use in pregnant women who are at high risk of developing iron and folate deficiency.

9.1.1.2 Parenteral Iron

H - Iron dextran (Cosmofer®)
H - Iron sucrose (Venofer®)
H - Ferric carboxymaltose (Ferinject®)

Also see Appendix 9E - Iron Dextran (Cosmofer®) Total Dose Intravenous Infusion Prescription and Appendix 9F - Ferric Carboxymaltose (Ferinject®) Intravenous Infusion Prescription

Prescribing points

- Parenteral iron is reserved for use when oral therapy is unsuccessful due to intolerance or non-compliance, continuing blood loss or malabsorption.
- Ferric carboxymaltose (Ferinject®) is significantly more expensive than Cosmofer® but requires only a 15 minute administration time. A maximum dose of 1000mg of Ferinject® can be administered per day. If the required dose is greater than 1000mg, a second dose at least one week later may be required. Ferinject® is approved for use as an alternative to Cosmofer® in patients where a shorter administration time would be advantageous to the patient or service.
- Venofer® is only used in haemodialysis patients.

Safety Advice for Parenteral Iron Preparations

- Prescribers of parenteral iron preparations should be aware of the following advice issued by the MHRA -

KEY:

H - Hospital Use Only
S - Specialist Initiation or Recommendation
R - Restricted Use Only

Fife Formulary

October 14
Last amended Sept 19
An IV iron product should not be used in patients with known hypersensitivity to the active substance, the product itself, or any of its excipients; it should also not be used in patients with known serious hypersensitivity to any other parenteral iron product.

The risk of hypersensitivity is increased in patients with: known allergies (including drug allergies); immune or inflammatory conditions; or those with a history of severe asthma, eczema, or other atopic allergy. In these patients, IV iron products should only be used if the benefits are clearly judged to outweigh the potential risks.

IV iron should not be used during pregnancy unless clearly necessary. Treatment should be confined to the 2nd or 3rd trimesters, if the benefit is clearly judged to outweigh the potential risks for both mother and foetus.

Caution is needed with every dose of IV iron that is given, even if previous administrations have been well tolerated.

IV iron products should only be administered when staff trained to evaluate and manage anaphylactic or anaphylactoid reactions - as well as resuscitation facilities - are immediately available.

Patients should be closely monitored for signs of hypersensitivity during, and for at least 30 minutes after every administration of an IV iron product. In the event of a hypersensitivity reaction, treatment should be stopped immediately and appropriate management initiated.

For further information see MHRA Drug Safety Update, August 13
www.mhra.gov.uk/home/groups/dsu/documents/publication/con300408.pdf

9.1.2 Drugs used in megaloblastic anaemias

Folic acid

Hydroxocobalamin

Prescribing points

Folic acid must not be used alone in undiagnosed megaloblastic anaemia due to the risk of vitamin B₁₂ deficiency leading to peripheral neuropathy.

Folic acid in pregnancy

To prevent first occurrence of neural tube defects, women planning a pregnancy should take folic acid 400 micrograms daily before conception and continue until the 12th week of pregnancy.

Women, who suspect they are pregnant but have not been taking folic acid, should start at once and continue until the 12th week of pregnancy.

Women with a previous pregnancy affected by a neural tube defect should take folic acid 5mg daily before conception and continue until the 12th week of pregnancy.

Women taking antiepileptic drugs, with diabetes, with coeliac disease, with sickle cell anaemia or with a BMI >30 should all be prescribed 5mg folic acid daily before conception and continue until the 12th week of pregnancy.

Vitamin B₁₂ Deficiency

Intramuscular injections of hydroxocobalamin are used to treat vitamin B₁₂ deficiency.

KEY:-

H - Hospital Use Only
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R - Restricted Use Only

Fife Formulary October 14
Last amended Sept 19
9.1.3 Drugs used in hypoplastic, haemolytic and renal anaemias


Iron overload

S - Darbepoetin alfa (Aranesp®)

H - Desferrioxamine mesilate

R - Deferasirox (Exjade®)

Prescribing points

➢ Desferrioxamine may be used to manage transfusional iron overload.

