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Introduction

Purpose
The Formulary aims to:

- aid selection of a drug from the many available
- encourage effective, safe and economic prescribing
- reduce the cost and confusion of stocking a needlessly wide range of drugs

Drugs have been chosen by the Drug and Therapeutics Committee for the Formulary which reflect local expert opinion and current usage patterns.

How to use this Formulary

The Formulary is not intended to replace the BNF but to be used in conjunction with it. The BNF classification system has been followed to allow easy comparison. A limited amount of information on the drugs has been included. For further information contact the Medicines Information Centre or your ward pharmacist.

Prescribing Formulary drugs
The drugs in the Formulary fall into three different categories.
1. Generally prescribable - this accounts for most of the drugs.
2. Limited to a specified specialty - these drugs may be prescribed by any member of the specified team. For other specialties it is to be regarded as a non-Formulary drug.
3. In some areas, e.g. cytotoxic drugs (Section 8), it is recommended that a specialist's advice is sought before prescribing.

Prescribing a non-Formulary drug
Non Formulary drugs may be required occasionally:

- **A patient is admitted on a non-Formulary drug**
  After consultation with the ward pharmacist (or Pharmacy Department):
  - an alternative product is recommended
  - or, if there is no alternative, the patient may either continue on his own supply, if appropriate, or a supply will be ordered but only on the consultant's signature.
- **A non-Formulary drug is initiated by a consultant**
  This should only occur if no Formulary alternative exists. A consultant's signature is mandatory.

N.B. By definition, non-Formulary drugs are not stocked in Pharmacy and it will take 1 to 3 days to obtain a supply

Prescribing on out-patient prescription forms must also comply with the Formulary. These forms are monitored and consultants will be informed of all non-Formulary prescribing by members of their firm.

Procedure for additions to and amendment of the Formulary
1. The Formulary will be reviewed frequently to ensure that it remains up-to-date. All changes must be approved by the Drug and Therapeutics Committee.
2. A consultant may apply for a drug to be included, whether to replace an existing drug or as an addition, by completing an Application Form.
3. Completed Application Forms should be sent to
The Secretary,
Drug and Therapeutics Committee,
c/o Pharmacy,
Royal Berkshire Hospital
and will be considered by the Drug and Therapeutics Committee.

4. Applicants must attend the Drug and Therapeutics Committee.
5. At the request of the Drug and Therapeutics Committee, records will be kept in Pharmacy of all non-Formulary prescribing and consultants will be kept informed. Any non-Formulary drug with a high usage will be considered for inclusion.
6. Formulary drugs with declining usage will be considered for deletion.

**Prescribing information**

**Filling in prescription charts**
1. Drugs should be prescribed by approved name and written in BLOCK CAPITALS.
2. The quantity of drug, not the number of tablets (except for combination products) should be written to avoid confusion where more than one strength is available.
3. Entries should be signed legibly and dated when treatment is started.
4. The need for each drug on the chart should be reviewed, especially when considering discharge medication.
5. Oral antibiotic therapy should be reviewed every three days
6. Alterations to therapy should be completed by re-writing the entry, not altering the existing entry.
7. Terminations to prescriptions should be signed legibly.
8. For fixed courses of treatment, prescriptions should state BOTH start and finish dates.

**Intravenous antibiotics**
After 48 hours, all IV antibiotics must be reviewed and re-prescribed where necessary, except
- where a consultant signs for a longer period
- on Buscot and ICU

**Controlled drugs**
All discharge prescriptions (To-Take-Out - TTOs) and out-patient prescriptions for Controlled Drugs must comply with The Misuse of Drugs Act Regulations in order to be dispensed.
This requires the following information:
1. The name and address of the patient.
   (Self adhesive labels are not legal)
2. The name, form and strength of the controlled drug.
3. The total quantity of the controlled drug, or number of dose units to be supplied in BOTH WORDS AND FIGURES.
4. The dose and frequency to be taken.
5. Signature and date.

**Discharge prescriptions**
Where possible, these should be delivered to Pharmacy 24 hours before discharge. A maximum of one week's supply will be dispensed except for:
- short term antibiotic courses
- CAPD patients
- clinical Trials
- consultant request (only with signature)
- corticosteroid courses
- haematology patients
- HIV patients

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*NICE approved medicines for specified indications are automatically added to this Formulary 12*
NICE approved medicines for specified indications are automatically added to this Formulary

- hospital only drugs
- infertility patients
- oncology
- pain clinic patients

**Out-patient prescriptions**
A maximum of two week's supply will be dispensed except for:
- short term antibiotic courses
- CAPD patients
- clinical Trials
- consultant request (only with signature)
- corticosteroid courses
- haematology patients
- HIV patients
- hospital only drugs
- infertility patients
- oncology
- pain clinic patients

Only Formulary drugs should be prescribed on an out-patient prescription. Non-Formulary drugs require a consultant's signature.
Out-patient prescriptions are monitored, and the relevant consultant informed, for compliance with the Formulary and prescribing of excessive quantities.

**Hospital staff prescriptions**
Staff should normally obtain their prescriptions from their local GP. In an emergency, staff should visit Occupational Health. Personal prescribing is allowed in certain circumstances:

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### Policy for personal prescribing by medical staff

1. Official BMA policy is that doctors should not prescribe for their families or themselves. Supplies should be through a General Practitioner.

2. Personal prescribing for self or immediate resident family is allowed in specific circumstances:
   - For immediate treatment of those who become ill on duty and require one day's treatment, or treatment whilst on duty over a weekend.  
     *Charge: no charge*
   - For emergency treatment of the prescriber or immediate resident family for up to five days duration. The prescription should be endorsed *for emergency treatment* by the prescriber.  
     *Charge: current NHS prescription charge.*
   - Where the prescriber is prepared to pay the full cost of the medicines.  
     *Charge: full cost of medicines as invoiced by Finance. Minimum payment - current NHS charge.*

3. Only SHOs and above may prescribe for themselves or immediate resident family. Hospital Practitioners and Clinical Assistants cannot self prescribe.

4. FP10(HP) forms must not be used. Only personal prescription forms, available from the Hospital Pharmacy should be used.

5. Hospital medical staff may not prescribe for any other staff unless they are *bona fide* patients of the hospital.
Policy for the use of unlicensed medicinal products

The purpose of this policy is to provide an internal means of safeguarding patients against the risk of injury or mishap by the use of Unlicensed Medicinal Products (UMPs), as well as minimising the likelihood of claims against the Trust and its employees.

The policy covers the use of UMPs i.e. products that do not hold a current UK Marketing Authorisation (Product Licence). The manufacturers carry no legal liability for the use of UMPs; all claims fall on the Trust and its employees, collectively or separately.

UMPs may be produced in the UK or be imported. They may be produced by large reputable companies, small independent companies or within hospital pharmacies.

1. All therapeutic prescribing of UMPs should be reported to the Trust Drug and Therapeutics Committee on a regular basis.
2. The Quality Assurance Pharmacist, Pharmacy Procurement Manager and Dispensary Managers will be responsible for monitoring and record keeping.
3. If a Consultant decides that, on clinical grounds, a patient needs treatment with an UMP and there is no acceptable licensed alternative, s/he will complete the Unlicensed Medicinal Product - Consultant Request form providing his/her rationale for using the product. This form must be completed for each product required by a specific Consultant for each patient (note that this is a legal requirement independent of the trust).
4. In addition, the first time that a product is requested for a particular indication, the clinical pharmacist involved will complete the pharmacy QA checklist.
5. All UMPs are treated separately from non-formulary drugs. There is no need to complete extra non-formulary documentation.
6. The UMP will be obtained and dispensed by the pharmacy as soon as possible after the initial request is made. The supply is made on the understanding that the relevant forms are or will, in exceptional circumstances, be completed.
7. Full named patient dispensing records will be kept for each dispensing of an UMP class by pharmacy. In addition receipts and certificates of analysis (CA) are required and will be recorded to enable a full audit trail to be completed.
8. Pharmacy Quality Assurance (QA) will assess UMPs for suitability of the quality of the product. QA will be responsible for keeping up-to-date a list of approved manufacturers (list A). It is therefore important when looking into the selection of a product that the manufacturer is known, particularly if obtained via an importer/distributor.
9. In the case of ‘specials’ (i.e. unlicensed medicines obtained from a hospital commercial supplier with a specials manufacturing licence – approved manufacturers are shown on list B) these should be requested via the same route.
10. In these instances, a specification for the product should be developed by the prescriber, clinical pharmacist and QA pharmacist.
11. A manufacturer will then be found
12. An assessment of quality will be made by QA prior to use.
13. Assessment of quality is based on 2 considerations:
   - the product itself
   - the availability of a Certificate of Analysis (CA).
   Each delivery will be assessed for suitability. A CA must always be available but need not be sent with the goods if the same batch has been delivered previously.
14. For ‘specials/unlicensed drugs used occasionally’ an Unlicensed Medicinal Product – Consultant Request form will be required.
15. For products required for use more widely across the Trust, a formulary committee submission is required in addition to an Unlicensed Medicinal Product – Consultant Request form. Formal approval from the Drugs and Therapeutics Committee is needed in these circumstances before introduction of a product.
16. This is necessary as the Trust requires that:
there is a clear statement of the circumstances in which an unlicensed product should be considered for routine use. It is essential that clear evidence of need (normally not exclusively on cost basis) is established

- an assessment of risk associated with use is made.
- clear guidance on use of such products must be made available for staff and patients.

17. Once approval is received, these products can be stocked and will be obtained via the normal ordering system. Certificates of analysis will be requested with each order which will be followed up by QA on receipt of order.

18. A small pharmacy-based group will work with clinical pharmacists to assess need for additional labelling and produce advice to staff and patients for preparations which have no English information provided with the product.

19. If patients are discharged on UMPs, the prescribing Clinician should contact the GP. A letter covering supply and an information sheet, where necessary, will be provided from the pharmacy for the GP. It should be noted that the GP is under no obligation to continue the prescribing of UMPs.

20. At least 14 days supply (depending on lead time for ordering - please check) will be dispensed for patients discharged from the hospital and information supplied to the patient for the local chemist to ensure continuity of supply.

21. Some products may only be available from the hospital pharmacy. The clinician will be informed that they will need to prescribe the whole course of treatment.

22. A report will be presented to the Trust Drug and Therapeutics Committee by the QA Pharmacist on a regular basis.

23. Concerns may be expressed to the Consultant by the Chairman of the Drug and Therapeutics Committee.

24. The ultimate responsibility for prescribing any medicine lies with the prescriber.

Ward stock
Each ward has a list of drugs designed to meet most needs. Prescribers should choose from this list where possible.

Patients own drugs
Drugs brought into hospital by patients are their own property. It is unwise to allow patients to keep drugs with them in hospital (unless participating in a self administration scheme) in case they are taken in addition to those prescribed.

On admission, the doctor will prescribe appropriate medication. Qualified nursing staff, medical staff, pharmacists or pharmacy technicians can decide if a patient's own drugs are suitable for use during admission.

It should be explained to the patient that, where possible, the patient's own supply will be used during their admission and returned on discharge. Any new drugs will be supplied by the hospital.

Wards operating a system of using patient's own drugs during admission should have local written guidelines detailing how the system operates. This policy should cover identification, records, storage and disposal.

Substitution
The Pharmacy generally stocks only one brand of each drug. This is supplied whatever brand is requested and prescribers are not notified.

Clinical trials
A formal Application must be submitted to the Research & Development Committee for all trials for approval by the deadlines set.
Investigators requiring a Pharmacy service should seek Pharmacy advice from the Clinical Trials Pharmacist before submitting an Application. Clinical trial material is supplied through the Pharmacy.

**Pharmacy information**

**Opening Hours**
- Pharmacy is open from 9.30 a.m. to 5.30 p.m. Monday to Friday; 9am to 12 noon on Saturdays and 10am to 1pm on Sundays
- If a non-stock item is required outside these hours then a supply may be obtained from:
  1. The emergency cupboard: This is located outside the Pharmacy Department in Eye block (door marked D) at the Royal Berkshire Hospital. Keys are held by Bed Managers/Night Sisters at RBH.
  2. Wards may borrow medication from another ward until they are able to obtain their own supply from Pharmacy.
  3. When drugs are needed urgently and cannot be obtained from the above sources, the on-call pharmacist can be contacted through Switchboard.

**Medicines Information service - RBH ext. 7803**
During Pharmacy opening hours, a Medicines Information pharmacist is available to provide advice and information, free from commercial bias, on any aspects of drugs and their use. There is an answerphone when the pharmacist is not available.

**Ward pharmacy**
Most wards receive a daily visit from a pharmacist.
The purpose of this visit is to monitor prescriptions for completeness, accuracy, doses and drug interactions, and to arrange for the supply of individual patient’s medication, so that the chart does not leave the ward.
The ward pharmacist is available to provide information and advice to medical and nursing staff.

**Other information**

**Drug representatives**
Drug representatives are not permitted to visit wards without an appointment.

**Drug samples**
The Drug and Therapeutics Committee has concluded that the use of “free” samples is not an objective means of evaluating a drug. The use of such samples can undermine the Formulary system. No free drug samples may therefore be used within the Trust.

**Adverse drug reaction (ADR) reporting**
If an ADR is suspected then it should be reported via the yellow card system following BNF guidelines or online at the MHRA website.
Help in investigating ADRs is available from Medicines Information pharmacists.

**Other relevant publications**
The Trust provides other publications related to the use of medicines:

- The *British National Formulary* distributed widely twice a year
- *Medicines Policy*
NICE approved medicines for specified indications are automatically added to this Formulary

the definitive policy on issues relating to the practical use of drugs

- Emergency Drug Cupboard Contents
  lists drugs available out of hours
- The hospital intranet contains a number of useful reference sources on the intranet
  including the online IV guide “Medusa” and a large range of policy documents on the
  Intranet Policy Hub

Acknowledgements
All consultants, either directly or indirectly, have contributed to the production of this edition of
the Formulary. We are very grateful for all their help.

Members of various departments, particularly Pharmacy, have contributed generously and the
Drug and Therapeutics Committee would like to express their gratitude to them.
0: Emergency treatment of poisoning

See BNF Section for full details

The following centres provide advice on all aspects of poisoning, day or night.

**UK National Poisons Information Service**
Call 0870 600 6266 (Short dial 40129)

**Toxbase**
The clinical online database of the National Poisons Information Service
Toxbase - Registration for password required

0.1 General Management of Poisoning

**Gastric emptying**
Attempts should be made to empty the stomach following an overdose, unless the substance ingested is either a corrosive or volatile agent (petrol, paraffin).
Emptying the stomach is of doubtful value more than 2 hours after an overdose except:
- Salicylates: emesis useful up to 24 hours later.
- Tri-cyclic anti-depressants: emesis useful up to 8 hours later.

**Ipecacuanha induced emesis**
This is the method of choice for emptying the stomach except:
- Following salicylate overdose in adults.
- When the patient's conscious level is obtunded and the airway cannot be protected. (In these cases the stomach should be emptied by gastric lavage using a wide bore oro-gastric tube. An anaesthetist should be present if there is any concern about the ability of the patient to protect his/her own airway.)

