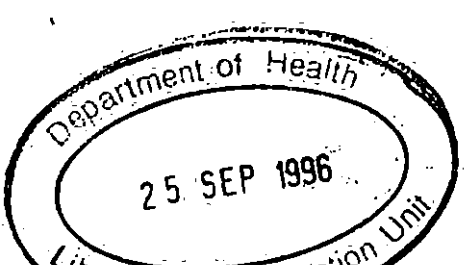
Eastern Health and Social Services Board hospital formulary 1996-97.

EASTERN
HEALTH AND SOCIAL SERVICES
BOARD

HOSPITAL
FORMULARY

1996-97


Department of Health
25 SEP 1996
Library and Information Unit

INTRODUCTION

The Eastern Board Hospitals Formulary is designed to assist doctors treat common disorders. Drugs which are only used in specialist units are not included. The drugs listed are those which available evidence suggests are the most suitable with respect to efficacy, safety and cost. The list is not comprehensive and further prescribing information can be obtained in the British National Formulary.

This formulary does not cover paediatric prescribing. The Paediatric Prescriber (1994 edition) is available from RBHSC.

DRUGS OUTSIDE THE FORMULARY MAY BE PRESCRIBED BY A CONSULTANT or SENIOR REGISTRAR ONLY. Ensure that all entries in the Ward Prescription Sheets are Clear - BLOCK LETTERS MUST BE USED FOR DRUG NAMES AND THE DOSE AND FREQUENCY CLEARLY STATED.

Free samples should not be left at ward level because of the requirements of Product Liability Legislation. Such samples may be left in the Pharmacy.

Drugs identified by * are available in the 1993 Practice Formulary and are therefore particularly suited to general practitioner prescribing on discharge.

Additional information, including details of toxicity and overdose, can be obtained from the Drug and Poisons Information Centre (RVH 2032).

Proposals for additions to or deletions from the Eastern Board Formulary should be submitted to the Chairman of the Drug and Therapeutics Committee of the local hospital on the form provided at the back of the formulary.

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August 1996

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GASTROINTESTINAL SYSTEM

ANTACIDS - For more information see BNF 1.1

- **Maximum effect 1-3 hours after meals and at night.**
- **Titrate against signs and symptoms.**
- **Interactions with other drugs.**

*Aluminium Hydroxide	Gel	10 ml qid
'Asilone'	Tablets	1-2 tablets chewed or sucked before meals and at bedtime
*Magnesium Trisilicate	Mixture	10 ml tid
*'Gaviscon'	Liquid	10-20 ml after meals and at bedtime
*'Maalox'	Suspension	10-20 ml after meals and at bedtime
'Maalox TC'	Tablets	1-2 tablets chewed when required
*'Gastrocote'	Tablets	1-2 chewed qid after meals and at bedtime

ULCER HEALING DRUGS - For more information see BNF 1.3

ACID SUPPRESSION DRUGS

*Cimetidine	Tablets 200 mg 400 mg 800 mg	400 mg bd, reduced in 4 weeks, or 800 mg at night
	Syrup 200 mg/5 ml	
	Injection 100 mg/ml	200 mg qid by IM, or slow IV

*Ranitidine (Available for patients on anticoagulant, phenytoin, theophylline or the confused)	Tablets 150 mg 300 mg	150 mg bd or 300 mg at night
	Syrup 75 mg/5 ml	
	Injection 50 mg/2 ml	IM 50 mg every 6-8 hours. Slow IV, over 2 mins, 50 mg diluted to 20 ml every 6-8 hours. IV infusion, 25 mg/hour for 2 hours, every 6-8 hours
Nizatidine (Available for patients on anticoagulant, phenytoin, theophylline or the confused)	Capsules 150 mg 300 mg	300 mg at night or 150 mg bd
	Injection 25 mg/ml	Intermittent IV infusion over 15 mins, 100 mg tid or continuous IV infusion 10 mg/hour. Maximum 480 mg daily
*Omeprazole	Capsules 10 mg 20 mg 40 mg	20 mg daily. Dosage regimens vary according to condition. See BNF for detail. Long-term use only after clear diagnosis
Lansoprazole	Capsules 30 mg	30 mg daily. Dosage regimens vary according to condition - see BNF for detail

- **Regimens involving antibacterial agents with ulcer healing drugs are available for eradication of *Helicobacter pylori* - see BNF 1.3 and seek local specialist advice.**

DRUGS AFFECTING MOTILITY

- For more information see BNF 1.2

- **All have some atropine-like action.**

- **Cisapride is contraindicated with azole antifungals (fluconazole, ketoconazole, itraconazole and miconazole) and with macrolide antibiotics (erythromycin and clarithromycin) as serious cardiac reactions may occur.**

Dicyclomine	Tablets 10 mg	10-20 mg tid
	Syrup 10 mg/5 ml	
*Mebeverine	Tablets 135 mg	135 mg tid
Cisapride	Tablets 10 mg	10 mg tid or qid 15-30 mins before meals
	Suspension 5 mg/5 ml	