➢ R - Deferasirox is approved for restricted use by a hospital specialist for the following indications -
  • Management of chronic iron overload in rare acquired or inherited anaemias (thalassaemias) requiring recurrent blood transfusions.
  • Treatment of chronic iron overload due to blood transfusions when desferrioxamine therapy is contraindicated or inadequate, with rare acquired or inherited anaemias. To be used in patients with myelodysplastic syndrome with an International Prognostic Scoring System score of low or intermediate -1 risk.

9.1.4 Drugs used in platelet disorders

Thrombocythaemia

S - Hydroxycarbamide (Hydrea®)

S - Anagrelide (Xagrid®)

Thrombocytopenia

R - Eltrombopag (Revolade®)

R - Romiplostim (Nplate®)

Prescribing points

➢ Hydroxycarbamide and anagrelide are used for reduction of elevated platelet counts in ‘at risk’ patients with essential thrombocythaemia.

➢ R - Eltrombopag is approved for restricted use by a hospital specialist for the following indications -
  • In chronic immune (idiopathic) thrombocytopenic purpura (ITP) splenectomised patients who are refractory to other treatments (e.g. corticosteroids, immunoglobulins).
  • As second-line treatment for adult non-splenectomised patients where surgery is contraindicated. Use is restricted to patients with severe symptomatic ITP or a high risk of bleeding.
  • Treatment of thrombocytopenia in patients with chronic hepatitis C virus infection. Where the degree of thrombocytopenia is the main factor preventing the initiation or limiting the ability to maintain optimal interferon-based therapy.

➢ R - Romiplostim is approved for restricted use by a hospital specialist for the following indications -
  • Severe symptomatic ITP or patients with a high risk of bleeding for chronic immune (idiopathic) thrombocytopenic purpura (ITP) splenectomised patients who are refractory to other treatments (e.g. corticosteroids, immunoglobulins).
  • Second line treatment for non-splenectomised patients where surgery is contra-indicated.

KEY:-

H - Hospital Use Only
S - Specialist Initiation or Recommendation
R - Restricted Use Only

Fife Formulary October 14
Last amended Sept 19
Restricted to use in patients with severe symptomatic ITP or at high risk of bleeding.

9.1.6 Drugs used in neutropenia

| H - Filgrastim |
| H - Lenograstim |
| H - Pegfilgrastim |
| H - Lipogfilgrastim |

Prescribing points

- Filgrastim is the first line granulocyte-colony stimulating factor.
- Lenograstim is mainly used prior to harvesting before stem cell transplant.
- Lipogfilgrastim is a long-acting product which is given along with cytotoxic chemotherapy in haematology and oncology in patients who would otherwise receive 5 days or more filgrastim or lenograstim.

9.2 Fluids and Electrolytes

Also see Guidance For Intravenous Fluid And Electrolyte Prescription In Adults
Also see NHS Fife Guidance on Minimising the Risk of Refeeding Syndrome

9.2.1 Oral preparations for fluid and electrolyte imbalance

9.2.1.1 Oral potassium

| Potassium chloride (Sando-K®, Kay-Cee-L®) |

Prescribing points

- Long term use of potassium supplements is not generally recommended but if clinically indicated then serum potassium levels should be checked regularly.
- Liquid or effervescent preparations (Sando-K® effervescent tablets or Kay-Cee-L® syrup) are the preferred formulations.
- Kay-Cee-L® is relatively expensive and should be limited to patients requiring a liquid potassium supplement, who are unable to take Sando-K®.
- Kay-Cee-L® is sugar-free but has a relatively high sorbitol content and may cause GI upset at doses greater than 60ml daily.