**Dose of Ipecacuanha Syrup**:
- Adults 30ml followed by a glass of water
- Older Children 15ml followed by a glass of water
- Children 6-18 months 10ml

0.2 Activated charcoal
Reduces the absorption of poisons through binding if given up to 4 hours after ingestion.
Following emptying of the stomach, Activated Charcoal should be administered in all cases of moderate/severe overdose, in all patients after gastric lavage and in patients admitted for medical reasons following an overdose.

**Dose of Activated Charcoal**:
- Adults and children over 10 years old 50 grams stat
- Children under 10 years 25-50 grams stat
## 0.3 Availability of Antidotes

<table>
<thead>
<tr>
<th>Poison</th>
<th>Antidote</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyanide</td>
<td>Dicobalt edetate inj <em>Kelocyanor</em></td>
<td>ED, Emergency drug cupboard RBH</td>
</tr>
<tr>
<td></td>
<td>Sodium thiosulphate injection</td>
<td>ED</td>
</tr>
<tr>
<td></td>
<td>Sodium nitrite injection</td>
<td>ED</td>
</tr>
<tr>
<td>Heavy metal</td>
<td>Dimercaprol <em>B.A.L.</em></td>
<td>Emergency drug cupboard RBH</td>
</tr>
<tr>
<td></td>
<td>Sodium Calcium Edetate <em>Ledclair</em></td>
<td>Emergency drug cupboard RBH</td>
</tr>
<tr>
<td>Iron</td>
<td>Desferrioxamine <em>Desferral</em></td>
<td>Emergency drug cupboard RBH, ED., Haemodialysis, West, Dolphin &amp; Lion</td>
</tr>
<tr>
<td>Organophosphorous</td>
<td>Pralidoxime Mesylate P2S</td>
<td>Emergency drug cupboard RBH</td>
</tr>
<tr>
<td>compounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paracetamol</td>
<td>Acetylcysteine injection <em>Parvolex</em></td>
<td>Emergency Drug Cupboard RBH, ED dept., RBH Medical wards and ICU</td>
</tr>
<tr>
<td>Paraquat</td>
<td>Fuller's Earth ICI</td>
<td>Emergency Drug Cupboard RBH, A&amp;E</td>
</tr>
</tbody>
</table>
1: Gastro-intestinal system

1.1. Antacids and other drugs for dyspepsia

- Algicon suspension
  For use when low sodium is important.
- Asilone – Only on Palliative Care team advice
- Gaviscon Advance liquid
  The major effect of alginate containing antacids is the prevention of reflux.
  4.6mmol Na per 10ml liquid. Should be used regularly.
- Gaviscon infant sachets
- Infacol - Endoscopy use only
- Maalox suspension
  Usually no effect on bowels.
- Magnesium trisilicate suspension
- Mucaine suspension
  Specialist oncology & Palliative care use only
- Pepto-Bismol tablets- For Gastroenterology use only
- Sodium citrate 0.3M solution
  A non-particulate antacid useful in labour.

1.2. Antispasmodics and other drugs altering gut motility

Apart from the use of antispasmodics in the early phase of irritable bowel disease, their place in therapy is questionable. Best treatment is achieved by reassurance, diet, fluids, exercise, bulking agents and modification to lifestyle.

Antimuscarinics (Anticholinergic)
Dicyclomine has a less marked antimuscarinic effect than atropine and may also have some direct action on smooth muscle. Antimuscarinics relax the oesophageal sphincter and should be avoided in patients with symptoms of reflux

- Hyoscine butylbromide

Other antispasmodics
Peppermint oil can cause irritation to mouth and/or oesophagus and may cause symptoms of heartburn.

- Mebeverine tabs
- Peppermint oil
- Peppermint water

Motility stimulants
Domperidone is less likely to cause extra-pyramidal reactions than Metoclopramide

- Domperidone
- Metoclopramide
Dystonic reactions may occur, especially in the under 20s and the elderly. Domperidone should be used if metoclopramide is unsuccessful.

1.3. Ulcer healing drugs

Helicobacter pylori eradication
The value of H. pylori eradication in patients with peptic ulcers is proven. One week triple therapy regimens containing a proton pump inhibitor and two antibiotics are recommended.

Oral Triple therapy (one week regimen)

For current regimens see current edition of BNF

Practice Point
In patients with active ulcers, continue the acid inhibitor alone for one week in duodenal ulcer, or for three weeks in gastric ulcer. Patient education is vital to maximise the likelihood of success. Prescribers and pharmacists should ensure that patients are counselled appropriately.

1.3.1 H₂ receptor antagonists
Cimetidine
• Ranitidine tablets, dispersible tabs
  (syrup for Paediatric use only)

1.3.3 Chelates and complexes
• Sucralfate

1.3.4 Prostaglandin analogues
Misoprostol is contraindicated in women of childbearing age except when deemed necessary in high risk patients to prevent NSAID-induced ulceration and only if effective contraceptive measures are taken.
• Misoprostol

1.3.5 Proton pump inhibitors
There is a significant difference between treatment and maintenance doses of proton pump inhibitors. Therefore ensure the dose prescribed is appropriate to the indication.
• Esomeprazole tablets. For Consultant Gastroenterologists & Consultants Upper GI Surgeons ONLY
• Lansoprazole capsules general use & orodispersible tablet (Fastabs) - for swallowing difficulties/enteral tubes only
• Omeprazole - general use
• Omeprazole injection
• Omeprazole disp tablets (MUPs) for Paediatric use only
• Esomeprazole injection - Restricted indications

1.4. Acute diarrhoea
First line treatment in acute diarrhoea is the correction of fluid and electrolyte imbalance.
1.4.2 Antimotility drugs
Loperamide is the first choice antimotility drug for acute diarrhoea

- Codeine phosphate
- Co-phenotrope (Lomotil)
  Specialist oncology use only
- Loperamide

1.5. Chronic diarrhoeas
Rectal foam preparations are generally easier to retain than retention enemas.

- Adalimumab TA329
- Beclometasone tablets
- Bismuth Subsalicylate tablets (Pepto-Bismol)- Gastro use only
- Budesonide 3mg MR- 2nd line Gastro consultant only.
- Colestyramine
- Golimumab TA329
- Infliximab
  Ulcerative colitis TA 163 TA 140, TA329
  Crohn’s Disease TA 187
- Mesalazine Octasa, Pentasa & Mezavant XL
- Prednisolone enema, foam enema and suppositories
- Sulfasalazine
- Vedolizumab TA342 TA352

1.6. Laxatives
Laxatives should generally be avoided, except when straining will exacerbate a medical condition, increase risk of bleeding, as in haemorrhoids, or post abdominal surgery. They are also of value for prophylaxis of opioid-induced constipation.

1.6.1 Bulk forming drugs
Best for long term use. Ensure at least 2 litres/day fluid intake.

- Ispaghula husk
  Usual dose 1 bd. If no response add a stimulant laxative.

1.6.2 Stimulant laxatives
Co-danthramer and co-danthrusate have limited and differing licensed indications. Co-danthramer is only licensed for the terminally ill

- Bisacodyl suppositories, paed suppositories
- Co-danthramer (only licensed for the terminally ill)
- Co-danthrusate caps
- Docusate
- Glycerol suppositories
- Senna tabs, liquid
  Use only if bulking agents are ineffective or inappropriate.
  Dose range = 2-4 tablets at night. If abdominal cramps result, split dose 12 hourly

1.6.3 Faecal softener
- Arachis oil enema

NICE approved medicines for specified indications are automatically added to this Formulary 22
1.6.4 Osmotic laxatives
Lactulose is very useful in the treatment of encephalopathy and as a test reagent.
It is used as a laxative, but requires regular administration, a fluid intake of 2 litres a day and may not take effect for 48 hours.
**Lactulose is NOT a prn laxative.**
It is expensive and, for most patients, better alternatives are available

- Fletchers’ Phosphate Enema
- Lactulose
- Macrogols
- Micralax Micro-enema

1.6.5 Bowel cleansing solutions

- Sodium Picosulphate (Sodium picosulfate) *(Picolax)*
- Fleet Phospho-Soda
- Laxido

1.6.6 Peripheral opioid-receptor antagonists

- *Methylnaltrexone bromide - On advice of Palliative Care team ONLY*

1.6.7 5HT4 receptor agonists

- Lubiprostone capsules- NICE indications only TA318
- Prucalopride - For NICE indications only TA 211

1.7. Local preparations for anal and rectal disorders

Local anaesthetics are used to relieve pain associated with haemorrhoids and pruritus ani but evidence to support this approach is lacking. However, lignocaine ointment is useful to relieve pain associated with anal fissure. Alternative local anaesthetics included in some preparations (e.g. amethocaine, cinchocaine and pramoxine) are irritant. Sensitisation to local anaesthetics may occur on treatment exceeding two weeks.

1.7.1 Soothing haemorrhoidal preparations

- Anusol
- Lidocaine

1.7.3 Rectal sclerosants

- Oily phenol
- Aqueous phenol inj.

1.7.4. Management of Anal Fissures

- Glyceryl trinitrate rectal ointment

1.8. Stoma care

Consult Stoma Nurse Specialist (RBH ext 6933, bleep 182)

1.9. Drugs affecting intestinal secretions

1.9.1. Drugs affecting biliary composition & flow

- Ursodeoxycholic acid
1.9.4 Pancreatin

There is great variation in patient response to these products. Fat malabsorption has the most bearing on the clinical picture. Therefore lipase content has been used as the basis for selection. Theoretically 60,000 BPU of lipase should enable a completely achylcic patient to digest the fat in a normal meal; the quantity of protease and amylase that comes with this dose of lipase is more than sufficient to digest the protein and carbohydrate.

The CSM has issued a warning on the development of bowel strictures in children receiving high potency pancreatic supplements.

- Creon 10,000 caps
- Creon 25,000 caps
- Pancrease HL
- Pancrex V tabs

Practice Point – It is important to ensure adequate hydration at all times in patients receiving higher strength pancreatin preparations.
2: Cardiovascular system

2.1 Positive inotropic drugs

2.1.1 Cardiac glycosides
Care with potassium depleting diuretics.
- Digoxin

2.2 Diuretics

General note: beware induced hypokalaemia and, in the elderly, hyponatraemia with thiazide and loop diuretics. They may also reduce the effects of oral hypoglycaemics

2.2.1 Thiazides and related diuretics
Bendrofluazide 2.5mg daily is recommended for the treatment of hypertension since it produces maximal effects on blood pressure with minimal biochemical disturbances.
- Bendrofluazid
- Chlortalidone
- Chlorothiazide suspension – Paeds only
- Indapamide 2.5mg tabs, 1.5mg MR tabs
- Metolazone
  Used with a loop diuretic to produce effective diuresis.
  Watch potassium levels and renal function

2.2.2 Loop diuretics
Furosemide and bumetanide have similar efficacy profiles. However, bumetanide is much more expensive than generic frusemide in the community. Therefore frusemide should be used first line.
- Furosemide
- Bumetanide

2.2.3 Potassium-sparing diuretics
Spironolactone and potassium canrenoate are mainly used in ascites. Spironolactone is not licensed for treatment of essential hypertension
- Amiloride
- Eplerone- cardiology use only, for 1 month’s treatment post- MI only
- Potassium canrenoate
- Spironolactone

2.2.4 Potassium-sparing diuretics with other diuretics
Single agent therapy with a diuretic should be tried initially (see section 2.2.8 for information on potassium depletion). Co-amilozide is not recommended for new patients but is included only because of its widespread use. It can cause hyponatraemia, hyperkalaemia and hypotension in the elderly
• Co-amilozide (*Moduretic*)
• *Frusene*

**2.2.5 Osmotic diuretics**

• Mannitol infusion

**2.3 Anti-arrhythmic drugs**

*General note:* all anti-arrhythmic drugs are potentially pro-arrhythmic. All, except digoxin, are negatively inotropic

**2.3.2 Drugs for arrhythmias**

• Adenosine (not including Adenoscan)
• Amiodarone
  Beware drug interactions. Check baseline thyroid function before starting treatment
• Atropine
• Disopyramide
• Dronedarone - *NICE indications only* [TA 197](#)
• Flecaainide
• Lignocaine (Lidocaine)
• Propafenone
• Sotalol
• Verapamil

**2.4 Beta-adrenoceptor blocking drugs**

There is little clinical evidence that any one beta blocker is more effective than another. However, there are some differences between them which may affect choice in an individual patient. Water soluble agents eg atenolol, may be less likely to cause sleep disturbances and nightmares. Relatively cardioselective agents eg atenolol, may be more appropriate for some patients but even these are not free from effects on airways resistance.

• Atenolol tabs, syrup, injection
• Bisoprolol tabs
• Carvedilol tabs - *Gastroenterology use only*
• Labetalol tabs, injection
• Metoprolol Injection for use in Theatres only
  Tablets (not M/R) - *use prior to CT coronary angiography only*
• Nebivolol tabs - *cardiology use only*
• Propranolol tabs, MR caps, oral solution

**Combined with diuretics**
Combination products are not recommended for new patients but are included only because of their widespread use

• Co-tenidone 100/25 tabs
  (Atenolol 100mg, chlorthalidone 25mg)
• Co-tenidone 50/12.5 tabs
  (Atenolol 50mg, chlorthalidone 12.5mg)
2.5 Renin-angiotensin system drugs and other antihypertensive drugs

2.5.1 Vasodilator antihypertensive drugs
Vasodilators are not the treatment of choice for hypertension due to their side effects. Hydralazine is more often used in combination with other antihypertensives than on its own.

- Hydralazine
- Sodium nitroprusside
  Requires close monitoring. If no effect after 10 minutes, try alternative.

2.5.2 Centrally-acting antihypertensive drugs
- Clonidine inj
  for specialist ICU use only
- Methyldopa
  Only for hypertension in pregnancy
- Moxonidine
  for specialist Cardiology use only

2.5.3 Adrenergic neurone blocking drugs
- Guanethidine inj

2.5.4 Alpha-adrenoceptor blocking drugs
General note: beware first dose hypotension. Long term use may lead to fluid retention. Prazosin is more cost-effective

- Doxazosin tablets (plain only)
- Phenoxybenzamine
- Phentolamine inj

2.5.5 Drugs affecting the renin-angiotensin system
General note: first dose hypotension may occur, especially with concomitant diuretic therapy. Test doses are recommended. Monitor renal function in the elderly and the renally impaired. ACE inhibitors are potassium sparing

2.5.5.1 Angiotensin-converting enzyme inhibitors
The role of ACE inhibitors in heart failure is now well established. One of the main differences between the ACE inhibitors is their duration of action. Captopril has the shortest duration of action, necessitating two or three times daily dosing. Lisinopril and perindopril have a longer duration of action and are licensed for once daily dosing. Ramipril can be given once or twice daily

- Captopril
- Enalapril – continuation therapy only in renal transplant patients
- Lisinopril
- Perindopril
- Ramipril
2.5.5.2 Angiotensin-II receptor antagonists

All are restricted for use as second line agents, in patients with hypertension with significant cough on an ACE inhibitor

- Candesartan
- Irbesartan restricted to Renal and Diabetology
- Losartan - *continuation therapy in renal transplant patients only*
- Valsartan

2.5.5.3 Other Combinations

- Sacubitril / Valsartan (Entresto®)
  For treating symptomatic chronic heart failure with reduced ejection fraction in line with NICE TA 388

2.5.6. Ganglion blocking drugs

- Trimetaphan injection for use in Theatres only

2.6 Nitrates, calcium channel blockers and other antianginal drugs

2.6.1 Nitrates

Glyceryl trinitrate sprays are no more effective dose for dose than tablets. Although tablets should be renewed every eight weeks, they are still cheaper for all but the infrequent user.