ANTIEMETICS - For more information see BNF 4.6

- **Control cause.**

- **Balance benefits against side-effects such as drowsiness.**

- **Is she pregnant?**

- **Potentiation by other drugs?**

Cyclizine	Tablets 50 mg	50 mg tid
	Injection 50 mg/ml	50 mg by IM or IV
*Metoclopramide	Tablets 10 mg	10 mg tid
	Syrup 5 mg/5 ml	
	Injection 5 mg/ml	High dose - see BNF
*Domperidone	Tablets 10 mg	10-20 mg every 4-8 hours
	Suspension 5 mg/5 ml	
	Suppositories 30 mg	1-2 every 4-8 hours

LAXATIVES - For more information see BNF 1.6

- **Is PR needed?**
- **Is hydration good?**
- **Fibre content of diet?**
- **Caused by drugs?**
- **Set limits to therapy.**

Glycerol	Suppositories 4 g	Insert one suppository at night
Bisacodyl	Suppositories	One suppository, 20-60 mins before evacuation is required
'Carbalax'	Suppositories	Insert one 30 mins before evacuation is required
Co-danthramer (danthron 25 mg poloxamer '188' 200 mg)	Liquid 25/200 in 5 ml	5-10 ml for elderly and terminal care patients
*Co-danthrusate	Capsules 50/60	1-3 at night
*Lactulose	Liquid	15 ml bd
*Ispaghula Husk	Sachets	Dissolve in 150 ml water 1-3 a day
*Senna	Tablets	2-4 tablets at night
	Granules	5-10 ml at night
	Syrup	10-20 ml at night

FOR X-RAY PREPARATION

'Picolax'	Oral powder	One sachet in water bd on the day preceding procedure

BOWEL CLEANSING SOLUTIONS

Bowel Cleansing Solutions 'Klean-Prep'	Powder (reconstitute with 4 L water)	240 ml every 10-15 min up to 4 L or enough to produce clear stool

ENEMA FOR WASHOUT

*Phosphate Enema	Liquid 128 ml	128 ml when required
Micro Enema	Disposable pack	5 ml when required

DIARRHOEA - For more information see BNF 1.4.

- **Diagnosis?**
- **Drugs not usually needed in antibiotic associated diarrhoea.**
- **In chronic diarrhoea a positive diagnosis must be made.**
- **Alterations in bowel habit need investigation.**
- **Caused by drugs?**
- **Culture faeces. Replace fluids. No antibiotic, except on advice.**

*Codeine Phosphate	Tablets 15 mg 30 mg	10-60 mg every 4-6 hours
*Loperamide	Capsules 2 mg Syrup 1 mg/5 ml	4 mg initially then 2 mg after each loose stool Maximum 16 mg daily
*Oral Rehydration Salts	Powder (Reconstitute contents of one sachet with 200 ml water) Effervescent tablet	200-400 ml solution after every loose motion

COLONIC AND RECTAL DISEASES

- For more information see BNF 1.5

- **Caution blood dyscrasias may occur with mesalazine, olsalazine and sulphasalazine.**

Sulphasalazine	Tablets 500 mg	500 mg-1 g qid
	EN Tablets 500 mg	
	Suppositories 500 mg	One twice daily
Hydrocortisone	Foam 125 mg/metered application	One application once or twice daily
Prednisolone	Foam 20 mg/metered application	One application once or twice daily
*Olsalazine	Capsules 250 mg	500 mg twice daily
*Mesalazine	Tablets 400 mg	3-6 tablets daily in divided doses
	Tablets MR 250 mg 500 mg	1.5 g daily in 2-3 divided doses Acute attack up to 4 g daily in 2-3 divided doses
	Suppositories 250 mg	3-6 daily in divided doses

HAEMORRHOIDS - For more information see BNF 1.7

- **Is injection or surgery needed?**

Lignocaine	Gel 2%	Apply tid
Benzyl Benzoate/Bismuth/ Resorcinol	Ointment	Apply bd
*'Anusol'	Suppositories	One bd

CARDIOVASCULAR SYSTEM

DIURETICS - For more information see BNF 2.2.

THIAZIDE TYPE - For more information see BNF 2.2.1.

- **K^+ supplements often required in the elderly and patients on digoxin or metolazone plus loop diuretic.**

*Bendrofluazide	Tablets 2.5 mg 5 mg	2.5-10 mg daily

LOOP DIURETICS - For more information see BNF 2.2.2.

*Frusemide	Tablets 20 mg 40 mg 500 mg	20-80 mg daily OLIGURIA - see BNF
	Injection 10 mg/ml	20-50 mg IM or slow IV
Bumetanide	Tablets 1 mg	1 mg daily - increased if necessary
	Liquid 1 mg/5 ml	
	Injection 0.5 mg/ml	1-2 mg IM or slow IV

POTASSIUM SPARING DIURETICS
- For more information see BNF 2.2.3.

- **Best prescribed separately from other diuretics.**
- **Check electrolytes.**
- **Caution in elderly and renal impairment with potassium sparing diuretics and ACE inhibitors.**
- **Weak action when given alone.**

*Amiloride	Tablets 5 mg	5-10 mg daily
Spironolactone	Tablets 25 mg 50 mg 100 mg	25-200 mg daily (main use in liver disease)

COMBINED DIURETICS - For more information see BNF 2.2.4.