Potassium removal

| H- Calcium polystyrene sulfonate |
| (Calcium Resonium®) |

Prescribing points

- To prevent constipation during treatment with calcium polystyrene sulfonate concurrent laxative therapy should be considered.
- Ion-exchange resins may be administered orally in mild or moderate hyperkalaemia where there are no ECG changes.
- Severe hyperkalaemia requires urgent treatment with IV calcium gluconate, insulin and glucose (see Treatment of Acute Hyperkalaemia in Adults).
9.2.1.2 Oral sodium and water

**H - Sodium chloride**

Prescribing points
- In sodium depletion sodium chloride is usually given intravenously.
- Oral supplementation may be indicated in chronic conditions such as salt-losing bowel.

**Oral rehydration salts**

**Dioralyte®**

Prescribing points
- Oral rehydration salts are first line treatment for acute mild - moderate diarrhoea.

9.2.1.3 Oral bicarbonate

**S - Sodium bicarbonate**

9.2.2 Parenteral preparations for fluid and electrolyte imbalance

Also see [Guidance For Intravenous Fluid And Electrolyte Prescription In Adults](#)
Also see COPM Policy [Control of supply and administration of concentrated potassium solutions for injection](#)
Also see NHS Fife Guidance on [Minimising the Risk of Refeeding Syndrome](#)

9.2.2.2 Plasma and plasma substitutes

Also see [Clinical Guidelines for Human Albumin Use](#)

**H - Albumin solution**

**H - Gelatin (Gelaspan®)**

Prescribing points
- Plasma and plasma substitutes are sometimes used in very ill patients whose condition is unstable.
- Albumin solutions, isotonic (5%) or concentrated (20%) are available from pharmacy.

9.4 - Adult Oral Nutrition (ACBS)


**Nutritional Supplements for General Prescribing**

<table>
<thead>
<tr>
<th>Type</th>
<th>Nutritional Content</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk based</td>
<td>1.5kcal/ ml</td>
<td>Ensure® Plus Milkshake</td>
</tr>
<tr>
<td>Juice Based</td>
<td>1.5kcal/ ml</td>
<td>Ensure® Plus Juice</td>
</tr>
<tr>
<td>Fibre</td>
<td>1.5kcal/ ml</td>
<td>Ensure® Plus Fibre</td>
</tr>
</tbody>
</table>

**KEY:**
- **H** - Hospital Use Only
- **S** - Specialist Initiation or Recommendation
- **R** - Restricted Use Only

Fife Formulary

October 14

Last amended Sept 19
Yoghurt 1.5kcal/ml

Ensure Plus® Yoghurt

Prescribing points

➢ Prescribing of Oral Nutritional Supplements (ONS) should not be regarded as first line treatment of under nutrition & should always follow dietary intervention (Food First advice). See Appendix 9A.
➢ Patients prescribed ONS should meet ACBS criteria.
➢ ONS are of most benefit in patients with a BMI of <20kg/m².
➢ The maximum prescription should be 1 bottle twice daily and should not be prescribed for greater than 3 months duration unless under dietetic guidance.
➢ Patients on non-formulary products should be changed to a formulary ONS.

Dysphagia Products

Thickener
Pre thickened ONS
S - Nutilis®Clear
S - Fresubin® thickened stage 1 200ml
S - Fresubin® thickened stage 2 200ml

Prescribing points

➢ Patients may experience dysphagia due to a number of conditions, predominately neurological.
➢ Thickened fluids or pre-thickened supplements may be required to improve patient safety when eating & drinking.
➢ Dysphagia products should be prescribed only under specialist advice.
➢ The thickening agents listed above are not suitable for use in children under 3. For prescribing advice in this age group seek specialist advice.

Energy/Protein Dense

High Energy/ Protein
Powdered
Low Volume
S - Ensure® TwoCal 200ml (High energy/protein)
S - Enshake® 96g (Powdered)
S - Procal® Shot 200ml (Low volume)
S - Ensure® Compact

Glucose Polymer
Renal
S - Vitajoule® 500g
R - Nepro HP® 220ml

Prescribing points

➢ The above products may be recommended for patients with additional protein/ calorie requirements or where standard ONS alone are insufficient to meet nutritional needs.
➢ Energy/protein dense ONS should be prescribed only under dietetic guidance.
➢ Procal® Shot should generally be prescribed in 30-50ml doses.