Nitrate free periods are recommended to avoid the development of tolerance. There is no place for sustained release glyceryl trinitrate and isosorbide dinitrate.

Sustained release isosorbide mononitrate should only be considered for patients in whom compliance is a problem. They are considerably more expensive in the community than in hospital and ten times more expensive than twice daily generic isosorbide mononitrate.

- Glyceryl trinitrate tabs, spray
- Glyceryl trinitrate patches
- Isosorbide mononitrate 10mg, 20mg, 40mg SR, 60mg SR tablets

2.6.2 Calcium channel blockers

There are a confusing number of sustained release calcium channel blockers. Since they have different release mechanisms, they should be prescribed by brand name. To promote continuity between hospital and community, only the preparations listed are recommended.

Calcium-channel blockers differ in their possible sites of action; therefore their therapeutic effects are disparate, with much greater variation than those of beta-blockers. There are important differences between verapamil and the
dihydropyridine group of calcium channel blockers, such as nifedipine. Within the dihydropyridine group, the efficacy and side effect profiles are very similar, except that amlodipine has a much longer half life.

- Amlodipine
- Diltiazem (Tildiem Retard and Tildiem LA)
- Felodipine
- Lercanidipine 2nd line to amlodipine
- Nifedipine (Adalat Retard, Adalat LA, Coracten)
- Nimodipine recommended only for the prevention of vascular spasm following subarachnoid haemorrhage
- Verapamil

2.6.3 Other antianginal drugs
- Ivabradine - for specialist Cardiology use only as 2nd line TA 267
- Nicorandil - for specialist Cardiology use only
- Ranolazine tablets - for specialist Cardiology use only as 2nd line.

2.6.4 Peripheral vasodilators & related drugs.
- Naftidrofuryl oxalate capsules. For NICE indications only. TA223

2.7 Sympathomimetics

2.7.1 Inotropic sympathomimetics
- Dobutamine
- Dopamine
- Dopexamine
- Isoprenaline

2.7.2 Vasoconstrictor sympathomimetics
- Ephedrine injection for use in Theatres only
- Midodrine - 2nd line consultant initiation only
- Noradrenaline (Norepinephrine)
- Phenylephrine 1% inj.

2.7.3 Cardiopulmonary resuscitation
- Adrenaline (Epinephrine)

2.8 Anticoagulants and protamine

2.8.1 Parenteral anticoagulants
- Heparin
- Hepsal
- Epoprostenol

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NICE approved medicines for specified indications are automatically added to this Formulary 29
Hirudins
- Bivalirudin
- Lepirudin - for HIT patients only

Low molecular weight heparins
- Dalteparin
- Enoxaparin
  For Stroke Unit use ONLY
- Tinzaparin

2.8.2 Oral anticoagulants
- Apixaban TA 245 TA 275 TA341
- Dabigatran capsules - For NICE indication only - For stroke prevention and systemic embolism in patients with A.F. TA 249
- Edoxaban TA354 TA355
- Phenidione
- Rivaroxaban
  - Orthopaedic Consultant use only, In accordance with NICE guidance (as an option for the primary prevention of venous thromboembolic events in adults who have undergone total hip replacement surgery or total knee replacement surgery) TA 170 TA 256
  - Prevention of stroke & embolism in patient with AF
  - treating pulmonary embolism and preventing recurrent deep vein thrombosis and pulmonary embolism in adults TA 287 TA335
  - prophylaxis post ACS
- Warfarin

2.8.3 Protamine sulphate
- Protamin

2.9 Antiplatelet drugs
Dipyridamole SR is restricted to patients unable to tolerate aspirin, in patients on aspirin who continue to have TIAs and patients at unusually high risk of thrombotic events
- Abciximab
- Aspirin
- Clopidogrel (Approved uses - Aspirin allergy; following ACS & after stent insertion in combination with Aspirin)
- Dipyridamole SR & suspension
- Eptifibatide
- Prasugrel – for NICE Indications ONLY TA317
- Ticagrelor tablets – for NICE indications only TA 236

2.10 Myocardial infarction and fibrinolysis

2.10.2 Fibrinolytic drugs
- Alteplase
  Second line. Very expensive
- Reteplase
- Streptokinase
  First line unless used previously in the last 12 months or known allergy.
- Urokinase (Taurolock)

2.11 Antifibrinolytic drugs and haemostatics
- Ethamsylate (Etamsylate)
  Rapid IV injection causes giddiness
- Tranexamic acid

2.12 Lipid-regulating drugs

  Statins
  - Atorvastatin
  - Pravastatin - continuation therapy in renal transplant patients only
  - Simvastatin

  Anion-exchange resins
  - Cholestyramine (Colestyramine)
    Any concomitant drugs should be taken at least one hour before
    or 4 - 6 hours after food to prevent absorption problems

  Inhibition of Intestinal Absorption
  - Ezetimibe - in line with NICE TA 385 (replaces NICE TA 132)

  Clofibrate group
  - Fenofibrate (micronised)

2.13 Local sclerosants
- Ethanolamine oleate
- Sodium tetradecyl sulphate
3: Respiratory system

The British Thoracic Society guidelines (reproduced in the BNF) should be followed for the management of acute and chronic asthma in adults and children and for chronic obstructive pulmonary disease.

3.1 Bronchodilators

3.1.1 Adrenoceptor stimulants

3.1.1.1 Selective beta₂ adrenoceptor stimulants

Salmeterol and eformoterol are longer acting beta₂-adrenoceptor agonists which are not suitable for the relief of an acute attack. They should be added to existing corticosteroid therapy and not replace it.

- Bambuterol
- Salbutamol (excluding disks)
- Terbutaline
- Salmeterol
- Eformoterol (Formoterol)
- Indacaterol powder for inhalation - 2nd line - Respiratory Team use only.

- Striverdi Respimat (Olodaterol) in line with COPD Algorithm - ONLY on respiratory team advice

3.1.2 Antimuscarinic bronchodilators

- Ipratropium
- Oxitropium - for specialist Respiratory use only
- Tiotropium HandiHaler & Respimat for specialist Respiratory use only
- Eklira Genuair (aclidinium bromide) in line with COPD Algorithm - ONLY on respiratory team advice

Compound Preparations

- Spiolto Respimat (Tiotropium / Olodaterol) in line with COPD Algorithm - ONLY on respiratory team advice
- Duaklir Genuair (Acclidinium / Formoterol) in line with COPD Algorithm - ONLY on respiratory team advice

3.1.3 Theophylline

These drugs can be dangerous and are not recommended for routine use. See management guidelines in current BNF. Theophylline products are not interchangeable and should be prescribed by brand name

- Aminophylline
- Caffeine oral solution, inj. (Buscot only)
• Theophylline (Nuelin SA, Nuelin liquid, Slo-Phyllin, Uniphyllin Continus)

3.1.4 Compound bronchodilator preparations

• Combivent nebules

3.1.5 Inhaler devices and nebulisers

Prescription of inhaled medicine should specify inhaler device. Of available devices, metered dose inhalers (MDIs) should be considered first choice. In patients who experience problems with their use, they should be combined with a spacer device or changed to a breath-actuated MDI or dry powder device. When changing devices, differences in recommended doses and inhaler technique make it advisable to adjust the dose on an individual basis to control symptoms.

Patients requiring high doses of inhaled corticosteroids (beclomethasone dipropionate or budesonide 0.8-2mg daily) should always use a spacer device.

Prescription of regular nebulised bronchodilator should be done in conjunction with a respiratory physician.

• Aerochamber
• Babyhaler
• Diskhaler
• Haleraid
• Nebuhaler
• Paediatric Volumatic
• Rotahaler
• Volumatic

• Adult Peak flow meter
• Child Peak flow meter

3.2 Corticosteroids

A short course of oral prednisolone should be commenced for an acute attack of asthma.

• Beclomethasone/ Beclometasone preparations
• Budesonide
  (respules restricted to hospital inpatient treatment of acute croup only)
• Budesonide / Formoterol combination inhaler
  - Symbicort (budesonide/formoterol) - respiratory & paediatric use only
  - DuoResp Spiromax (Budesonide / Formoterol) in line with COPD Algorithm - ONLY on respiratory team advice
• Hydrocortisone
• Fluticasone inhaler
  Restricted to use on the advice of respiratory consultants for adult patients uncontrolled on over 1000 micrograms daily of inhaled beclomethasone or budesonide
  Also for specialist Paediatric use
• Flutiform
• Fostair

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NICE approved medicines for specified indications are automatically added to this Formulary 33
Initiated by Respiratory Team only but can be prescribed by non-respiratory specialists for patients who are on Fostair pre-admission.

- Seretide (fluticasone/salmeterol) - respiratory & paediatric use only
- Prednisolone

3.3 Cromoglicate therapy and leukotriene receptor antagonists

3.3.1 Cromoglicate therapy
- Cromoglicate sodium inhaler 5mg

3.3.2 Leukotriene receptor antagonists
- Montelukast tablets
  for specialist Paediatric use & Respiratory Consultant use only

3.4 Antihistamines, hyposensitisation and allergic emergencies

3.4.1 Antihistamines
Non-sedating
- Cetirizine
- Loratadine

Sedating
- Chlorphenamine
- Hydroxyzine
- Promethazine

3.4.2 Allergic Immunotherapy
- Omalizumab - for NICE indications only TA 133 TA 280 TA339

3.4.3 Allergic Emergencies
- Adrenaline (Epinephrine) (incl.autoinjector)
- Chlorphenamine
- Hydrocortisone

3.5 Respiratory stimulants and pulmonary surfactants

3.5.1 Respiratory stimulants
- Doxapram

3.5.2 Pulmonary surfactants
Surfactants are restricted to specialist use in neonatal respiratory distress syndrome by consultant paediatricians and specialist registrars
- Poractant Alfa
3.6. Oxygen
- Oxygen
  Always specify concentration, delivery device type and flow rate.
  Refer to Respiratory Team for all home oxygen patients
- Compressed air

3.7 Mucolytics
- Carbocisteine capsules & syrup - as per cystic fibrosis treatment protocol & COPD
- Dornase Alfa
  Specialist paediatric use only
- Hypertonic sodium chloride solution 7%
  For treatment of cystic fibrosis only

3.8 Aromatic inhalations
Steam is the most important component of any inhalation. Other volatile additions have limited value
- Benzoin Tincture Compound
- Menthol and eucalyptus

3.9 Cough Preparations
These are of no pharmacological value but simple linctus may be useful as a placebo. Sips of hot saline are just as effective as expensive proprietary preparations

3.9.1 Cough suppressants
- Codeine linctus

3.9.2 Expectorant and demulcent cough preparations
- Simple linctus
- Simple linctus paediatric

3.10 Systemic nasal decongestants
- Pseudoephedrine tabs 60mg - specialist ENT use only

3.11 Antifibrotics
- Perfenidone
  Only for Idiopathic pulmonary fibrosis according to NICE guidance TA 282
4: Central nervous system

4.1 Hypnotics and anxiolytics

<table>
<thead>
<tr>
<th>Treatment Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines for the use of Benzodiazepines</td>
</tr>
<tr>
<td>1. Benzodiazepines should be used only for the short term (2-4 weeks) relief of severe, disabling anxiety.</td>
</tr>
<tr>
<td>2. Patients admitted on a benzodiazepine should be kept on that drug to prevent withdrawal problems.</td>
</tr>
<tr>
<td>3. Avoid benzodiazepine prescribing wherever possible. Chloral hydrate/betaine may be useful for up to 5 days.</td>
</tr>
<tr>
<td>4. If a benzodiazepine has to be used, it should be for no more than 5 days.</td>
</tr>
<tr>
<td>5. Patients should not be prescribed more than 3 days of benzodiazepine on discharge to prevent the creation of new users.</td>
</tr>
<tr>
<td>6. Benzodiazepines need to be withdrawn slowly.</td>
</tr>
</tbody>
</table>

4.1.1 Hypnotics

_Benzodiazepines_

Benzodiazepines may be classified according to their duration of action which is an important consideration when selecting the most appropriate drug. Of the benzodiazepines listed below their relative durations of action are:

- long-acting: chlordiazepoxide, diazepam
- intermediate-acting: nitrazepam
- short-acting: temazepam

- Diazepam
- Melatonin - _Consultant Paeds only (unlicensed product)_
- Nitrazepam
- Temazepam

_Zopiclone_

- Zopiclone

_Chloral and derivatives_

- Cloral betaine (Welldorm)
- Cloral hydrate mixture, suppositories

_Other hypnotics_

- Promethazine
4.1.2 Anxiolytics

*Benzodiazepines*
- Chlordiazepoxide
- Diazepam
- Lorazepam tablets and inj.
  Tablets can be given sub-lingually

*Buspirone*
- Buspirone

4.2 Drugs used in psychoses and related disorders

4.2.1 Antipsychotic drugs

All require initial test doses

- Amisulpride
- Aripiprazole tablets & orodispersible & Injection – *adolescent bipolar disorder only TA 292* & for use with Rapid Tranquilisation Policy
- Chlorpromazine
- Droperidol
- Flupenthixol (Flupentixol)
- Haloperidol
- Levomepromazine - *Palliative Care use*
- Olanzapine tabs, orodispersible, inj (not depot)
- Promazine
- Quetiapine tabs, MR tablets
- Sulpiride
- Risperidone tabs, orodispersible, liquid
- Trifluoperazine

4.2.2 Antipsychotic depot injections

- Flupentixol decanoate
- Fluphenazine decanoate
- Haloperidol decanoate
- Zuclopenthixol decanoate

4.2.3 Antimanic drugs

Lithium products are not interchangeable. Therefore prescribe by brand name.
They have a narrow therapeutic/toxic ratio. Monitor thyroid and renal function. Plasma concentrations should be monitored by sampling at least 12 hours after preceding dose

- Lithium (*Priadel, Camcolit, liquid*)
- Carbamazepine
4.3 Antidepressant drugs

4.3.1 Tricyclic and related antidepressant drugs
Clinical effect takes 10 - 20 days. Patients should be warned that side effects may precede therapeutic effects. Lower doses are advised in the elderly. Long half lives enable maintenance on a single bedtime dose

*Tricyclic antidepressants*
- Amitriptyline
- Clomipramine
- Dosulepin
- Doxepin
- Imipramine
- Lofepramine
- Nortryptiline
- Trimipramine