- **Those containing spironolactone are expensive.**

Co-triamterzide 50/25 (Triamterene 50 mg + hydrochlorothiazide 25 mg)	'Dyazide'	1-2 daily
*Co-amilofruse 5/40 (Amiloride 5 mg + frusemide 40 mg)	'Frumil' 'Lasoride'	1-2 daily
Co-amilofruse 2.5/20 (Amiloride 2.5 mg + frusemide 20 mg)	'Frumil LS'	1 daily
Frusemide 40 mg + triamterene 50 mg	'Frusene'	1-2 tablets daily
Co-amilozide 2.5/25 (Amiloride 2.5 mg + hydrochlorothiazide 25 mg)	'Moduret 25'	1-2 tablets daily
*Co-amilozide 5/50 (Amiloride 5 mg + hydrochlorothiazide 50 mg)	'Moduretic' 'Amil-Co'	1-2 daily

ANTIARRHYTHMIC DRUGS - For more information see BNF 2.3.

- **If ward protocol not available for acute situation see BNF.**
- **Consider electrophysiological testing and ambulatory monitoring.**
- **DO NOT START OR STOP THESE DRUGS WITHOUT EXPERT ADVICE.**

For emergency treatment of paroxysmal supraventricular tachycardia:

Adenosine	Injection 3 mg/ml	IV 3 mg over 2 seconds with cardiac monitoring; if necessary followed by 6 mg after 1-2 mins and then by 12 mg after a further 1-2 mins

Type I Drugs - See BNF 2.3.2.

- Use other agents with specialist advice only.

Lignocaine	Injection 2% 20 mg/ml	1 mg/kg IV over 2 mins then 1 mg/min

Type II Drugs

- See beta-blocking drugs.

Type III Drugs

- Caution in the elderly.

Amiodarone Very long t½	Tablets 100 mg 200 mg	200 mg tid for one week then reduce. Check thyroid function first
	Injection 50 mg/ml	5 mg/kg by central IV infusion over 20 mins-2 hours. Maximum 1.2 g/day
Sotalol	Tablets 40 mg 80 mg	120-240 mg daily
	Injection 2 mg/ml	10-20 mg slow IV

Type IV Drugs

*Verapamil	Tablets 40 mg 80 mg 120 mg	40-120 mg tid
	Tablets MR	See page 16
	Injection 2.5 mg/ml	5 mg slow IV (not within 24 hours of beta-blockade)

***Digoxin**

See under inotropic drugs.

Atropine Sulphate - See BNF 2.3.2.

	Injection 600 micrograms/ml	300 micrograms to maximum 1.2 mg

BETA-ADRENORECEPTOR BLOCKING DRUGS

- For more information see BNF 2.4.

- **For hypertension use single or twice daily dosage.**
- **In angina or arrhythmia start with lower doses. More frequent doses may be needed.**
- **Avoid in heart failure.**
- **May block signs of hypoglycaemia.**
- **May cause bronchospasm and cold extremities.**
- **DO NOT USE WITHIN ONE HOUR OF IV VERAPAMIL.**

Beta-Blocking Drugs - Cardioselective

*Metoprolol	Tablets 50 mg 100 mg	50-200 mg bd
	Tablets SR 200 mg	200-400 mg daily
*Atenolol	Tablets 25 mg 50 mg 100 mg	50-100 mg daily
	Syrup 25 mg/5 ml	
Bisoprolol	Tablets 5 mg 10 mg	10 mg daily

Combined Alpha and Beta-Blocking Drugs

Labetalol	Tablets 100 mg 200 mg 400 mg	100-200 mg bd Maximum 2.4 g daily

ANTIHYPERTENSIVES - For more information see BNF 2.5.

- **See beta-blocking drugs.**
- **See diuretics.**

CENTRAL ACTION - For more information see BNF 2.5.2.

Methyldopa	Tablets 125 mg 250 mg 500 mg	250 mg tid Maximum 1.5 g daily

ALPHA-BLOCKING DRUGS - For more information see BNF 2.5.4.

Doxazosin	1 mg 2 mg 4 mg	1 mg daily Maximum 16 mg daily

ACE INHIBITORS - For more information see BNF 2.5.5.

- **Contraindicated in pregnancy.**
- **Other drugs may be selected for special indications eg perindopril for first dose in heart failure, trandolapril or ramipril post myocardial infarction.**
- **Monitor blood pressure, especially after initial doses of ACE inhibitors.**
- **A steep fall may be encountered if the patient is initially hypotensive, hyponatraemic, in renal failure, or on high doses of diuretics. If such a fall occurs, lie the patient flat. An IV infusion of dextrose may help. Angiotensin II infusion is rarely required.**
- **Always start with the lowest dose of ACE inhibitor.**

*Captopril	Tablets 12.5 mg 25 mg 50 mg	12.5-25 mg bd increased if necessary
*Enalapril	Tablets 2.5 mg 5 mg 10 mg 20 mg	2.5-5 mg bd initially increased if necessary
Lisinopril	Tablets 2.5 mg 5 mg 10 mg 20 mg	2.5 mg initially Usual maintenance dose 10-20 mg daily Maximum 40 mg daily

CALCIUM-CHANNEL BLOCKERS

- For more information see BNF 2.6.2.