KEY:-
H - Hospital Use Only
S - Specialist Initiation or Recommendation
R - Restricted Use Only

Fife Formulary October 14
Last amended Sept 19
R - Nepro HP® is restricted to use in patients with renal restrictions.

**Tube Feeds**

<table>
<thead>
<tr>
<th>kcal/ml</th>
<th>Brand Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kcal/ml</td>
<td>Osmolite®</td>
</tr>
<tr>
<td>1.2 kcal/ml</td>
<td>Osmolite® Plus</td>
</tr>
<tr>
<td>1.5 kcal/ml</td>
<td>Osmolite 1.5®</td>
</tr>
<tr>
<td>2 kcal/ml</td>
<td>TwoCal Tube Feed</td>
</tr>
<tr>
<td>Fibre 1 kcal/ml</td>
<td>Jevity®</td>
</tr>
<tr>
<td>Fibre 1.2 kcal/ml</td>
<td>Jevity® Plus</td>
</tr>
<tr>
<td>Fibre 1.5 kcal/ml</td>
<td>Jevity® 1.5</td>
</tr>
<tr>
<td>Complete in 1000 kcal</td>
<td>Jevity Promote®</td>
</tr>
</tbody>
</table>

**Specialist Tube Feeds**

<table>
<thead>
<tr>
<th>kcal/ml</th>
<th>Brand Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptide 1 kcal/ml</td>
<td>Peptamen® x 500ml/1000ml</td>
</tr>
<tr>
<td>Peptide 1.3 kcal/ml</td>
<td>Perative® x 500ml/1000ml</td>
</tr>
<tr>
<td>Elemental</td>
<td>E028 Extra liquid x 250ml</td>
</tr>
<tr>
<td>Inflammatory bowel Disease</td>
<td>Modulen® IBD x 400g</td>
</tr>
<tr>
<td>Renal</td>
<td>Nepro HP® x 500ml</td>
</tr>
<tr>
<td>Peptide 1.5 kcal/ml</td>
<td>Vital 1.5®</td>
</tr>
</tbody>
</table>

**Paediatrics (ACBS)**

**Tube Feeds**

<table>
<thead>
<tr>
<th>kcal/ml</th>
<th>Brand Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kcal/ml</td>
<td>Paediasure® 200ml &amp; 500ml</td>
</tr>
<tr>
<td>1.5 kcal/ml</td>
<td>Paediasure Plus® 200ml &amp; 500ml</td>
</tr>
<tr>
<td>Fibre 1 kcal/ml</td>
<td>Paediasure Fibre® 200ml &amp; 500ml</td>
</tr>
<tr>
<td>Fibre 1.5 kcal/ml</td>
<td>Paediasure Plus Fibre® 200ml &amp; 500ml</td>
</tr>
<tr>
<td>Low Energy</td>
<td>Nutrini Low Energy Multifibre® 200ml &amp; 500ml</td>
</tr>
<tr>
<td>Inflammatory Bowel Disease</td>
<td>Modulen®</td>
</tr>
<tr>
<td>Soya</td>
<td>Nutrison Soya®</td>
</tr>
<tr>
<td>Peptide 1 kcal/ml</td>
<td>Paediasure Peptide® 200ml &amp; 500ml</td>
</tr>
<tr>
<td>Peptide 1.5 kcal/ml</td>
<td>Peptamen® Junior Advance 500ml</td>
</tr>
</tbody>
</table>

**Prescribing points for Adult & Paediatric Tube Feeds**

- For patients unable to swallow or unable to take sufficient nutrition via the oral route, enteral feeding via a nasogastric, gastrostomy or jejunostomy tube may be required.
- The majority of patients will be set up on a home delivery service via Abbott Hospital to Home (H2H) Service.
- Tube feeds should be prescribed only under strict dietetic guidance.