*Related antidepressants*
- Trazodone

4.3.2 Monoamine-oxidase inhibitors (MAOI's)
- Phenelzine
- Tranylcypromine

4.3.3 Selective serotonin re-uptake inhibitors
Antidepressants with a short half-life should be withdrawn slowly
- Citalopram
- Fluoxetine
- Paroxetine
- Sertraline

4.3.4 Other antidepressant drugs
- Flupentixol
- Mirtazapine
- Reboxetine
- Venlafaxine

4.6 Drugs used in nausea and vertigo
In the management of post-operative nausea and vomiting, ondansetron is restricted to use in patients refractory to routine antiemetics or with a substantial history of post-operative nausea and vomiting
- Betahistine
- Chlorpromazine
- Cyclizine
- Domperidone
- Granisetron
- Haloperidol
NICE approved medicines for specified indications are automatically added to this Formulary

- Hyoscine patch
- Metoclopramide
- Ondansetron
  - *Patients age 75 years or older*: A single dose of intravenous ondansetron for the prevention of CINV must not exceed 8 mg (infused over at least 15 minutes)
  - *Adult patients younger than 75 years*: A single dose of intravenous ondansetron for prevention of CINV must not exceed 16 mg (infused over at least 15 minutes)
  - *Dilution and administration in patients age 65 years or older*: All intravenous doses for prevention of CINV should be diluted in 50–100 mL saline or other compatible fluid and infused over at least 15 minutes
  - *Repeat dosing in all adults (including elderly patients)*: Repeat intravenous doses of ondansetron should be given no less than 4 hours apart
- Prochlorperazine
- Promethazine

4.7 Analgesics

4.7.1 Non-opioid analgesics
- Aspirin tablets and suppositories
- Paracetamol -IV restricted to where other routes are not available
- Nefopam

*Compound analgesic preparations*

Dispersible and chewable formulations of compound analgesics are considerably more expensive

- Co-codamol 8/500
- Co-dydramol

4.7.2 Opioid analgesics
- Buprenorphine
- Buprenorphine patches -Transtec -(Pain Team & Palliative Care use) Bu-Trans 5,10 & 20 microgram (Pain Team only)
- Codeine phosphate
- Diamorphine
- Dihydrocodeine (not including DF118 Forte)
- Fentanyl transdermal patches
- Methadone
- Morphine sulphate
- Oxycodone – Palliative Care use only
- Papaveretum
- Pethidine
- Tramadol
- Tapentadol – restricted to Pain team and Palliative Care team use ONLY
4.7.3 Trigeminal neuralgia
- Carbamazepine
- Phenytoin
- Pregabalin – On advice of Pain team/Palliative care & Cancer Centre advice

4.7.4 Antimigraine drugs
4.7.4.1 Treatment of acute migraine attack
- Sumatriptan

4.7.4.2 Prophylaxis of migraine
- Pizotifen

4.8 Antiepileptics

4.8.1 Control of epilepsy
The majority of these drugs are initiated by specialists. Monitoring of plasma drug concentrations may assist in dosage adjustments for patients on carbamazepine, phenytoin and to a lesser extent phenobarbital. Routine monitoring of plasma drug concentrations of valproate is not indicated. Phenytoin, carbamazepine and sodium valproate products are not interchangeable.

- Carbamazepine
- Clobazam (restricted use)
- Clonazepam
- Gabapentin
- Lamotrigine
- Levetiracetam
- Phenytoin
- Phenobarbital
- Phenobarbital
  - Maintain on a single bedtime dose.
  - If reducing the dose, withdraw gradually
  - Therapeutic maintenance serum levels = 40 - 80 micromol/l
  - 90mg (=15ml) of phenytoin syrup = 100mg phenytoin sodium tabs & caps
- Sodium valproate
- Topiramate
- Vigabatrin

4.8.2 Drugs used in status epilepticus
- Clonazepam inj
- Diazepam
- Lorazepam
- Midazolam buccal liquid
- Paraldehyde
  - Ideally, use a glass syringe and all metal needle.
  - For rectal use, dilute with olive oil.
- Phenytoin
  - Not for intramuscular use as absorption is slow and erratic.
  - Give by slow IV injection at a rate not exceeding 50mg per minute
4.8.3 Febrile convulsions
- Paracetamol
- Diazepam

4.9 Drugs used in parkinsonism and related disorders
Peripheral dopa decarboxylase is fully inhibited by doses of 70 - 100mg carbidopa per day. Patients receiving less than this are more likely to experience nausea and vomiting.

4.9.1 Dopaminergic drugs used in parkinsonism
- Amantadine caps, syrup
- Bromocriptine tabs, caps
- Cabergoline tabs
- Co-beneldopa caps, MR caps, dispersible (Madopar)
- Co-careldopa tabs, MR tabs (Sinemet)
- Entacapone tabs – Elderly Care & Neurology use only
- Pergolide
- Pramipexole tabs, MR tabs. PD only
- Rasagiline
- Ropinirole tabs, MR tabs. PD only
- Rotigotine patch
- Selegiline tabs, liquid (not including selegiline melt)

4.9.2 Antimuscarinic drugs used in parkinsonism
- Benzhexol (Trihexyphenidyl)
- Procyclidine

4.9.3 Drugs used in essential tremor, chorea, tics and related disorders
- Chlorpromazine
- Haloperidol
- Sulpiride
- Tetrabenazine

Torsion dystonias and other involuntary movements

There are three proprietary brands of botulinum A toxin available: (Xeomin and Botox & Dysport). The doses are specific to individual preparations. Please prescribe by brand name
- Botulinum A toxin (Xeomin) for specialist use only in adults
- Botulinum A toxin (Botox)- Paediatric use only
- Botulinum A toxin (Dysport)
- Riluzole for specialist neurology use only

4.10 Drugs used in substance dependence

Alcohol dependence
- Chlordiazepoxide capsules
- Nalmefene TA325
**Opioid dependence**
- Buprenorphine sublingual tabs (Subutex)
- Lofexidine - *Pain team only*
- Methadone mixture 1mg per ml; 10mg per ml

**Nicotine dependence**
- Nicotine
  - NiQuitin patches —
  - Varenicline- NICE indications only. TA123

### 4.11 Drugs used in dementia

The following drugs are only for use in Alzheimer's Disease and can only be initiated by specialist consultants in Elderly Care, Neurology and Old Age Psychiatry. They require regular assessment for continued use and should not be used when the Mini Mental State Examination falls below 12 points.

See TA 217 for NICE guidance

- Donepezil tabs, orodisperisible tabs
- Galantamine tabs, oral solution, MR capsules
- Memantine tabs, oral solution
- Rivastigmine caps, oral solution, patches
5: Infections

5.1 Antibacterial Agents

All oral antibiotic prescriptions should be reviewed and rewritten, if necessary, after 3 days

| All intravenous antibiotics MUST be reviewed and represcribed, if necessary, after 48 hours |

Practice Point It is mandatory practice to indicate a treatment period or stop date when prescribing antibiotics

5.1.1 Penicillins

5.1.1.1 Benzylpenicillin and phenoxymethylpenicillin

- Benzylpenicillin inj
- Phenoxymethylpenicillin
- Procaine benzylpenicillin - *Sexual Health Use Only*

Penicillinase resistant penicillins

- Flucloxacillin
- Temocillin

5.1.1.3 Broad spectrum penicillins

- Amoxicillin
- Co-amoxiclav *(Augmentin)* tablets, injection
- Co-amoxiclav *(Augmentin Duo)* suspension

5.1.1.4 Antipseudomonal penicillins

- Tazocin - *Consultant Microbiologist Only*
- Timentin

5.1.2 Cephalosporins, cephemycins and other beta-lactams

- Cefixime
  - for specialist ENT out patients & Florey Unit use only
- Cefotaxime *Consultant Microbiologist Only*
- Ceftazidime - *Consultant Microbiologist Only*
- Ceftriaxone
  - specialist Paediatric use only & healthcare at home cellulitis protocol
- Cefuroxime injection *Consultant Microbiologist Only*
- Cephradine (Cefradine)
- Cefaclor suspension

*Other beta-lactam antibiotics*

- Aztreonam - *As per Antiobiotic Policy or Consultant Microbiologist recommendation only*
- Ertapenem - *Consultant Microbiologist Only*
- Imipenem with cilastatin (for CAPD use only)
- *Meropenem - Consultant Microbiologist Only*
5.1.3 Tetracyclines
Give 1 hour before meals. Do NOT give iron or antacids <3hrs post dose. May potentiate anticoagulants
- Doxycycline
- Minocycline MR caps
- Oxytetracycline

5.1.4 Aminoglycosides
See separate TDM guidance for monitoring on Pharmacy website.
- Amikacin
- Gentamicin
- Tobramycin injection consult Microbiology before use
- Tobramycin nebules
  For NICE approved use in cystic fibrosis TA 276 & bronchiectasis intolerant of or deterioration on colomycin nebules
- Neomycin tablets

5.1.5 Macrolides
- Azithromycin only for genital chlamydial infections & bronchioectesis
- Clarithromycin inj
- Clarithromycin tabs, liq Reserved for patients who vomit on erythromycin or for H Pylori eradication
- Erythromycin inj specialist Paediatric use only
- Erythromycin stearate tablets
- Erythromycin ethylsuccinate suspension
- Erythromycin EC caps 250mg (Erymax)
  For Sexual Health Unit & ENT used only

5.1.6 Clindamycin
- Clindamycin
  Use for prevention of endocarditis in heart valve replacement patients.
  For outpatient treatment of cellultis protocol
  Use limited due to serious side effects.
  OR Use on bacteriological advice.

5.1.7 Some other antibacterials
- Chloramphenicol
  Consultant Microbiologist Only or for meningitis or septicaemia treatment in paediatric patients
- Colistimethate
  consultant microbiologist use only for Cystic Fibrosis patients as per NICE guidance TA 276
- Daptomycin- Consultant Microbiologist Only
- Fidaxomicin –C.Diff for first recurrence.
- Linezolid infusion, tablets, suspension
Restricted for use on the authority of consultant microbiologists for the management of infection due to gram positive organisms only

- Rifaximin - TA337 for hepatic encephalopathy
- Sodium fusidate
- Teicoplanin
- Vancomycin monitor levels
- Quinupristin-dalfopristin

Restricted for use on the authority of consultant microbiologists for the management of infection due to vancomycin resistant organisms only

5.1.8 Sulphonamides and trimethoprim

- Co-trimoxazole
  restricted use – see 5.4.8.
- Sulfadiazine
- Trimethoprim

5.1.9 Anti-tuberculous agents

These drugs will normally be recommended on specialist advice. Rifabutin is restricted to patients with mycobacterial infections resistant to conventional anti-tuberculous drugs. Rifampicin is recommended for the prevention of secondary cases of meningococcal meningitis and Haemophilus influenzae type b infection.

- Ethambutol
- Isoniazid
- Pyrazinamide
- Rifabutin for Sexual Health Unit use only
- Rifampicin
- Rifater
- Rifinah

5.1.10 Antileprotic drugs

- Dapsone

5.1.11 Metronidazole and tinidazole

- Metronidazole

5.1.12 Quinolones

- Ciprofloxacin (excluding eye drops) - Oral/IV - Restricted use on Microbiology recommendation ONLY

Expensive. Consider cheaper alternatives where possible. An enzyme inhibitor and so may affect the hepatic metabolism of other drugs - caution in epilepsy and with theophylline and warfarin.

Absorption reduced by iron, antacids and sucralfate.

Contra-indicated in children, adolescents, pregnant and breast feeding women.

The only advantage of IV over oral is when patient is nil by mouth
• Moxifloxacin
  *Restricted to use by Microbiology/Respiratory Med for Community Acquired Pneumonia ONLY*

### 5.1.13 Urinary-tract infections
Always obtain urine for culture **before** starting treatment

- Co-amoxiclav
- Cephradine
- Ciprofloxacin
  *see cautions above*
- Nitrofurantoin
- Trimethoprim suspension, tablets

### 5.2 Systemic antifungal agents

Amphotericin lipid formulations are restricted to use by haematologists only for systemic mycoses when toxicity (especially nephrotoxicity) precludes the use of conventional amphotericin

- Amphotericin plain inj. (always use with phosphate buffer)
- Amphotericin lipid inj.
- Caspofungin - **Consultant Microbiologist advice only**
- Fluconazole
- Griseofulvin
- Itraconazole
- Posaconazole - **Microbiology advice only**
- Terbinafine - **for specialist Dermatology use only**
- Voriconazole - **for Haematology use on Microbiology recommendation only**

### 5.3 Antiviral agents

Antiviral agents are only useful in varicella and herpes zoster if commenced within 48 hours of the appearance of rash, with the exception of ophthalmic shingles where use may be justified up to 7 days after development of rash.

**Herpes simplex and varicella zoster**

- Aciclovir
- *Famciclovir* (Microbiology approved use only)
- Valaciclovir
  *for Florey Unit & Transplant Clinic use only*
- Valganciclovir

**Human immunodeficiency virus (HIV)**

Restricted to use by HIV specialists only

Nucleoside reverse transcriptase inhibitors
- Abacavir
- Atripla
- *Combivir*
- Didanosine
NICE approved medicines for specified indications are automatically added to this Formulary

- Emtricitabine
- Kivexa
- Lamivudine
- Stavudine
- Tenofovir also an option for Chronic Hepatitis B infection as per NICE Guidance TA 173
  - Stribild
  - Trizivir
  - Truvada
  - Zalcitabine
  - Zidovudine

Protease inhibitors
- Atazanavir
- Darunavir
- Fosamprenavir
- Indinavir
- Kaletra
- Lopinavir
- Nelfinavir
- Ritonavir
- Saquinavir

Non-nucleoside reverse transcriptase inhibitors
- Nevirapine
- Efavirenz
- Etravirine
- Rilpivirine

Other Antiretrovirals
- Maraviroc
- Raltegravir
- Dolutegravir

Combination Products
- Eviplera® (emtricitabine, rilpivirine (as hydrochloride), tenofovir disoproxil (as fumarate))
- Triumeq® (Abacavir, dolutegravir, lamivudine)
- Rezolsta® (darunavir ethanolate, cobicistat)

Pharmacokinetic enhancers of antiretrovirals
- Cobicistat

5.3.2.2 Cytomegalovirus (CMV)
- Ganciclovir
  for specialist Florey & Haematology & Transplant Clinic use only

5.3.3.1 Chronic hepatitis B
- Entecavir tablets, oral solution- NICE indications only TA 153

5.3.3.2 Chronic hepatitis C
- Boceprevir capsules - NICE indications only TA 253
- Sofosbuvir - NICE indications only TA330
- Simeprevir - NICE indications only TA331
- Telaprevir tablets - NICE indications only TA 252

5.3.4 Influenza
- Oseltamivir caps, susp - NICE indications only TA 168

5.3.5 Respiratory Syncytial Virus (RSV)
- Palivizumab – for Specialist Paediatric use only
- Ribavirin TA300

5.4 Antiprotozoal agents

5.4.1 Antimalarials
Personal protection from mosquito bites is of great importance since breakthrough infection can occur with any chemoprophylaxis. Patients should be advised to cover up, and to use insect repellent and mosquito nets. For non-mefloquine prophylaxis, therapy should be started one week before travelling. Due to the potentially serious, if rare, adverse effects of mefloquine, specialists are recommending that mefloquine prophylaxis is commenced at least two weeks before travelling into an endemic area. Most serious side effects occur within this time period. Prophylactic antimalarials should be continued for at least four weeks after leaving the malarious area. For routine information on malaria prophylaxis or travel advice
- call Medicines Information on 7803
- call The National Travel Health Network & Centre on 020 7380 9234 (treatment)
- visit the Travax website at www.axl.co.uk/scieh.
- Visit NHS advice for travellers website www.fitfortravel.nhs.uk
- Visit WHO advice for travellers website www.who/int/ith

Treatment
- Chloroquine
- Fansidar
- Quinine

Quinine IV should be administered with caution on the advice of a specialist

5.4.2. Amoebicides
- Metronidazole
- Diloranide

Sexual Health Unit & Gastroenterology unit use only

5.4.8 Drugs for pneumocystis pneumonia
- Co-trimoxazole
- Pentamidine

May cause severe hypotension. Can be administered by inhalation which reduces side-effects for specialist Sexual Health Unit use only

5.5 Anthelmintics
These should be avoided in pregnancy.
5.5.1 Drugs for threadworm

- Mebendazole
  For patients > 2 years old
6: Endocrine system

6.1 Drugs used in diabetes

6.1.1 Insulin

General note: Sliding scale subcutaneous insulin tends to give erratic control and is not recommended. It is better to give a fixed dose of SC insulin 6-8 hourly adjusted according to response.