*Nifedipine	Tablets LA 30 mg 60 mg	Initially 30 mg once daily in the morning. Increased if necessary up to maximum 90 mg daily
Amlodipine	Tablets 5 mg 10 mg	5-10 mg daily
*Diltiazem	All presentations	Various preparations are available. When prescribing long-acting preparations specify brand and check with Pharmacy
*Verapamil (See page 13)	Tablets 120 mg 160 mg	120-160 mg bd
	Tablets SR 120 mg 240 mg	120-240 mg daily
	Capsules MR 120 mg 180 mg 240 mg	Initial dose 120 mg. Hypertension, 240-480 mg daily. Angina, 360-480 mg daily

ANTI-ANGINAL DRUGS - For more information see BNF 2.6.1.

- **See beta-blocking drugs.**
- **See calcium-channel blockers.**
- **To avoid tolerance, a nitrate free interval of at least 8 hours is recommended.**
- **Consider nicorandil for those patients who develop adverse effects or tolerance to nitrate therapy.**

*Glyceryl Trinitrate	Tablets 500 micrograms	500 micrograms-1 mg sublingually
	Tablets SR 1 mg 2 mg 3 mg 5 mg	1-5 mg by buccal cavity
	Spray 400 micrograms/ unit dose	1-2 sprays sublingually
	Injection	10-200 micrograms/min IV infusion (in Polyfusor)
*Nifedipine	Capsules 5 mg 10 mg	5-20 mg tid for acute attacks
	Tablets LA 30 mg 60 mg	30 mg daily, increased if necessary. Maximum 90 mg daily
*Isosorbide Dinitrate	All presentations	
Isosorbide Mononitrate	All presentations	
Nicorandil	Tablets 10 mg 20 mg	10-20 mg bd

INOTROPIC DRUGS - For more information see BNF 2.1.

*Digoxin (see BNF 2.1.)	Tablets 62.5 micrograms 125 micrograms 250 micrograms	Loading dose 500 micrograms Usual dose 62.5-500 micrograms daily. The therapeutic serum concentration is 0.8-2 nanogram/ml (1.0-2.6 nano mmol/l) in samples taken at least 6 and preferably 12 hours after dosing. 1-2 weeks are required to reach steady-state plasma concentrations. Note drug interactions (eg with amiodarone, quinidine).

Dobutamine (see BNF 2.7.1.)	Injection 250 mg	2.5-10 micrograms/kg/min by IV infusion
Dopamine (see BNF 2.7.1.)	Injection 40 mg/ml	5-50 micrograms/kg/min by IV infusion

- **Dobutamine and dopamine are rarely beneficial after 48 hours.**

ANTIPLATELET DRUGS - For more information see BNF 2.9.

*Aspirin	Plain, EC or Dispersible tablets 75 mg 100 mg 300 mg	75-300 mg daily

FIBRINOLYTIC DRUGS - For more information see BNF 2.10.

ANTI-FIBRINOLYTIC DRUGS - For information see BNF 2.11.

ANTICOAGULANTS AND PROTAMINE

- For more information see BNF 2.8.

For long-term use, an Anticoagulant Treatment Card should always be carried, including dose and indication for treatment.

- **Decide how long you want treatment to last.**

- **Consider warfarin introduction from Day 1 of anticoagulant therapy.**

- **The complications of IV heparin rise rapidly after 5 days, especially in the elderly. SC heparin may be just as effective.**

- **Low molecular weight heparins, dalteparin, enoxaparin and tinzaparin are as effective and safe as unfractionated heparin in prevention of thromboembolism. Recent evidence suggest that low molecular weight heparins given SC are as effective as IV regimens in established deep venous thrombosis. Check your local protocol.**

- **The person who initiates treatment must specify duration of treatment.**

Heparin	Injection 1000 u/ml 5000 u/ml	Usual dose: 5000 iu IV stat then 40,000 iu by IV infusion over 24 hours or 10,000 iu IV qid - monitor APTT
	5000 u/0.2 ml	5000 iu SC bd
Protamine Sulphate	Injection 10 mg/ml	1 mg to neutralise 100 iu heparin if given within 15 mins. Maximum 50 mg slow IV
*Warfarin	Tablets 1 mg 3 mg 5 mg	Dosage schedules vary, but a typical induction dose is 10 mg daily for 2 days. Maintenance dose depends on INR value. Monitor INR. Beware of the many interactions - especially with antibiotics and NSAIDs.