**KEY:**

- **H** - Hospital Use Only
- **S** - Specialist Initiation or Recommendation
- **R** - Restricted Use Only

Fife Formulary

October 14

Last amended Sept 19
- **R -** Perative®, Vital 1.5® and Paediasure Peptide® are restricted to use in patients with malabsorption or poor feed tolerance.

- **R -** Modulen® IBD is restricted to use in patients with inflammatory bowel disease.

- **R -** E028 Extra liquid is restricted to use in patients with severe malabsorption.

- **R -** Nepron® is restricted to use in patients with renal restrictions.

- **R -** Nutrison Soya® is restricted to patients with a Cow's Milk Protein Allergy.

### Oral Nutrition

<table>
<thead>
<tr>
<th>kcal/ml</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>1kcal/ml</td>
<td>S - Paediasure® 200ml</td>
</tr>
<tr>
<td>1.5kcal/ml</td>
<td>S - Paediasure Plus® 200ml</td>
</tr>
<tr>
<td>Fibre 1kcal/ml</td>
<td>S - Paediasure Fibre® 200ml</td>
</tr>
<tr>
<td>Fibre 1.5kcal/ml</td>
<td>S - Paediasure Plus Fibre® 200ml</td>
</tr>
</tbody>
</table>

### Prescribing points

- All paediatric oral nutritional supplements should only be prescribed if recommended/initiated by a paediatric dietitian.

### Specialist Formula Milks

#### Cow’s Milk Protein Allergy

**Also see Appendix 9B -** Diagnosis and Management of Infants with Suspected Cow's Milk Protein Allergy

**Extensively Hydrolysed**

- **1st choice**
  - Nutramigen® 1 with LGG (<6months)
  - Nutramigen® 2 with LGG (> 6 months)
  - Aptamil Pepti® 1 (< 6 months)
  - Aptamil Pepti® 2 (> 6 months)

- **2nd choice**
  - Nutramigen® Puramino®
  - Neocate® Active 63g sachets

#### Amino Acid (AA)

- AA milk substitute
  - (1-10yrs)
  - S - Nutramigen Puramino®
  - R - Neocate® Active 63g sachets

#### Higher Energy

- **1st choice**
  - SMA Pro High Energy®
  - Similac High Energy®

- **2nd choice**
  - Infatrini Peptisorb®

### Prescribing points

- Nutramigen® 1 & 2 with LGG and Aptamil Pepti® 1&2 should only be used as per the Cow’s Milk Allergy

### KEY:-

- H - Hospital Use Only
- S - Specialist Initiation or Recommendation
- R - Restricted Use Only

**Fife Formulary**

October 14

Last amended Sept 19
Pathway

- Nutramigen with LGG is not suitable for premature and immunocompromised infants. For immunocompromised infants, Aptamil Pepti 1 (<6 months of age) or Aptamil Pepti 2 (>6 months of age) can be used as an alternative.
- Nutramigen Puramino® should only be prescribed under direction of secondary care.
- Higher energy and peptide infant formulas should only be prescribed under the direction of a Paediatric Dietitian.

**Feed Thickener**

**Carobel, Instant®**

**Prescribing points**

- Carobel, Instant® should only be prescribed in line with ACBS criteria – for thickening of feeds for the treatment of moderate-severe reflux/vomiting.
- Carobel Instant should not be used with antacids or other preparations using thickening agents.

**On occasions dietitians may request other products based on the clinical need of the patient. The rationale for any such request will be provided by the treating dietitian.**

**Gluten sensitive enteropathies**

Also see [NHS Fife Gluten Free Foods in the Community Formulary](#)

- Gluten–free products should only be prescribed in patients with a proven diagnosis of dermatitis herpetiformis and/or coeliac disease.
- Prescriptions for gluten free foods should be in line with the choices listed in the NHS Fife Gluten Free Foods in the Community Formulary.