Sliding insulin scales should only be used when IV insulin is given during and after surgery and during childbirth. Blood glucose should be monitored hourly.

Advice on diabetes is available from the Diabetes Nurse Specialists at RBH on ext 7478 (24 hour answerphone).
All commonly used cartridge insulins are stocked.

Short acting - up to 8 hours
- Human Actrapid
- Humulin S
- Insulin Aspart (Novorapid)
- Insulin Lispro (Humalog KwikPens & Humalog 3ml cartridges & vials)

Intermediate and long acting
- Insulin Detemir
- Insulin Degludec (Tresiba ® penfill, flextouch)
  - For new initiations – ONLY on the advice of the Diabetes Consultant.
  - Continuation therapy for patients admitted on treatment – no restrictions.
- Insulin Glargine
  - Lantus® cartridge & Solostar Pen,
  - Abasaglar® cartridge & prefilled pen
  - NOTE: where patients are established on glargine treatment, they should not routinely be switched between brands.
- Toujeo® is non-formulary
- Human Insulatard
- Humulin I KwikPen, cartridge, vial

Biphasic insulins
- Humulin M3 KwikPen, vial
- Biphasic Insulin Aspart (NovoMix 30)
- Biphasic Insulin Lispro (Humalog KwikPen Mix25 & KwikPen Mix50, Humalog Mix 25 & Mix 50 cartridges, Humalog Mix25 vials)

6.1.2 Oral antidiabetic drugs

6.1.2.1 Sulphonylureas
The main difference between the sulphonylureas is in their duration of action,
which may affect the adverse effect profile. Glibenclamide is associated with a relatively high incidence of hypoglycaemia, particularly in the elderly. Gliclazide is usually more appropriate for these patients

- Glibenclamide
- Gliclazide
- Glipizide

6.1.2.2 Biguanides
Metformin is contra-indicated in patients with renal impairment

- Metformin

6.1.2.3 Other antidiabetic drugs
Acarbose is restricted to use in patients refractory or intolerant to treatment with metformin

- Acarbose
- Conagliflozin NICE guidance only TA 315
- Dapagliflozin NICE Guidance only TA 288
- Empagliflozin NICE Guidance only TA 336
- Exenatide NICE Guidance only TA 248
- Liraglutide NICE indications only TA 203
- Nateglinide
- Pioglitazone (Restricted to diabetes team only)
- Sitagliptin tablets
- Dulaglutide (Trulicity® pre-filled pen/syringe)
  - New initiations - restricted to Consultant Endocrinologists only

6.1.4 Treatment of hypoglycaemia
- Glucose 50%
- Glucose gel (Hypostop)
- Glucose powder
- Glucagon

6.1.5. Treatment of diabetic nephropathy & neuropathy
- Duloxetine caps - Pain & Diabetes & Palliative Care use only

6.1.6. Diagnostic & monitoring agents for diabetes mellitus

Glucose tolerance test
  Polycal

Diabetic urinalysis tests
- Elite strips
- Glucotide strips - preferred choice
- Ketodiastix
- Labstix SG
- Multistix SG
- Multistix 8SG
6.2 Thyroid and antithyroid drugs
Adjust dose until free T4 is in the high/normal range and the highly sensitive TSH is low but detectable.
The main treatment of myxoedema coma is supportive

6.2.1 Thyroid hormones
- Liothyronine
  In the treatment of myxoedema (hypothyroid) coma, this may precipitate cardiac arrhythmias. Beware of giving if the patient is still hypothermic.
  20 micrograms is equivalent to 100 micrograms levothyroxine sodium.
- Thyroxine (Levothyroxine)

6.2.2 Antithyroid drugs
- Aqueous iodine oral solution
- Carbimazole
  Occasionally causes agranulocytosis. Check white cell count before start of therapy and if patient develops severe sore throat or other unexpected infection
- Propylthiouracil

6.3 Corticosteroids

6.3.1 Replacement therapy
- Fludrocortisone
- Hydrocortisone

6.3.2 Glucocorticoid therapy
The CSM has issued a warning that all patients receiving oral or parenteral corticosteroids for purposes other than replacement, should be considered at high risk of severe chickenpox (unless they have had chickenpox). These individuals should avoid close personal contact with chickenpox or herpes zoster and seek urgent medical attention if they are exposed

Steroid cards and Patient Information leaflets will be issued by Pharmacy when necessary
- Cortisone
- Dexamethasone
- Hydrocortisone
- Methylprednisolone
- Prednisolone
6.4 Sex Hormones

6.4.1 Female sex hormones
In general, oral therapy should be considered first line and transdermal therapy second line

Oestrogens and HRT

*Women with uterus*
- *Elleste Duet* tablets

*Women without uterus*
- Oestradiol implants 25mg, 50mg,
- *Estradiol patch (Elleste Solo MX patches)*- (various strengths)
- Estradiol tablets (Elleste Solo)

Progestogens

- Medroxyprogesterone acetate
- Norethisterone 5mg tablets
- Progesterone inj. and pessaries
- Raloxifene

6.4.2 Male sex hormones and antagonists

- Bicalutamide
- Cyproterone acetate
  requires regular liver function tests
- Finasteride tablets
- Flutamide tabs
- *Sustanon 250*
  A mixture of testosterone esters for deep IM use.
- Testosterone implants
- Testosterone propionate 100mg inj

6.5 Hypothalamic and pituitary hormones and anti-oestrogens

6.5.1 Hypothalamic and anterior pituitary hormones and anti-oestrogens

**Anti-oestrogens**
- Clomiphene (Clomifene)

**Gonadotrophins**
- Chorionic gonadotrophin
- Follitropin alfa
- Follitropin beta (*Puregon*)

**Corticotrophins**
- Tetracosactrin/ Tetracosactide

**Growth hormone**
- Children: Somatropin as *Humatrope TA 188*
Adults: TA 64

Hypothalamic hormones
- Gonadorelin (LH-RH)
- Protirelin (TRH)

6.5.2 Posterior pituitary hormones and antagonists
- Argipressin
- Desmopressin
- Terlipressin
- Tolvaptan only under conditions of NICE TA 358

Antidiuretic hormone antagonists
- Demeclocycline

6.6 Drugs affecting bone metabolism
Also see sections 6.4.1.1 (Female sex hormones), 8.1.2 (Cytotoxic antibiotics), 9.5.1.1 (Calcium supplements) and 9.6.4 (Vitamin D)

6.6.1 Calcitonin and parathyroid hormone
  - Teriparatide – in line with NICE TA 161 only

6.6.2 Bisphosphonates & other drugs affecting bone metabolism
Also see sections 9.5.1.1 (Calcium supplements) and 9.6.4 (Vitamin D)
- Alendronate (daily & weekly tablets)
- Denosumab - Strictly for NICE indications only TA 204
- Disodium etidronate tabs
- Sodium clodronate 400mg capsules, 800mg tabs (Bonefos)
- Pamidronate inj
- Risedronate (daily & weekly tablets)-2nd line if alendronate not tolerated
- Strontium. Restricted to those >80 years who are intolerant/non-compliant to oral bisphosphonates
- Zolendronic acid injection -2nd line consultant initiation only

6.7 Other endocrine drugs

6.7.1 Bromocriptine and other dopamine-receptor stimulants
  - Bromocriptine
  - Cabergoline

6.7.2 Danazol and gonadorelin analogues
- Danazol
- Buserelin
- Goserelin
- Leuprorelin
- Triptorelin (Gonapeptyl Depot for Precocious Puberty)
7: Obstetrics, gynaecology and urinary tract disorders

7.1 Drugs used in Obstetrics

7.1.1 Prostaglandins and oxytocics
- Carbetocin inj
- Carboprost inj
- Dinoprostone (Propess & Prostin)
- Ergometrine
- Gemeprost
- Oxytocin
- Syntometrine

7.1.1.1 Ductus Arteriosus
- Alprostadil (Buscot only)
- Indomethacin inj. 1mg (Buscot only)

7.1.2 Mifepristone
Mifepristone is indicated only for use in strict accordance with the terms of its product licence
- Mifepristone for specialist Obstetric use only

7.1.3 Myometrial relaxants
- Salbutamol

7.2 Treatment of vaginal and vulval conditions

7.2.1 Preparations for vaginal atrophy

Topical HRT
Topical oestrogen is absorbed and should be used in minimal amounts and if required long term should be combined with an oral progestogen in women with an intact uterus
- Oestradiol/ Estradiol vaginal tablets 25 mcg
- Estriol cream
  Use smallest amount possible and discontinue as soon as possible to minimise systemic absorption of oestrogen.

7.2.2 Anti-infective drugs
See Section 5 for oral treatment.

Fungal infections
Oral fluconazole in a single dose of 150mg is useful in the treatment of recurrent or resistant vaginal candidiasis (see section 5.2).
- Clotrimazole vaginal tablets 200mg, 500mg, topical cream 1%, vaginal cream 10%
- Miconazole cream, pessaries
- Nystatin pessaries, vaginal cream
NICE approved medicines for specified indications are automatically added to this Formulary.

for Sexual Health use only.

Other infections
- Metronidazole 0.75% vaginal gel
- Sulfin
  Ineffective against Candida and Trichomonas vaginalis.

7.3 Contraceptives
Contact the Family Planning Service for advice on preparations which are only available from them.

- Brevinor
- Cerazette
- Cilest
- Eugynon
- Evra patch
- Femulen
- Femodene
- Levonorgestrel 1500 microgram tablet
- Logynon
- Marvelon
- Mercilon
- Microgynon 30
- Micronor
- Microval
- Minulet
- Neogest
- Norimin
- NuvaRing – Vaginal low strength
- Ovran
- Ovranette
- Trinovum
- Ulipristal (EllaOne)
- Yasmin

7.3.2.2 Parenteral Progestogen-only Contraceptives

- Etonogestrel implant
- Medroxyprogesterone 150mg/1ml injection
- Norethisterone 200mg/ml oily injection

7.3.2.3. Intra-uterine Progestogen-only Device

- Mirena IUD
- Jaydess IUS

7.4 Drugs for genito-urinary disorders

7.4.1 Drugs for urinary retention
- Tamsulosin MR capsules
- Terazosin

Drugs used in treatment of benign prostatic hyperplasia
- Indoramin 20mg tablets
7.4.2 Drugs for urinary frequency, enuresis and incontinence

- Amitriptyline
- Desmopressin inj. and tablets
  
  Review therapy after 3 months
- Duloxetine – Restricted to Urology/Gynaecology Consultant prescribing only
- Imipramine
  
  Most useful for nocturnal enuresis in children
- Mirabegron - Strictly for NICE indications only TA 290
- Oxybutynin
- Solifenacin

7.4.3 Drugs used in urological pain

Alkalisation of urine
- Potassium citrate
  
  Take with plenty of water.
- Sodium bicarbonate

Acidification of urine
- Ascorbic acid

7.4.4 Bladder instillations and urological surgery

All cytotoxics must be prepared in the Pharmacy Aseptic Suite (ext. 8645)

- Chlorhexidine
- Dimethyl sulphoxide (Dimethyl sulfoxide)
- Doxorubicin
- Mitomycin
- Sodium hyaluronate (Cystistat)

Solutions for continuous bladder irrigation
- Glycine
- Sodium chloride irrigation
- Water

Maintenance of indwelling urinary catheters
- Chlorhexidine bladder wash out
  
  Use if established infection risk or offensive urine.
- Sodium chloride 0.9% bladder washout
  
  Routine use for flushing.
- Suby G bladder wash out
  
  To prevent crystal formation around the catheter.

7.4.5 Drugs for erectile dysfunction

- Alprostadil

Phosphodiesterase type-5 inhibitors
- Avanafil – 2nd line
- Sildenafil

Use limited to nationally determined restricted patient groups as detailed here
8: Malignant disease and immunosuppression

Cytotoxic drugs should be administered only under the supervision of a clinician experienced in their use. They should be prepared in the Pharmacy Aseptic Suite – ext 8645

General note: Regulations exist for the appropriate administration and disposal of cytotoxic drugs. All cytotoxic drugs cause a degree of non-specific cell toxicity to normal dividing tissues, in particular myelotoxicity, and appropriate monitoring of side-effects is essential. Some cytotoxics cause massive cell lysis leading to hyperuricaemia, which may be prevented by treatment with allopurinol.

Storage: Most cytotoxic drugs should be protected from light prior to, and during use. Those indicated should be kept in a fridge. Cytotoxics prepared by Pharmacy have an expiry date and storage advice which must be rigorously observed.