THE CURRENTLY RECOMMENDED THERAPEUTIC INR RANGES ARE:

Prophylaxis of DVT	2.0-2.5
Prophylaxis of DVT and pulmonary embolism Prophylaxis of DVT in protein C or antithrombin III deficiency Prophylaxis of TIAs	2.0-3.0
Recurrent pulmonary embolism, atrial fibrillation, embolic effects of rheumatic heart disease Cardiac prosthetic valve replacement and grafts Femoral popliteal bypass grafts	2.5-3.5 (4.0)

The average daily maintenance dose is 3-6 mg, occasionally up to 20 mg may be needed.

LIPID-LOWERING DRUGS - For more information see BNF 2.12.

- **Cholesterol levels need not be fasting.**
- **Never base treatment on a single level.**
- **Cholesterol levels go down after surgery and trauma.**
- **Always start with a low fat/low cholesterol diet.**
- **Very high levels eg cholesterol levels > 8 or triglyceride levels > 5 should be referred to lipid clinic for advice.**
- **Combined therapy (a statin and fibrate) is more likely to cause myositis and should be supervised.**
- **Pravastatin and fluvastatin are equally effective.**

*Bezafibrate	Tablets SR 400 mg	One daily
Ciprofibrate	Tablets 100 mg	100 mg daily
Fenofibrate	Capsules 200 mg	One daily with evening meal
Fluvastatin	Capsules 20 mg 40 mg	20-40 mg daily in the evening
Pravastatin	Tablets 10 mg 20 mg	10-40 mg daily at night
Simvastatin	Tablets 10 mg 20 mg	10 mg at night, adjusted at intervals of not less than 4 weeks, according to response. Usual range 10-40 mg once daily at night

RESPIRATORY SYSTEM

RESPIRATORY SYSTEM - For more information see BNF 3.

- **It is a therapeutic nonsense to try to suppress cigarette induced respiratory symptoms before stopping cigarettes.**

- **Cough and bronchial hypersecretion are normal responses to mucosal irritation and should not be suppressed in isolation without attacking the cause.**

- **Most acute bronchial infections are viral in origin and in otherwise healthy individuals do not require antibiotics. Purulent sputum does not necessarily mean bacterial infection.**

- **Failure with inhaler therapy is often due to poor technique and may be helped by the use of dry powder or spacer devices.**

- **Nebulised solutions are usually given in a 2-4 ml volume over 10-15 mins. In respiratory failure, care must be used if oxygen is the driving gas. Patients should be converted to standard inhalers as soon as condition permits.**

- **Inhaled bronchodilator therapy is preferred to oral therapy.**

- **Prophylaxis is often important eg use of inhaled steroids or cromoglycate. The difference between symptomatic and prophylactic treatment should be clearly explained to the patient.**

SYMPTOMATIC THERAPY - For more information see BNF 3.9.2.

- **Adequate hydration +/- nebulised saline.**
- **Hourly coughing chart.**
- **Directed physiotherapy.**

*Simple Linctus 5 ml qid

COUGH SUPPRESSION - For more information see BNF 3.9.

*Codeine	Linctus 15 mg/5 ml	5-10 ml at night or tid

- **For more severe cough in malignancy use other opiates as tablets or injection.**

BETA$_2$ ADRENORECEPTOR STIMULANTS

- For more information see BNF 3.1.1.1.

Note that correct inhaler technique is vital for optimal use. If in doubt, numerous assist devices are now available.

*Terbutaline	Tablets SR 7.5 mg	7.5 mg at night or bd
	Syrup 1.5 mg/5 ml	2.5-5 mg tid
	Inhaler 250 micrograms/puff	250-500 micrograms up to qid
	Inhaler (breath-actuated dry powder) 500 micrograms/inhalation	500 micrograms up to qid
	Respules 2.5 mg/ml	5-10 mg 2-4 times daily
	Injection 500 micrograms/ml	250-500 micrograms up to qid SC, IM or slow IV Infusion 1.5-5 micrograms/ min for 8-10 hours
*Salbutamol	Tablets 4 mg	4 mg tid or qid
	Syrup 2 mg/5 ml	
	Tablets SR 4 mg 8 mg	8 mg bd
	Inhaler 100 micrograms/puff	100-200 micrograms 3-4 times daily
	Powder for inhalation 200 micrograms/puff 400 micrograms/puff	200-400 micrograms 3-4 times daily
	Nebules 2.5 mg/2.5 ml 5 mg/2.5 ml	2.5-5 mg up to qid In severe asthma up to 10 mg if side-effects permit
	Injection 50 micrograms/ml 500 micrograms/ml	8 micrograms/kg by SC or IM 4 micrograms/kg by slow IV

	Infusion 1 mg/ml	Infuse IV in dextrose or saline at 3-20 micrograms/min
*Salmeterol	Inhaler 25 micrograms/puff Powder for inhalation 50 micrograms/puff	50 micrograms bd Use only in patients with nocturnal asthma and those requiring large doses of β-agonists. Ensure adequate anti-inflammatory treatment with inhaled steroids

XANTHINES - For more information see BNF 3.1.3.