**Allocation of Units**

- People with coeliac disease have varying nutritional requirements for gluten free foods depending on their age, gender, occupation and lifestyle. The following table provides information regarding nationally agreed prescribing quantities through the Unit Allocation.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Suggested Number of units/ month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 1-3 years</td>
<td>10</td>
</tr>
<tr>
<td>Child 4-6 years</td>
<td>11</td>
</tr>
<tr>
<td>Child 7-10 years</td>
<td>13</td>
</tr>
<tr>
<td>Child 11-14 years</td>
<td>15</td>
</tr>
<tr>
<td>Child 15-18 years</td>
<td>18</td>
</tr>
<tr>
<td>Male 19-59 years</td>
<td>18</td>
</tr>
<tr>
<td>Male 60-74 years</td>
<td>16</td>
</tr>
<tr>
<td>Male 75+ years</td>
<td>14</td>
</tr>
<tr>
<td>Female 19-74 years</td>
<td>14</td>
</tr>
<tr>
<td>Female 75+ years</td>
<td>12</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>Add 4</td>
</tr>
<tr>
<td>3rd trimester pregnancy</td>
<td>Add 1</td>
</tr>
</tbody>
</table>

**KEY:**

- **H** – Hospital Use Only
- **S** – Specialist Initiation or Recommendation
- **R** – Restricted Use Only

**Fife Formulary**

October 14

Last amended Sept 19
9.5 - Minerals
9.5.1 Calcium and magnesium
9.5.1.1 Calcium supplements

**Calcium carbonate (Calcichew®)**

**Sandocal®**

**Prescribing points**

- For use of calcium products as phosphate binding agents see section 9.5.2.2.
- Calcium is usually used in combination with vitamin D in prevention and treatment of osteoporosis (see section 9.6.4).
- The administration time for calcium therapy is important: if used as a phosphate binder it should be prescribed 5-10 minutes before meals, but if used as a calcium supplement it should be prescribed away from mealtimes, often at night.

**H - Calcium chloride injection**

**H - Calcium gluconate injection**

**Prescribing points**

- Calcium gluconate is used in treatment of hypocalcaemic tetany or acute deficiency states in surgical patients.
- Low plasma calcium often co-exists with low plasma magnesium and this must also be corrected.

9.5.1.2 Hypercalcaemia and hypercalciuria

**S - Cinacalcet (Mimpara®)**

**Prescribing points**

- Cinacalcet is recommended for people on dialysis who:
  - Have very high levels of parathyroid hormone in their blood that can't be lowered by other treatments and cannot have an operation to remove the parathyroid glands because of the risks involved.
  - People who do receive cinacalcet should have regular checks. Treatment should be stopped if the parathyroid hormone levels in their blood do not fall substantially within 4 months.
- The SMC has not recommended cinacalcet for the reduction of hypercalcaemia in patients with primary hyperparathyroidism for whom parathyroidectomy is not clinically appropriate or is contraindicated.
- All monitoring and review related to cinacalcet should be carried out in specialist renal clinics.

9.5.1.3 Magnesium supplements

*Also see NHS Fife Guidance on Minimising the Risk of Refeeding Syndrome*

**S - Magnesium aspartate dihydrate (Magnaspartate®)**

**H - Magnesium sulfate injection**

**KEY:-**

**H** - Hospital Use Only
**S** - Specialist Initiation or Recommendation
**R** - Restricted Use Only

Fife Formulary

October 14
Last amended Sept 19
Prescribing points

- Magnesium is not well absorbed from the gastro-intestinal tract. Magnesium aspartate sachets may be used by specialists for the treatment of chronic hypomagnesaemia in doses adjusted according to individual requirements.
- Magnaspartate® powder for oral solution is the only licensed oral formulation of magnesium available in the UK.
- On occasions alternative unlicensed products e.g. magnesium glycerophosphate may be required on clinical grounds e.g. Magnaspartate® ineffective in increasing magnesium levels or is poorly tolerated. However, unlicensed products are significantly more expensive than Magnaspartate® and should only be prescribed if recommended by a specialist.
- Unless there are valid clinical grounds patients currently prescribed unlicensed formulations of magnesium should be switched to Magnaspartate®. The dose should be titrated to the maximum tolerated dose with monitoring of magnesium serum levels.