8.1 Cytotoxic drugs

Folinic acid rescue
- Calcium folinate (Calcium leucovorin)

8.1.1 Alkylating drugs
- Busulphan (Busulfan)
- Carmustine
- Chlorambucil
- Cyclophosphamide
- Ifosfamide
- Lomustine
- Melphalan
- Treosulfan

Urothelial toxicity
- Mesna

8.1.2 Cytotoxic antibiotics
- Bleomycin
- Dactinomycin
- Daunorubicin
- Doxorubicin
- Doxorubicin liposomal - NICE indications only TA 91 and TA389
- Epirubicin
- Idarubicin
- Mitomycin
- Mitozantrone (Mitoxantrone)
- Pixantrone TA306

8.1.3 Antimetabolites
- Capecitabine
- Capecitabine in gastric cancer - NICE indications only TA 191
- Cladribine subcutaneous injection
- Cytarabine
- Fludarabine tablets & injection
- Fluorouracil
- Gemcitabine in line with NICE TA 389
8.1.4 Vinca alkaloids and etoposide
- Etoposide concentrate
- Vinblastine
- Vincristine
- Vindesine
- Vinorelbine injection & capsules – (advanced breast cancer use: NICE indications only TA 54)

8.1.5 Other antineoplastic drugs
- Amsacrine
- Afatinib NICE indications ONLY TA 310
- Axitinib - NICE indications only. TA333
- Bortezomib - NICE indications ONLY TA 129, TA 311, TA 370
- Carboplatin
- Cisplatin
- Cetuximab - NICE indications ONLY TA 176
- Crisantaspase
- Dabrafenib caps. NICE indications only. TA 321
- Dacarbazine
- Dasatinib tabs - NICE indications only TA 241
- Docetaxel
- Erlotinib - NICE indications ONLY TA 162 and TA 374
- Gefitinib - NICE indications ONLY TA 175 and TA 374
- Hydroxy carbamide
- Idelalisib NICE TA 359
- Imatinib inc NICE TA326
- Ipilimumab NICE indications only TA319
- Irinotecan
- Nilotinib caps- NICE indications only TA 241
- Nintedanib in line with NICE TA 379
- Nivolumab in line with NICE TA 384
- Olaparib in line with NICE TA 381
- Oxaliplatin
- Paclitaxel - (for ovarian cancer follow NICE indications only TA 55 and TA 389)
- Pazopanib - for NICE indications only TA 215
- Peg Asparaginase - A.L.L. protocols only
- Pembrolizumab NICE TA 357
- Procarbazine
- Ruxolitinib in line with NICE TA 386
- Sunitinib - for NICE indications only TA 169
- Temozolomide - for NICE indications only TA 23
- Topotecan - NICE indications only TA 183, TA 389
- Trabectedin - NICE indications only TA 185 and TA 389

8.2 Drugs affecting the immune response

8.2.1 Cytotoxic immunosuppressants
- Azathioprine
- Mycophenolate oral & injection - Transplant Clinic use
8.2.2 Corticosteroids and other immunosuppressants

- Cyclosporin (Ciclosporin) (Sandimmun, Neoral)
- Prednisolone
- Sirolimus (Transplant Clinic use only)
- Tacrolimus oral & injection (Transplant Clinic use only) – Prescribe by brand

8.2.3 Anti-lymphocyte monoclonal antibodies

- Alemtuzumab TA 312- NICE indications only.
- Ofatumumab. NICE indications. TA344
- Obinutuzumab. NICE indications TA343
- Rituximab TA308

8.2.4 Other Immunomodulating Drugs

* Dimethyl fumarate tablets (Tecfidera)- NICE indications only. TA320
* Fingolimod caps - NICE indications only TA 254
* Interferon alfa
* Peginterferon alfa - NICE indications only TA 200, TA300
* Peginterferon beta-1a (Plegridy®) – NHSE Funded
* Glatiramer acetate (Copaxone®) – NHSE Funded
* Lenalidomide - NICE Indications ONLY TA 171
* BCG bladder instillation
* Teriflunomide TA303
* Thalidomide - Haematology use only
* Radium-223 dichloride in line with NICE TA 376
* Panobinostat in line with NICE TA 380

8.3 Sex hormones and hormone antagonists in malignant disease

8.3.1 Oestrogen

* Diethylstilbestrol-specialist use only
* Ethinylestradiol

8.3.2 Progestogens

* Gestronol
* Norethisterone
* Medroxyprogesterone
* Megestrol

NICE approved medicines for specified indications are automatically added to this Formulary 60
8.3.4 Hormone antagonists

8.3.4.1 Breast cancer
* Anastrozole
* Exemestane - specialist use only
* Goserelin 3.6mg implant
* Letrozole - specialist use only
* Tamoxifen

8.3.4.2 Gonadorelin analogues & gonadotrophin-releasing hormone antagonists
* Abiraterone - NICE indications only TA259 TA387, TA389
* Bicalutamide
* Cyproterone
* Degarelix - Urology & Oncology use only
* Enzalutamide. NICE indications only TA316, TA377
* Flutamide
* Goserelin
* Leuprorelin

8.3.4.3 Somatostatin analogues (neuroendocrine tumours and acromegaly)
* Octreotide

9: Nutrition and blood

9.1 Anaemia and some other blood disorders
General note: Oral iron therapy should be continued for 3 months after correction of the haematological abnormality, to allow marrow iron stores to be replenished. The underlying cause of the iron deficiency should be sought. The commonest explanation is blood loss, the site of which must be identified and the lesion treated. May cause constipation or diarrhoea. Do not administer concurrently with tetracyclines or antacids.

9.1.1 Iron deficiency anaemias

9.1.1.1 Oral iron
* Ferrous fumarate
* Ferrous sulphate
* Sodium feredetate (Sytron)
Iron and folic acid
* Pregaday

9.1.1.2 Parenteral iron- Refer to Management of iron deficiency anaemia in adults guideline GL750
- IV iron products should not be used in patients with hypersensitivity to the active substance, the product itself,
NICE approved medicines for specified indications are automatically added to this Formulary

or any of its excipients; and in patients with serious hypersensitivity to other parenteral iron products.

- The risk of hypersensitivity is increased in patients with known allergies (including drug allergies) and in patients with immune or inflammatory conditions (e.g. systemic lupus erythematosus, rheumatoid arthritis) as well as in patients with a history of severe asthma, eczema or other atopic allergy.
- In these patients, IV iron products should only be used if the benefit is clearly judged to outweigh the potential risk.
- To minimise risks, IV iron products should be administered in accordance with the posology and method of administration described in the product information for each individual product.
- IV iron products should only be administered when staff trained to evaluate and manage anaphylactic/anaphylactoid reactions as well as resuscitation facilities are immediately available.
- All prescribers should inform patients of the risk of hypersensitivity before each administration. Patients should be informed of the relevant symptoms and asked to seek urgent medical attention if a reaction occurs.
- Patients should be closely monitored for signs of hypersensitivity during and for at least 30 minutes after each administration of an IV iron product.
- IV iron products should not be used during pregnancy unless clearly necessary. Treatment should be confined to 2nd or 3rd trimester, if the benefit is clearly judged to outweigh the potential risks for both the mother and the foetus. The risks to the foetus can be serious and include foetal anoxia and distress.

**The test dose**

- Previously an initial test dose has been recommended for some IV iron products before administration of the first dose to a new patient.
- However, no accurate data are available to clearly support a protective effect of a test dose. The test dose may lead to false reassurance as allergic reactions may occur even in patients that had a negative test dose.
- Consequently an initial test dose before administering the first dose of an IV iron product to a new patient is no longer recommended and is replaced with the risk minimisation recommendations outlined in the previous section.
- Caution is warranted with every dose of IV iron product that is given, even if previous administrations have been well tolerated.
- IV iron products should be administered in accordance with the product specific posology and method of administration described in the product information for each individual product.
- In case of a hypersensitivity reaction, healthcare professionals are advised to immediately discontinue treatment and consider appropriate medical therapy.

Refer to GL750 Management of iron deficiency anaemia in adults
9.1.2 Drugs used in megaloblastic anaemias
To prevent first occurrence of neural tube defects, women planning a pregnancy should take folic acid 400 micrograms daily before conception and during the first 12 weeks 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. Women taking antiepileptic drugs may also be advised to take higher doses of folic acid

* Folic acid
* Hydroxocobalamin

9.1.3 Drugs used in hypoplastic, haemolytic and renal anaemias
* Darbepoetin alfa - CAPD use & TA323
* Epoetin alfa (Eprex) – haematology/oncology use only TA323
* Epoetin beta (Neorecormon) - Haemodialysis use only & TA323
* Iron overload
  Desferrioxamine

9.1.4 Drugs used in Platelet Disorders
  - Anagrelide - 2nd line, consultant initiation only
  - Eltrombopag - NICE indications only TA 293
  - Romiplostim - NICE indications only TA 221

9.1.6 Drugs used in neutropenia
* Filgrastim
* Lenograstim
* Lipegfilgrastim - 2nd line to filgrastim

9.2 Fluids and electrolytes

9.2.1 Oral preparations for fluid and electrolyte imbalance

9.2.1.1 Oral potassium
Due to the risk of oesophagitis, Potassium chloride SR tabs should only be used in patients unable to tolerate liquid or effervescent preparations. Potassium supplements are seldom required with the small doses of diuretics given to treat hypertension. However in some patients the development of hypokalaemia may be dangerous, including oedematous patients with cardiac or hepatic failure (especially those on digoxin), diabetic patients, patients on corticosteroids, and in the elderly and chronic sick who may have inadequate potassium in their diet. A potassium sparing diuretic and potassium supplements should not be used concomitantly because of the risk of hyperkalaemia.

* Potassium chloride effervescent tablets
**Potassium chloride SR tabs 600mg**
* Potassium chloride syrup

**Potassium removal**
* Calcium polystyrene sulphonate (Calcium Resonium)

**PR Administration** - 30g mixed in 100ml methylcellulose solution & retained rectally for 9 hours followed by irrigation to remove resin from colon

**9.2.1.2 Oral sodium and water**
* Sodium chloride

**Oral rehydration therapy**
* Dioralyte

**9.2.1.3 Oral bicarbonate**
* Sodium bicarbonate

**9.2.2 Parenteral preparations for fluid and electrolyte imbalance**
See BNF section 9.2.2

**9.2.2.1. Electrolytes & Water**
* Glucose
* Potassium
* Plasma-Lyte 148 (water)
* Sodium bicarbonate
* Sodium Chloride
* Trometamol (THAM)
* Water for Injections

**9.2.2.2 Plasma and plasma substitutes**
* Dextran 40
* Dextran 70
* Gelofusine
* Pentastarch
* Tetrastarch (Voluven) – For ICU use

**9.3 Intravenous nutrition**

Quick Guide to Parenteral Nutrition (PN)
1. If your patient has been unable to have a normal nutritional intake for greater than 7 days, contact the Nutrition Support Team for assessment and PICC line insertion:
   - Ward Dietician
   - Pharmacist, Imogen Steed - bleep 40821
   - IVNN Specialist Sheila Inwood - Extn 7260 pager 40163
   - Clinician, Dr de Silva – x6809
2. PN is only to be given via a dedicated PICC line
3. If patient is very malnourished consider refeeding syndrome (replete K, Mg, Po4, i.v. Pabrinex, feed slowly)
4. Prescribe PN on the drug chart:
NICE approved medicines for specified indications are automatically added to this Formulary

- OilClinomel 2.5l iv over 24 hours - for type of OilClinomel see table below and the dietician advice for your patient
- Cernavit IV one daily
- Additrace IV - start one week after commencing PN and one daily thereafter
- Vitamin B12 (Hydroxocobalamin) 1mg IM - start one month after commencing PN and monthly thereafter

5. Monitoring

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<td>FBC, U&amp;E, LFT</td>
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<td>(3 times a week)</td>
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<tr>
<td>once stable</td>
<td>U&amp;E, weekly FBC, LFT</td>
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<tr>
<td>Daily</td>
<td>&quot;strict fluid balance &amp; weight</td>
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<td>TDS until stable, od thereafter</td>
<td>blood glucose</td>
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<tr>
<td>Weekly</td>
<td>24 hr urine for Nitrogen, U&amp;E (Sunday), PICC dressing change</td>
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*An accurate input/output fluid balance is VITAL in patients on parenteral nutrition. It is important to record all losses including urine, vomit, aspirates, stoma output, fistulae, drains, etc. Patients should be weighed daily.

6. Most TPN patients run a blood glucose of 9-12 mmol/l which is acceptable. They can spike up to 17mmol/l but should settle down without the use of insulin cover. Patients with diabetes or pancreatitis need to be assessed individually as to how they cope with the added glucose load.

Insulin infusion is only required if blood glucose is 10 mmol/litre and above consistently. If required, give IV by continuous infusion using a sliding scale not subcutaneously.

7. All parenteral nutrition must be infused via a volumetric pump. All of the TPN below are multi-compartment bags which MUST be mixed by squeezing or rolling before administration.

8. Weaning off TPN - It is not appropriate to stop TPN suddenly. It is best to reduce the time that the bags are infused, i.e. infuse the bag over 48 hours rather than 24 hours. Having stopped TPN, it is necessary to monitor blood glucose at least one hour afterwards as there can be rebound hypoglycaemia.

9. Line care - TPN bags can be set up by nurses with an IV certificate who have been assessed as competent to care for central line catheters
- Inspect Central and peripheral feeding lines daily for signs of infection.
- Change occlusive dressings every 3 days and clean entry site.
- Use apron, sterile gloves and antiseptic solution when connecting infusions.
- Flush line with 5ml of heparin sodium 10 units/ml at least every 24 hours.
- Do not use these lines for anything but TPN. They are not to be used for blood sampling or giving any type of drugs.

Preparations stocked
- Cernavit
• Decan
• Hydroxocobalamin (Vitamin B12)
• Intralipid 20%
• TPN - see table below

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9.4 Oral nutrition

9.4.1 Foods for special diets

Use only on specialist dietitian advice

All of these products may be prescribed by General Practitioners if the prescription is endorsed with the acronym ACBS.

* Aptamil Pepti
* Carobel instant
  for Paediatric use only
* Duocal supersoluble powder
* Enfamil AR
* Gluten free bread
* Gluten free biscuits
* Gluten free crackers
* Maxijul super soluble powder
* Neocate Active, Advance & LCP
* Nutramigen 1 & 2 Lipil
* Nutriprem 2
* Pepti Junior
* Polycal (for glucose tolerance testing
* PKU Anamix Infant
* Pregestimil
* Renapro
* Similac High Energy
* SMA LF
* S.O.S carbohydrate drink
* Wysoy milk powder
9.4.2 Enteral nutrition

*Oral supplementary feeds* are now supplied direct to the ward on an iProc order.