- **Effective theophylline plasma level 10-20 mg/L. Take blood 2 hours after dosing for standard preparations, and 4 hours for SR preparations.**
- **Nausea and cerebral irritation occur with high levels.**
- **IV therapy should be given with caution if patient is taking theophyllines orally (see beta$_2$ adrenoreceptor stimulants).**
- **When writing discharge letter to GP specify the proprietary name of the xanthine preparation used, as bioavailability varies widely between preparations.**

*Aminophylline	Injection 25 mg/ml	Up to 250 mg by slow IV See ward protocol for loading dose and steady-state infusion
	Tablets SR 225 mg 350 mg	Initially 225 mg bd
*Theophylline	Tablets SR 175 mg 200 mg 250 mg	Initially 175-250 mg bd
	Tablets SR 300 mg	300 mg every 12 hours
	Capsules SR 300 mg	
	Tablets SR 400 mg	400-800 mg at night

ANTICHOLINERGIC BRONCHODILATORS

- For more information see BNF 3.1.2.

- **See comments on inhaler technique on page 23.**

- **For short-term emergency treatment, a combination of ipratropium and salbutamol is available for nebulisation.**

*Ipratropium	Inhaler 20 micrograms/puff 40 micrograms/puff	20-40 micrograms in early treatment up to 80 micrograms, 3-4 times daily
	Nebules 250 micrograms/ml (1 ml and 2 ml vials)	100-500 micrograms up to qid **Expensive. Rarely necessary after 24 hours in recovering asthma**

STEROIDS

- For more information see BNF 3.2. and pages 58-59.

- **Inhaled steroids may cause oral candidiasis. Using a spacer device or rinsing the mouth with water can reduce the incidence of oral candidiasis.**

- **Inhaled steroids in high doses may cause adrenal suppression.**

Hydrocortisone	Injection 100 mg	200 mg IV for severe asthma
*Prednisolone	Tablets 1 mg 5 mg	40 mg for severe asthma
	Tablets EC 2.5 mg 5 mg	
*Beclomethasone	Inhaler 50 micrograms/inhalation 100 micrograms/inhalation 250 micrograms/inhalation	50-200 micrograms qid maximum up to 500 micrograms qid

*Budesonide	Inhaler 200 micrograms/inhalation 400 micrograms/inhalation	200 micrograms bd, initially
	Respules 250 micrograms/ml 500 micrograms/ml	1-2 mg bd by inhalation
Fluticasone	Inhaler 25 micrograms/puff	100-250 micrograms bd. Maximum 1 mg bd
	Powder for inhalation 50 micrograms/puff 100 micrograms/puff 250 micrograms/puff	

ASTHMA PROPHYLAXIS

- For more information see BNF 3.3.

*Cromoglycate	Spincaps 20 mg	20 mg before exercise or 1-4 times daily
	Inhaler 1 mg/inhalation 5 mg/inhalation	2 inhalations before exercise or 1-4 times daily

RESPIRATORY STIMULANTS

- For more information see BNF 3.5.

- **All can cause cerebral irritation.**

- **GIVE PHYSIOTHERAPY AS SOON AS ALERT.**

- **Consult Department of Respiratory Medicine or Intensive Care if necessary.**

Doxapram	Infusion 2 mg/ml in 500 ml Dextrose	1.5-4 mg/min infusion. Adjust as needed
	Injection 20 mg/ml	1 mg/kg slow IV

OXYGEN THERAPY - For more information see BNF 3.6.

- **Nasal specs are suitable for relatively stable hypoxaemic patients ($Pa0_2$ < 8.0 kPa or 60 mmHg).**

  2 l/min provides approximately 24% 0_2
  4 l/min provides approximately 28% 0_2

- **Face masks provide more reliable inspired 0_2 concentrations and are suitable for acutely ill patients, most of whom require 30-70%. Only a small minority (ie those with chronic hypercapnia) should be limited to 24% or 28% inspired 0_2 concentrations.**

- **Baseline arterial blood gases are necessary to confirm 0_2 requirements. They should be repeated to check that the prescribed 0_2 is effective and safe (at rest, after 30 mins on fixed inspired 0_2 concentrations).**

- **Selection of patients for long-term oxygen therapy should be part of an agreed ward policy.**

ALLERGY - For more information see BNF 3.4.

- **See specific systemic system eg respiratory, ophthalmic, nasal and dermatological.**

- **See corticosteroids.**

- **10% of the population will give a positive Type I skin test to common antigens. Desensitisation should not be attempted on this basis alone.**

ANTIHISTAMINES - For more information see BNF 3.4.1.

*Chlorpheniramine	Tablets 4 mg	2-4 mg tid
	Tablets SR 12 mg	12 mg at night or bd
	Injection 10 mg/ml	10-20 mg SC, IM or slow IV. Maximum 40 mg/ 24 hours
Promethazine	Tablets 10 mg 25 mg	25-50 mg at night or, 10-20 mg 2-3 times daily
	Elixir 5 mg/5 ml	

ANAPHYLAXIS - For more information see BNF 3.4.3.