9.5.2 Phosphorus

9.5.2.1 Phosphate supplements

Also see NHS Fife Guidance on Minimising the Risk of Refeeding Syndrome

- H - Phosphate Sandoz® effervescent tablets
- H - Phosphate infusion

9.5.2.2 Phosphate -binding agents

Also see NICE Clinical Guideline 157 - Hyperphosphataemia in chronic kidney disease: Management of hyperphosphataemia in patients with stage 4 or 5 chronic kidney disease

Also see NHS Fife Guidance on Minimising the Risk of Refeeding Syndrome

1st Choice

- S - Calcium acetate (Phosex®, Renacet®)
- S - Calcium carbonate (Calcichew®)

2nd Choice

- S - Lanthanum carbonate (Fosrenol®)
- S - Sevelamer carbonate
- S - Sucroferric Oxyhydroxide (Velphoro®)

Prescribing points

- Sevelamer carbonate sachets (Renvela®) can be used as an alternative to tablet formulations of sevelamer in patients unable to swallow tablets.
- Sucroferric Oxyhydroxide (Velphoro®) is an option for patients who are not suitable for treatment with calcium phosphate binders, or have tried other phosphate binders with limited success.

9.5.3 Fluoride

Also see SIGN 138 - Dental Interventions to Prevent Caries, March 2014

Also see Drug Prescribing For Dentistry (Second Edition, August 2011)

- S - Sodium Fluoride

KEY:-

- H - Hospital Use Only
- S - Specialist Initiation or Recommendation
- R - Restricted Use Only
Prescribing points

- In general fluoride products should only be prescribed by a dentist after undertaking a risk assessment with the patient.
- When prescribing high strength toothpaste 2800ppm F- should be used initially unless the level of clinical need is very high.
- High strength toothpaste should only be prescribed on a short term basis and subject to regular review by a dental practitioner.
- The risk of fluoride toxicity should be considered in patients prescribed high strength fluoride preparations. This is especially important in patients with a compromised swallowing ability.
- For help finding a local NHS Dentist, phone Fife Dental Adviceline on 01592 226555.
- GPs may be asked to prescribe high strength fluoride toothpaste for patients with oral cancer.

9.5.4 Zinc supplements

H - Zinc sulfate monohydrate (Solvazinc®) effervescent tablets

Prescribing points

- Zinc supplements should only be given in proven zinc deficiency and zinc-losing conditions such as burns.

9.6 - Vitamins

9.6.1 Vitamin A

Vitamin A and D capsules

Prescribing points

- Vitamin A deficiency is rare in the UK. High levels of vitamin A are associated with birth defects so supplements should not be taken during pregnancy.
- Vitamin A is available as a supplement in combination with vitamin D or vitamins C and D and is also included in multivitamin products (see section 9.6.7).
- Vitamin A and D capsules are prescribed in the treatment of patients with cystic fibrosis. Also see section 9.6.7.
- Healthy Start Children’s Vitamin Drops containing vitamins A, C and D are available free of charge to children under 4 years through the Healthy Start Scheme. Healthy Start Vitamin tablets containing vitamins C and D and folic acid are available for women during pregnancy and until baby is one year old.
- Further information on the Healthy Start Scheme can be accessed at www.healthystart.nhs.uk.
- Patients considered eligible for Healthy Start products should be advised to speak to their midwife or health visitor for further information on where Healthy Start products can be obtained locally.