9.5 Minerals

9.5.1 Calcium and magnesium

9.5.1.1 Calcium supplements

(Calcium with vitamin D see section 9.6.4)

* Calcium carbonate tabs
* Calcium chloride inj
* Calcium gluconate inj
* **Calcium Sandoz**
* **Sandocal**

9.5.1.2 Hypercalcaemia

See section 6.6

* **Cinacalcet- Consultant initiation**

9.5.1.3 Magnesium supplements

* Magnesium Aspartate
* Magnesium sulphate

9.5.2 Phosphorus

9.5.2.1 Phosphate supplements

* **Phosphate Sandoz**
* Joulie’s Phosphate solution for Buscot use only

9.5.2.2 Phosphate binding agents

* Aluminium hydroxide
* Calcium Acetate
* Calcium carbonate
* Lanthanum
* Sevelamer

9.5.4 Zinc supplements

* Zinc sulphate

9.5.5 Selenium

* Selenium-nutrition team only

9.6 Vitamins

9.6.2 Vitamin B group

* **Pabrinex IV** high potency inj
* Pyridoxine tabs
* Thiamine tabs
Oral vitamin B complex preparations
* Vitamin B Compound Strong

9.6.3 Vitamin C
* Ascorbic acid

9.6.4 Vitamin D
* Alfacalcidol
* Cholecalciferol (colecalfciferol) 10 microgram (400 units) with calcium carbonate 1.5g (600mg calcium) (Adcal D3-tablets & effervescent & caplets)
* Calciferol
* Calcitriol
* Calcium with Ergocalciferol

9.6.5 Vitamin E
* Alpha tocopheryl acetate

9.6.6 Vitamin K
Menadiol sodium phosphate is water soluble and should be used to prevent vitamin K deficiency in malabsorption syndromes.
* Menadiol sodium phosphate tabs
* Phytomenadione tabs & inj

9.6.7 Multivitamin preparations
* Multivitamin drops (Abidec)
* Vitamins capsules
* Renavit Renal multivitamins
* Ketovite
* Sanatogen A-Z: Gastroenterology use only

9.8 Metabolic disorders

9.8.1 Dugs used in metabolic disorders
* Penicillamine
10: Musculoskeletal and joint diseases

10.1 Drugs used in rheumatic diseases and gout

10.1.1 Non steroidal anti-inflammatory drugs (NSAIDs)

Although the differences in anti-inflammatory activity between different NSAIDs are small, there is considerable variation in individual patient response to each. About 60% of patients will respond to any NSAID with an analgesic response usually apparent within a week and an anti-inflammatory response within three weeks. Those who do not respond to one NSAID may well respond to another. The main difference between NSAIDs is in the incidence and type of side effects.

For short-term oral use in adults, ibuprofen or naproxen should be used as first choice as diclofenac has significantly increased cardiotoxic side-effects at equipotent doses. Diclofenac is now contraindicated in patients with established:

- ischaemic heart disease
- peripheral arterial disease
- cerebrovascular disease
- congestive heart failure (New York Heart Association [NYHA] classification II–IV)

The following schema for prescribing NSAIDs should be followed:

- Promotion of non-NSAID pain relief options wherever appropriate
- Prescription of Ibuprofen (1200mg per day or less) as first choice oral NSAID wherever possible
- Prescription of naproxen (up to 1000mg per day) as second choice oral agent in exceptional circumstances because of other organ toxicity
- Ibuprofen and naproxen are not available in all formulations and so rectal, injectable and dispersible formulations of diclofenac will still be available
- Other normal cautions about NSAID use in particular risk patients should be observed e.g. renal impairment where ibuprofen is much less problematic than naproxen

In osteoarthritis, there is only a minor inflammatory component, and paracetamol (4g daily) has been shown to be effective in many patients. NSAIDs should only be used when there is an inflammatory flare up.

* Diclofenac
  maximum daily dose of 150mg by any route
  not for short-term oral use in adults
* Ibuprofen
* Ketoprofen
* Ketorolac inj (Palliative care use only)
* Meloxicam
* Naproxen plain only
10.1.2 Corticosteroids

10.1.2.2 Local corticosteroid injections

* Hydrocortisone acetate
* Methylprednisolone
* Methylprednisolone with Lidocaine (Depo-Medrone with Lidocaine)
* Triamcinolone hexacetonide

10.1.3 Drugs which suppress the rheumatic disease process

Use monitoring where appropriate

* Abatacept (Orencia®)
  - For Rheumatoid Arthritis in line with NICE guidance
  - For juvenile idiopathic arthritis in line with NICE TA 373

* Adalimumab (Humira®)
  - Rheumatology consultant initiation; NICE TA 375
  - For juvenile idiopathic arthritis in line with NICE TA 373
  - For ankylosing spondyloarthritis as per NICE TA 383

* Azathioprine

* Certolizumab pegol (Cimzia®)
  - First line choice for Rheumatoid Arthritis NICE TA 375
  - For ankylosing spondyloarthritis as per NICE TA 383

* Ciclosporin - specialist Rheumatology use only

* Etanercept (Enbrel®, Benipali®)
  - For Rheumatology consultant initiation NICE TA 375
  - For juvenile idiopathic arthritis in line with NICE TA 373
  - For ankylosing spondyloarthritis as per NICE TA 383

* Golimumab (Simponi®)
  - NICE indications only and NICE TA 375 (partialy updates TA 225)
  - For ankylosing spondyloarthritis as per NICE TA 383

* Hydroxychloroquine

* Infliximab (Remicade®, Remsima®, Inflectra®)
  - Rheumatology consultant initiation NICE TA 375 (replaces TA 130)

For ankylosing spondyloarthritis as per NICE TA 383

Where possible, new initiations should be started on the most cost effective brand

* Leflunomide - specialist Rheumatology use only
* Methotrexate - Must specify dose, form, strength & frequency
* Penicillamine
* Rituximab (MabThera®) - *Rheumatology consultant initiation TA 195

* Sodium aurothiomalate
* Sulfasalazine

* Tocilizumab (RoActemra®)
  - *NICE indications only NICE TA 375 (partially updates TA 247 (adult)) TA 238 (juvenile)
  - For juvenile idiopathic arthritis in line with NICE TA 373

* Ustekinumab (Stelara®)
  - NICE indications TA 340

10.1.4  Gout & cytotoxic-induced hyperuricaemia

* Interval treatment of gout
  Allopurinol alone should not be initiated during the acute phase as it may precipitate further attacks or make gout worse

  * Allopurinol
  * Febuxostat - *NICE indications only TA 164
  * Probenecid – unlicensed named patient drug (Transplant Clinic use only)

* Acute attacks of gout
  Useful if NSAIDs are contra-indicated.
  * Colchicine
  *

  * Hyperuricaemia associated with cytotoxic drugs
    Rasburicase

10.2 Drugs used in neuromuscular disorders

10.2.1 Drugs which enhance neuromuscular transmission

  * Edrophonium
  * Neostigmine
  * Pyridostigmine

10.2.2 Skeletal muscle relaxants

  * Baclofen
  * Dantrolene
  * Diazepam
  * Quinine
  * Tizanidine - *continuation only

10.3 Drugs for the relief of soft-tissue inflammation

10.3.1 Enzymes

  * Hyaluronidase

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NICE approved medicines for specified indications are automatically added to this Formulary 71
10.3.2 Rubefacients

* Capsaicin cream 0.025% & 0.075% - *Pain Team only*
* Capsaicin patch 8%. *Pain Team Only*
* Felbinac gel
11: Eye

General notes

- Use Minims where available for diagnosis. Multidose container eye drops must be discarded after one week in hospital.

- Drops are easier and more pleasant to use than ointment. However, ointments are useful for prolonged action over longer periods, such as through the night.

- To minimise cross contamination, one bottle per eye is used for in-patients. For out-patients and on discharge, one bottle for both eyes is supplied.

- Patients can exhibit systemic effects from eye drops which have been absorbed systemically through the conjunctiva or nasal mucosa.

- More than one drop is unnecessary as the excess is flushed away.

- Contact lenses are best left out during eye drop treatment.

11.3 Anti-infective eye preparations

11.3.1 Antibacterials

- Benzylpenicillin (Penicillin G) 0.3% - unlicensed
- Cefuroxime 5% * for Ophthalmology use only
- Chloramphenicol
- Gentamicin 0.3%, 1.5%
- Levofoxacin
- Propamide 0.1% (Brolene®) - unlicensed indication as antiamoebic only

11.3.1.1 Antiamoebics

- Chlorhexidine digluconate 0.02% eye drops - unlicensed
- Polihexanide (PHMB, polyhexamethylene biguanide) 0.02% drops - unlicensed

11.3.2 Antifungals

- Amphotericin 0.15% drops - unlicensed
- Econazole 1% drops - unlicensed
- Natamycin eye drops- unlicensed

11.3.3 Antivirals

- Aciclovir
11.4 Corticosteroids and other anti-inflammatory preparations

11.4.1 Corticosteroids

* Betamethasone
* Betamethasone with neomycin
* Dexamethasone 0.1% drops
* Dexamethasone 0.1% preservative-free drops
* Dexamethasone intravitreal implant For retinal vein occlusion only TA 229
* Fluocinolone acetonide implant For diabetic macular oedema: TA301
* Fluorometholone
* Loteprednol- less effect on IOP than dexamethasone. Ophthalmology Use Only
* Prednisolone
* Prednisolone and neomycin
* Tobradex® (dexamethasone & tobramycin)

11.4.2 Other anti-inflammatory preparations

* Ciclosporin eye drops - Consultant Only, unlicensed
* Sodium cromoglicate
* Lodoxamide
* Olopatadine – has additional action as mast cell stabiliser. Ophthalmology use Only

11.5 Mydriatics and cycloplegics

Antimuscarinics

* Atropine
* Cyclopentolate
* Tropicamide

Sympathomimetics

* Adrenaline (epinephrine)
* Phenylephrine

11.6 Treatment of glaucoma

Miotics

* Pilocarpine eye drops

Sympathomimetics

* Brimonidine

Beta-blockers

* Betaxolol
* Carteolol - Only for continuation in patients admitted due to difficulty in switching
* Levobunolol - Only for continuation in patients admitted due to difficulty switching
* Timolol 0.25% only. Patients admitted on 0.5% should be switched to 0.25% as no additional benefit from higher strength

Carbonic anhydrase inhibitors and systemic drugs

* Acetazolamide
* Brinzolamide - better tolerated than dorzolamide
* Dorzolamide preservative-free only

NICE approved medicines for specified indications are automatically added to this Formulary 74
NICE approved medicines for specified indications are automatically added to this Formulary

Prostaglandin analogues
* Bimatoprost – 2nd line for non-responders to latanoprost
* Latanoprost
* Latanoprost preservative-free (current brand Monopost)

Combined preparations- aid compliance-
* Cosopt\textsuperscript{®} (dorzolamide & timolol)
* Ganfort\textsuperscript{®} (bimatoprost & timolol)
* Xalacom\textsuperscript{®} (latanoprost & timolol)

11.7 Local anaesthetics
* Lidoacaine 1% isotonic - for intracameral use
* Oxybuprocaine
* Proxymetacaine 0.5% & fluorescein 0.25% Minims
* Proxymetacaine
* Tetracaine

11.8 Miscellaneous ophthalmic preparations

11.8.1 Preparations for tear deficiency and ocular lubricants
* Acetylcysteine
* Balanced Salt Solution\textsuperscript{®} - inc. BSS Plus\textsuperscript{®}
* Carbomer
* Carmellose 0.5% eye drops (Optive)
* Ciclosporin eye drops (Ikervis\textsuperscript{®})- various strengths - as per NICE TA 369
* Lacri-Lube\textsuperscript{®}
* Polyvinyl alcohol (Liquifilm\textsuperscript{®})
* Sodium chloride
* Sodium hyaluronate - Hylo-Tear, Hylo-Forte

11.8.2 Ocular diagnostic and peri-operative preparations

Ocular diagnostic preparations
* Fluorescein
  * Ocular peri-operative drugs
  * Apraclonidine 0.5% & 1%
  * Betamethasone injection
  * Bromfenac eye drops
  * Diclofenac
  * Miochol\textsuperscript{®}
  * Mydricaine\textsuperscript{®} 1 & 2

For prevention of rejection of corneal graft:
* Ciclosporin 2% eye drops in maize oil, - unlicensed
* Ciclosporin 0.2% eye ointment (Optimmune\textsuperscript{®}) - licensed as animal medicine, overlabelled by Moorfields for human use.

Subfoveal choroidal neovascularisation
* Aflibercept - wet AMD TA 294 TA305
* Bevacizumab - unlicensed for wet AMD
* Ranibizumab - wet age related macular oedema TA 155
  * diabetic macular oedema TA 274
  - choroidal neovascularisation TA298
* Verteporfin – photodynamic therapy TA 68
Retinal Vein occlusion

- Ranibizumab – where NICE guidance TA 283 is met

Other

- Disodium edetate (EDTA) eye drops - Consultant only, unlicensed
- Ocriplasmin- Nice indications only, TA297
- Potassium ascorbate eye drops
- Povidone iodine 5% drops
- Perfluoroethane intraocular gas
- Riboflavin 0.1% eye drops - Ophthalmology use only
12: Ear, nose and oropharynx

12.1 Drugs acting on the ear

12.1.1 Otitis externa
The CSM have advised that topical aminoglycosides are contra-indicated in tympanic perforation due to increased risk of ototoxicity.

* Betamethasone
* Chloramphenicol
* Clotrimazole
* Gentisone HC
* Locorten-Vioform
* Oтомизъ
* Otozor
* Otocomb
* Sofradex eye/ear drops

12.1.3 Removal of wax
* Sodium bicarbonate

12.2 Drugs acting on the nose

12.2.1 Drugs used in nasal allergy
* Azelastine
* Beclometasone
* Mometasone nasal spray

12.2.2 Topical nasal decongestants
* Ipratropium
  for rhinorrhoea
* Sodium chloride irrigation
* Xylocaine spray & drops

12.2.3 Anti-infective nasal preparations
* Glucose and Glycerin nose drops
* Mupirocin
  only for treatment of MRSA
* Naseptin

12.3 Drugs acting on the oropharynx

12.3.1 Drugs for oral ulceration and inflammation
* Benzydamine oral rinse and spray
* Choline salicylate
* Gelclair oral gel
* Hydrocortisone pellets
12.3.2 Oropharyngeal anti-infective drugs
   * Miconazole oral gel
   * Nystatin oral suspension, pastilles

12.3.3 Lozenges, sprays and gels
   * Dequacaine lozenges

12.3.4 Mouthwashes, gargles and dentifrines
   * Chlorhexidine
   * Hydrogen peroxide
   * Mouthwash tablets

12.3.5 Treatment of dry mouth
   * Artificial saliva (Glandosane, Saliva Orthana, Oral Balance gel)
13: Skin

13.2 Emollient and barrier preparations

13.2.1 Emollients

Emulsifying ointment or 50:50 liquid paraffin
White or yellow soft paraffin ointment in contact with dressings or clothing is easily ignited by a naked flame. The risk will be greater when these preparations are applied to large areas of the body, and clothing or dressings become soaked with the ointment. Patients should be told to keep away from fire or flames, and not to smoke when using these preparations. The risk of fire should be considered when using large quantities of any paraffin-based emollient.