Adrenaline	Injection 1-1000	Adults: 0.5-1.0 ml/IM in emergency Children: Under 1 year 0.05 ml 1 year 0.1 ml 2 years 0.2 ml 3-4 years 0.3 ml 5 years 0.4 ml 6-12 years 0.5 ml
Hydrocortisone Succinate	Injection 100 mg/ml	100-300 mg slowly IV
*Chlorpheniramine	Injection 10 mg/ml	10 mg slow IV or IM Children: 3-10 mg slow IV or IM

NERVOUS SYSTEM

HYPNOTICS AND ANXIOLYTICS

- For more information see BNF 4.1.

1. **Short-term lack of sleep is not a disease.**

   - **Emotion is normal and should not be suppressed.**
   - **Ensure adequate pain relief.**
   - **Acute hypnotic use for less than 7 days only.**
   - **Ineffective in longer term use.**

2. **Sedation is DANGEROUS in elderly, respiratory depression, liver and renal disease.**

3. **DO NOT USE IN DEPRESSION.**

4. **Alcohol is potentiated in sedated patients.**

5. **Working and driving skills may be impaired.**

6. **Benzodiazepines are only indicated for anxiety or insomnia which is severe or disabling.**

HYPNOTICS - For more information see BNF 4.1.1.

USE LOWER DOSES IN OLDER PATIENTS

Short Acting Benzodiazepines

*Temazepam	Tablets 10 mg 20 mg Oral solution 10 mg/5 ml	10-30 mg at night CD - check your local hospital policy
Zolpidem	Tablets 5 mg	10 mg at night (5 mg in elderly)

ANXIOLYTICS - For more information see BNF 4.1.2.

LOWER DOSES IN ELDERLY

*Diazepam	Tablets 2 mg 5 mg 10 mg Oral solution 2 mg/5 ml	2-10 mg tid

Chlordiazepoxide	Capsules 5 mg 10 mg	10 mg tid
*Thioridazine	Tablets 10 mg 25 mg 50 mg	10-50 mg tid
	Suspension 25 mg/5 ml 100 mg/5 ml	
	Syrup 25 mg/5 ml	

MANAGEMENT OF THE VIOLENT PATIENT

1. Avoid dealing with a violent patient by yourself - summon help.

2. Talk with the patient and try to calm them down - this often works.

3. Exclude alcohol withdrawal (see below) and underlying physical illness eg hypoglycaemia, hypoxia.

4. Offer oral medication first - haloperidol 10 mg or chlorpromazine elixir 50-100 mg.

5. Under common law in an emergency situation a patient who refuses medication and who poses a serious and immediate danger to themselves or others can be given medication without their consent. Injection of a violent or struggling patient should be avoided if possible.

6. The antipsychotic action of neuroleptics takes several weeks to develop, but agitation and aggression are reduced in emergencies by the tranquillizing (sedative) action of these drugs. NB - HIGH DOSES OF NEUROLEPTICS DO NOT IMPROVE RESPONSE AND ARE POTENTIALLY HAZARDOUS (SUDDEN DEATH).

7. If intramuscular medication is required give HALOPERIDOL

   - Initially 10 mg IM.
   - If not effective after 15 mins give a further 10 mg IM.
   - If still not effective after another 15 mins give lorazepam (see below).
   - There is no dose-response relationship with haloperidol in doses exceeding 20 mg per day.

8. Benzodiazepines are usually best avoided but aggression may be controlled with lorazepam 2-4 mg (oral, IV or IM). This may be repeated 4-6 hourly if necessary, but should not be given for more than 3 days. The IV injection should be given slowly into a large vein. The IM route should be used only when oral and IV are not possible. IM injections should be diluted with an equal volume of water for injection or 0.9% sodium chloride.

9. DO NOT USE IM CHLORPROMAZINE OR IM DIAZEPAM (diazepam may be given IV (Diazemuls) - see below).

10. Ensure patient is closely observed. If extrapyramidal effects develop give procyclidine 5 mg orally or IM.

11. Resuscitation equipment should be immediately available when using IV medication.

12. In patients known to have tolerated antipsychotics (neuroleptics) zuclopenthixol acetate (Clopixol Acuphase) 50-150 mg IM can give sustained sedation for 2-3 days. See BNF 4.2.1. for details of maximum recommended dosing schedule.

13. Ensure that only one PRN prescription is operative at any one time.

MANAGEMENT OF ALCOHOL WITHDRAWAL

1. A benzodiazepine should be used in a sufficient dose to produce sedation for the initial 24-48 hours, then gradually withdrawn over 5-7 days eg chlordiazepoxide (oral) 25 mg 4-8 hourly or diazepam (Diazemuls) as slow IV injection 10-20 mg initially, repeated 2 hourly if necessary. Beware of increasing drowsiness.

2. Haloperidol may be used if the benzodiazepine is ineffective.

3. As a last resort, to prevent delirium tremens alcohol may be administered. Excessive tremor can be helped by propranolol (BNF 4.9.3.).

4. Attention to nutrition, electrolyte and fluid balance. Vitamins B and C injection is indicated in patients with alcohol-induced encephalopathy.