9.6.2 Vitamin B group

Also see Addiction Services Guideline - Guidance for the Identification, assessment and Management of Harmful Drinking and Alcohol Dependence

KEY:-

H - Hospital Use Only
S - Specialist Initiation or Recommendation
R - Restricted Use Only
Also see NHS Fife Guidance on Minimising the Risk of Refeeding Syndrome

Pyridoxine (vitamin B₆)
Thiamine (vitamin B₁)

Prescribing points

- Deficiency of pyridoxine (vitamin B₆) is rare but may occur during isoniazid therapy or penicillamine treatment in Wilson’s disease and is characterised by peripheral neuritis.
- Pyridoxine may also be used in idiopathic sideroblastic anaemia and premenstrual syndrome.
- The safety of long term use of pyridoxine in doses above 10mg daily has not been established. Long term use of doses above 200mg has been associated with neuropathy.
- Thiamine (vitamin B₁) is used in alcohol dependence at a dose of 100mg three times daily. See Addiction Services guidelines for further details.
- Vitamin B complex preparations are not generally recommended but may be used in prevention of re-feeding syndrome. Duration of treatment should be for a maximum of 10 days only.

H - Pabrinex®

Prescribing points

- Pabrinex® is used in the prevention and treatment of Wernicke’s encephalopathy associated with alcohol dependence.
- Pabrinex® is available as an IM or IV preparation and choice of route will depend on the ward setting.
- The IV preparation is administered as an infusion.
- See Addiction Services Guidelines for further details.

9.6.3 Vitamin C

Ascorbic acid

Prescribing points

- Vitamin C (ascorbic acid) is indicated in the prevention and treatment of scurvy. Scurvy is rare but less severe deficiency may be seen, especially in the elderly.
- Ascorbic acid should be given in divided doses due to it’s low renal threshold.

9.6.4 Vitamin D

Also see Appendix 6A - Guidance on the Diagnosis and Management of Osteoporosis
Also see National Osteoporosis Society Guidelines 2013 - Vitamin D and Bone Health: A Practical Clinical Guideline for Patient Management

Adcal D₃®
S - Alfacalcidol
S - Calcitriol
Colecalciferol

KEY:-

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Fife Formulary October 14
Last amended Sept 19
Prescribing points

- Adcal \( \text{D}_3 \) \( \text{®} \) is available in several formulations e.g. caplets, chewable tablets, effervescent tablets. Caplets can be swallowed whole and are preferred but the formulation prescribed should be done in agreement with the patient to aid compliance.
- Do not routinely screen or test for vitamin D deficiency. Limit testing to patients showing clinical signs of vitamin D deficiency such as bone pain with muscle weakness or generalised muscular pain. Also consider testing those with bone diseases that may be improved with vitamin D treatment or to correct vitamin D prior to treatment with potent therapies for osteoporosis. For further information refer to www.nos.org.uk.

9.6.5 Vitamin E

Prescribing points

- Vitamin E suspension is prescribed in the treatment of patients with cystic fibrosis.

9.6.6 Vitamin K

Prescribing points

- Menadion sodium phosphate is water-soluble and should be used to prevent vitamin K deficiency in malabsorption syndromes.
- Phytomenadione is a fat-soluble formulation used to prevent vitamin K deficiency bleeding in newborn babies, to reverse the anticoagulant effects of warfarin, in coagulopathy associated with liver disease and also to treat cystic fibrosis related liver disease.

9.6.7 Multivitamin preparations

Prescribing points

- Multivitamin products are used to prevent vitamin deficiency.
- Abidec\( \text{®} \) is suitable for infants including neonates while Dalivit\( \text{®} \) is licensed for use in infants from 6 weeks upwards.
- Vitamin capsules can be used in adults.
- Renavit\( \text{®} \) is approved by the ACBS as a Food for Special Medical Purposes (FSMP), indicated for the dietary management of water soluble vitamin deficiency in patients with renal failure who are receiving haemodialysis.
- Paravit-CF\( \text{®} \) is recommended as vitamin supplementation for pancreatic insufficient cystic fibrosis.

KEY:-

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Fife Formulary October 14
Last amended Sept 19
The liquid should be used for patients 0-3yrs or those who cannot swallow tablets and capsules. Capsules are available for age 3-16+yrs.

**Vitamin and mineral supplements and adjuncts to synthetic diets**

- **Forceval®**
- **Ketovite®**