* Alphosyl HC cream
* Aqueous cream
* Aveeno cream
* Balneum Plus cream
* Dermol 500
* Diprobase
* Emulsifying ointment
* E45
* Liquid paraffin 50% and White Soft Paraffin 50%
* Oilatum cream, emollient, shower gel
* Oilatum plus
* Paraffin Wax LMP for Physiotherapy use only
* Unguentum Merck
* Yellow soft paraffin
* Zinc and castor oil cream

13.2.1.1 Emollient bath additives

* Balneum
* Oillatum Emollient

13.2.2 Barrier preparations

* Drapolene
* Metanium
* Siopel

13.3 Topical local anaesthetic and antipruritic preparations

* Calamine
* Menthol in Aqueous cream

13.4 Topical corticosteroids

Mildly potent
* Eurax-hydrocortisone for specialist Dermatology use only
* Hydrocortisone cream & ointment, 0.5%, 1%

Moderately potent
**NICE approved medicines for specified indications**

Automatically added to this Formulary

- *Betamethasone valerate (Betnovate RD)*
- *Clobetasone butyrate (Eumovate)*

**Potent**
- *Betamethasone dipropionate (Diprosone)*
- *Betamethasone valerate cream, ointment, scalp application (Betnovate)*
- *Diproscal oint, scalp application*
- *Fluocinolone gel, cream, ointment*
- *Fluticasone cream (Cutivate)*
- *Hydrocortisone butyrate cream, lipocream, oint (Locoid)*
- *Mometasone (Elocon) cream, ointment*

**Very potent**
- *Clobetasol propionate (Dermovate) cream, oint, scalp application*
- *Clobetasol shampoo*
- *Dermovate NN cream & ointment*
- *Diflucortolone cream, ointment, oily cream*
- *Diflucortolone Forte cream & ointment*

**Topical corticosteroids with antibacterials**

**Mildly potent**
- *Daktacort cream*
- *Fucidin H*
- *Nystaform HC cream, ointment*

**Moderately potent**
- *Trimovate cream*
  for specialist Dermatology use

**Potent**
- *Fucibet cream*
  for specialist Dermatology use

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**13.5 Preparations for psoriasis and eczema**

**13.5.1 Preparations for eczema**

- *Alitretinoin - Dermatology use only as per NICE guidance TA 177*

**13.5.2 Preparations for psoriasis**

**Topical preparations**
- *Alphosy HCl cream*
- *Calcipotriol cream, oint, scalp application*
- *Coal Tar soln 3%, salicylic acid 3% in White Soft Paraffin*
- *Coal Tar soln 5% in Betnovate RD cream*
- *Coal tar & salicylic acid ointment BP*
- *Cocosis scalp ointment*
- *Dithrocream 0.1%, 0.25%, 0.5%, 1%, 2%*
- *Dovobet ointment & gel*
- *Exorex lotion*
* Ichthammol glycerin  
  In delayed extravasation effects due to vinca alkaloids,  
  application to unbroken skin can be soothing  
* Polytar emollient  
* Salicylic acid 10% in Aqueous cream

**Oral preparations - for specialist Dermatology use only**  
* Acitretin  
* Dapsone

### 13.5.3 Drugs Affecting the Immune Response

* Adalimumab  
  - NICE indications only  
  - psoriasis TA 146  
  - psoriatic arthritis TA 199  
* Apremilast for the treatment of active psoriatic arthritis in line with NICE TA 372  
* Azathioprine  
* Ciclosporin  
* Methotrexate  
* Mycophenolate mofetil  
* Pimecrolimus cream. (Consultant & Hospital initiation only)  
  **NICE indications** TA 82  
* Tacrolimus ointment (Consultant & Hospital initiation only)  
  **NICE indications** TA 82  
* Ustekinumab - NICE indications only TA 180

### 13.6 Acne and rosacea

#### 13.6.1 Topical preparations for acne

* Adapalene gel  
* Azelaic acid cream  
* Benzoyl peroxide gel 2.5%, 5%  
* Clindamycin topical solution  
* Duac Once Daily gel  
* Epiduo gel  
* Erythromycin (Zineryt)  
* Isotretinoin gel  
* Tretinoin cream,

#### 13.6.2 Oral preparation for acne

* Dianette  
* Doxycycline  
* Erythromycin  
* Isotretinoin  
  * for specialist Dermatology use only  
* Lymecycline  
* Minocycline MR  
* Oxytetracycline  
* Trimethoprim

### 13.7 Preparations for warts and calluses

* Cuplex gel  
* Salicylic acid 50% ointment (Verrugon)
**Genital warts**
- Podophyllotoxin solution (Warticon, Warticon Fem), cream
- Imiquimod

### 13.8 Sunscreens and camouflaging preparations

#### 13.8.1 Sunscreen preparations
- *Sunsense Ultra SPF 50*

**Photodamage**
- Diclofenac gel
- Fluorouracil 5% cream
- Methyl-5-aminolevulinate cream (*Metvix*) - Dermatology use only

### 13.9 Shampoos and other scalp preparations
- Capasal shampoo
- Clobetasol shampoo (*Etrivex*)
- Clobetasol scalp application (*Dermovate*)
- Olive oil for infant cradle cap
- Ketoconazole
- *Polytar*

### 13.10 Anti-infective skin preparations

#### 13.10.1 Antibacterial preparations for topical use only
- Mupirocin
- Silver sulfadiazide

#### 13.10.2 Antibacterial preparations for topical and systemic use
- Fusidic acid cream, oint
- Metronidazole gel

#### 13.10.3 Antifungal preparations
- Clotrimazole cream, solution
- Ketoconazole cream
- Miconazole cream
- Terbinafine cream, tablets

#### 13.10.4 Parasiticidal preparations
- Malathion (*Derbac M*)
- Permethrin dermal cream

#### 13.10.5 Preparations for minor cuts and abrasions
- Flexible Collodion
- Magnesium sulphate paste
- Proflavine cream
13.11 Disinfectants and cleansers

13.11.1 Alcohols and saline
* Industrial methylated spirits
* Phenoxytol solution
  for leg ulcer use only
* Sodium chloride irrigation, sachets

13.11.2 Chlorhexidine preparations
* Chlorhexidine acetate 1% powder (CX Antiseptic Dusting Powder)
* Chlorhexidine sachets
* Chlorhexidine 0.5% in IMS
* Chlorhexidine obstetric cream
* Chlorhexidine 4% cleansing soln (Hibiscrub)
* Chlorhexidine/Cetrimide sachets

13.11.4 Chlorine and iodine
* Povidone iodine surgical scrub
* Povidone iodine dry poder spray
* Povidone iodine antiseptic ointment
* Povidone iodine antiseptic soln
* Povidone iodine alcoholic soln

13.11.5 Phenolics

13.11.6 Astringents, oxidisers and dyes
* Hydrogen peroxide 6%
* Potassium permanganate solution & tablets
* Silver nitrate sticks 75%
* Silver nitrate sticks 95%
  for Chiropody use only
* Tartrazine dye in IMS

13.11.7 Desloughing agents

13.12 Antiperspirants
* Aluminium chloride hexahydrate

13.13 Topical Circulatory Preparations
* Heparinoid 0.3% gel & cream
14: Immunological products and vaccines

14.4 Vaccines and Antisera

Vaccines
Vaccines achieve active immunisation by stimulating an immune response. Vaccination should be postponed if patient is suffering from any infection except the common cold.

Vaccine types:
* Live attenuated - live micro-organisms which have had their virulence reduced - e.g. rubella, measles, polio (oral polio vaccine), BCG.
  If giving two separate live vaccines, either give simultaneously at different sites or with an interval of at least 3 weeks. Do not give live virus vaccine to a pregnant woman or immunosuppressed patient. A single dose of live vaccine usually confers immunity. 3 doses of polio are required.
* Inactivated - inactive antigen - e.g. ‘flu, typhoid, hepatitis B. A course of injections is required to produce an adequate antibody response. Booster injections are required. Extracts or detoxified exotoxins - from a micro-organism eg tetanus, diphtheria.

Immunoglobulins
For passive immunisation. Immunoglobulins confer immediate protection against certain infections, which lasts for a few weeks.

See BNF for information on childhood immunisation schedules and contra-indications.

Storage
Most vaccines must be refrigerated between 2 - 8°C (Oral polio 0 - 4°C)

BCG vaccines & diagnostic agents
  * BCG Intradermal
  * Tuberculin PPD diluted - Mantoux test
    Start with 2 units intradermal (0.1ml of 20units/ml). If no response try 10 units (0.1ml of 100 units/ml) 100 units/ml 20 units/ml

Diphtheria Vaccine
Only available in combination vaccines
  * Diphtheria/tetanus/pertussis/poliomyelitis/Haemophilus type B
  * Diphtheria/tetanus/pertussis/poliomyelitis
  * Diphtheria/tetanus/poliomyelitis

Haemophilus influenza type b vaccine

Hepatitis B vaccine
  * Hepatitis B vaccine

Influenza vaccine

Measles, mumps and rubella vaccine

Meningococcal vaccine
  * Meningococcal group C conjugate vaccine
* Meningococcal polysaccharide A,C,W135 Y

**Pneumococcal vaccine**

* Pneumococcal polysaccharide vaccines
  
  + Give if unusually high risk of contracting pneumococcal infection, e.g. splenectomy patients. Ideally give vaccine two weeks prior to surgery.
  
  Ensure patient has a splenectomy card

* Pneumococcal polysaccharide conjugate vaccine (adsorbed)

**Poliomyelitis vaccine**

* Poliomyelitis live, oral (OPV)
  
  For use in outbreaks only
  
  Do not give in acute diarrhoea.
  
  Do not give to immunocompromised children or their siblings or other household contacts

* Poliomyelitis inactivated inj.- available only in combination with DTP or DTPHib

**Tetanus vaccine**

* Adsorbed diphtheria, tetanus and pertussis vaccine

**14.5. Immunoglobulins**

**Normal immunoglobulins**

* Human normal immunoglobulins IM
  
  Available from the Public Health Laboratory (Microbiology Department) RBH, from whom advice should be sought

* Normal immunoglobulin IV
  
  For IV replacement in hypogammaglobulinaemia, treatment of idiopathic thrombocytopenic purpura and Kawasaki syndrome
  
  Very expensive product. Discuss with Haematology.

**Specific immunoglobulins**

These are available from Public Health Laboratory (Microbiology Department, RBH).

in stock:

* Varicella Zoster immunoglobulin

* Anti hepatitis B immunoglobulin

others are available by arrangement
15: Anaesthesia

15.1 General anaesthetics

Gas cylinders
Store in cool, well-ventilated room, free from flammable materials

* Air (medical)
* Carbon dioxide
* Nitrogen
* Nitrous oxide
* Oxygen
* Oxygen and carbon dioxide (Carbogen)
* Oxygen and helium
* Oxygen and nitrous oxide (Entonox)

15.1.1 Intravenous anaesthetics

* Etomidate
* Ketamine 100mg per ml
  for specialist Paediatric use only
* Methohexitone (Methohexital)
* Propofol
* Thiopentone (Thiopental)

15.1.2 Inhalational anaesthetics

* Desflurane
* Enflurane
* Entonox
* Isoflurane
* Nitrous oxide
* Sevoflurane
  restricted use – see protocol

15.1.3 Antimuscarinic drugs

* Atropine
* Glycopyrronium

15.1.4 Sedative and analgesic peri-operative drugs

15.1.4.1 Anxiolytics and neuroleptics

* Clomethiazole
* Chlorpromazine
* Diazepam
* Lorazepam
* Midazolam
* Promethazine inj
* Trimeprazine (Alimemazine) elixir 30mg in 5ml

15.1.4.2 Non opioid analgesics

* Diclofenac 100mg suppositories
* Ketoprofen 100mg suppositories
* Ketorolac inj (Palliative Care & Theatres use only))

15.1.4.3 Opioid analgesics
* Alfentanil inj
* Fentanyl injection
* Morphine
* Morphine & atropine inj
* Papaveretum
* Pethidine inj
* Remifentanil
  restricted use – see protocol

15.1.4.4 Other drugs for sedation
- Dexmedetomidine

15.1.5 Muscle relaxants

Non depolarising
* Atracurium inj
* Pancuronium inj
* Rocuronium inj
* Vecuronium inj

Depolarising
* Suxamethonium inj

15.1.6 Anticholinesterases used in anaesthesia
* Neostigmine
* Neostigmine with glycopyrronium

Other drugs for reversal of neuromuscular blockade
* Sugammadex - Restricted use

15.1.7 Antagonists for central and respiratory depression
* Doxapram
* Flumazenil
* Naloxone

15.1.8 Antagonists for malignant hyperthermia
* Dantrolene
  available in Emergency theatres, Central Site theatres, Maternity, & Orthopaedic theatres at RBH

15.2 Local anaesthesia
* Amethoacine gel (Tetracaine)
* Ethyl chloride spray
* Bupivacaine
* Cocaine
* Lidocaine/ adrenaline/ tetracaine gel (LAT gel) - ED use only
* Lidocaine and phenylephrine (Co-phenylcaine)
* Emla
* Lidocaine injection, oint, aerosol, 5% plasters (Versatis)-plasters
  for initiation/recommendation by Pain Team.
* Lidocaine & adrenaline inj
* Lidocaine & chlorhexidine gel
* LMX4 cream- Paediatric use
* Mepivacaine dental cartridges
* Phenol
* Prilocaine
* Prilocaine 2% intrathecal (Prilotekal) - Day surgery only
* Procaine
* Ropivacaine 0.2% in 100ml - Restricted to Total Knee Replacements & Pelvic floor surgery

16. Miscellaneous

* Absolute alcohol inj.
  For use in pain clinic
* Acetylcysteine tablets.
* Amnicator sticks
* Anticoagulant acid citrate dextrose solution
* Bismuth and iodoform gauze
* Boric acid powder
* Camphor crystals
  General & ENT out-patient departments
* Chymopapain inj
  for specialist orthopaedic/radiology use only
* Cialif sodium
  For use in aural theatre
* Clove oil
* De-ionised water
  For use in autoclaves
* Dimethicone fluid
  For use in physiotherapy
* Ferric chloride 15% solution
  For use in chiropody
* Ferric subsulphate solution
  (Monsell's solution)
  For use in colposcopy clinic
* Glutaraldehyde
* Glycerol
* Gastrografin - XRay use only
* Haemofiltrasol
* Hamamelis water (Witchhazel)
  For use in maternity
* Indicator paper bdh1-14
* Iodoform co paint (Whiteheads Varnish)
  For use in Aural Theatre
* Liquid paraffin (sterile)
  For use in Aural & ENT out-patient depts
* Liquified phenol
* Lubricating jelly
* Methylene blue/ Methylthioninium chloride solution
* Nail polish remover pads
* Patent Blue violet 2.5% inj
* Sonovue-echocardiography/suspected/established coronary artery disease
* Peritoneal dialysis fluids
* Phenol 80%
* Plaster remover
* Presept tabs 500mg, 2.5g, 5g
* Soda lime (Durasorb)
* Talc (sterile)
NICE approved medicines for specified indications are automatically added to this Formulary.

- Tisseel
- Trichloracetic acid
  For use in chiropody
- Water for irrigation
- (D-) Xylose
17 Palliative Care Use

The drugs listed below are those stocked by Pharmacy for use in situations where doctors from Duchess of Kent House, MacMillan nurses or the Palliative Care nurse have recommended specific drugs for inpatients within this Trust.

These drugs are either not included in the main Formulary or are restricted use. They are NOT for general use without a consultant signature.

- Asilone suspension
- Celecoxib
- Ketorolac injection
- Levomepromazine (methotrimeprazine) tablets & injection
- Mucaine suspension (also on Formulary for Oncology use)
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