Chlordiazepoxide	Tablets 5 mg 10 mg 25 mg	Up to 75-150 mg daily in divided doses
	Capsules 5 mg 10 mg	

Diazepam (as Diazemuls)	Injection 5 ml/ml	10-20 mg initially by slow IV injection
Parenteral Vitamins B and C 'Pabrinex' (Caution - possible anaphylactic reaction)	Injection IV high potency	By very slow IV injection or infusion 2-4 pairs of IV high potency ampoules every 4-8 hours for up to 2 days. Then 1 pair of ampoules for IV injection or infusion for 5-7 days
	IM high potency	1 pair of IM high potency ampoules injected slowly into the gluteal muscle

ANTIPSYCHOTIC DRUGS - For more information see BNF 4.2.1.

High doses of these drugs should only be given after appropriate psychiatric advice. Reduce the dose in elderly patients.

- **May cause dystonia, Parkinsonism, tardive dyskinesia, neuroleptic malignant syndrome.**
- **Extreme caution if patient has a history of neuroleptic malignant syndrome.**
- **All have sedative, extrapyramidal and anticholinergic effects to a greater or lesser degree.**

*Chlorpromazine	Tablets 10 mg 25 mg 50 mg 100 mg	50-300 mg daily in divided doses (up to 800 mg daily on psychiatric advice)
	Elixir 25 mg/5 ml	
	Suspension Forte 100 mg/5 ml	
*Thioridazine	Tablets 10 mg 25 mg 50 mg 100 mg	50-200 mg daily in divided doses (maximum 800 mg daily for up to 4 weeks on psychiatric advice)
	Suspension 25 mg/5 ml 100 mg/5 ml	
	Syrup 25 mg/5 ml	

Trifluoperazine	Tablets 1 mg 5 mg Syrup 1 mg/5 ml	2-15 mg daily in divided doses. Wide variation in dosage, depending on patient's diagnosis and age
Haloperidol	Capsules 500 micrograms Tablets 1.5 mg 5 mg 10 mg 20 mg Oral liquid 1 mg/ml 2 mg/ml Oral liquid concentrate 10 mg/ml Injection 5 mg/ml	500 micrograms-20 mg daily in divided doses 2-10 mg IM
Risperidone	Tablets 1 mg 2 mg 3 mg 4 mg	1 mg bd increased gradually to 6 mg daily

LITHIUM

- **Only initiate on psychiatric advice.**
- **Therapeutic level 0.4-1.0 mmol/l at 12 hours after last dose. Lower levels may be acceptable in the elderly.**
- **Should be supervised by Psychiatric Department.**
- **Warn patient about dehydration, vomiting and pyrexia ie discontinue until well.**
- **Avoid with SSRIs, carbamazepine, diuretics and NSAIDs (see BNF for other interactions).**
- **Best avoided in pregnancy, especially first trimester.**
- **Brand name should be specified as bioavailability may vary.**
- **Check thyroid function at least twice a year.**

ANTIDEPRESSANTS - For more information see BNF 4.3.

- **Always assess suicide risk.**
- **Effect may take 3 weeks.**
- **The elderly require lower doses.**
- **Severe depression should be assessed by a psychiatrist.**
- **If living alone a non-tricyclic drug is preferable.**

SELECTIVE SEROTONIN RE-UPTAKE INHIBITORS (SSRIs)

- For more information see BNF 4.3.3.

- **Avoid combination with tricyclics (SSRIs are enzyme inhibitors and high tricyclic levels can lead to arrhythmias).**
- **Avoid combination with MAOIs (Serotonin syndrome: hyperpyrexia, tremor and convulsions).**
- **In elderly, check sodium levels.**

*Fluoxetine	Capsules 20 mg	20 mg daily
	Liquid 20 mg/5 ml	
Citalopram	Tablets 20 mg	20 mg daily
Fluvoxamine	Tablets 50 mg 100 mg	100-200 mg daily
*Sertraline	Tablets 50 mg 100 mg	50-100 mg daily

TRICYCLIC ANTIDEPRESSANTS

- For more information see BNF 4.3.1.

- **These are indicated in non-responders to SSRIs.**

*Amitriptyline	Capsules 10 mg 25 mg 50 mg	50-150 mg daily with greater part of the dose at night
*Imipramine least sedative	Tablets 10 mg 25 mg	30-200 mg daily in divided doses
*Lofepramine	Tablets 70 mg	140-210 mg daily in divided doses

VERTIGO - For more information see BNF 4.6.

NB - DO NOT USE FOR VAGUE DIZZINESS IN THE ELDERLY

- None are specific for Menlere's disease.

*Prochlorperazine	Tablets 5 mg	5-10 mg tid
*Cinnarizine	Capsules 15 mg	15-30 mg tid
*Betahistine	Tablets 8 mg	8-16 mg tid

ANTIPARKINSONIAN DRUGS - For more information see BNF 4.9.

- Be sure of diagnosis. Seek neurlogical advice if unsure.

- Use minimum effective dose.

- Drug treatment may not help mild symptoms or tremor.

- Always start at low dose and increase gradually. Do not stop abruptly.

Levodopa Preparations - Expressed as Levodopa

*Co-careldopa 'Sinemet-110'	Tablets 110	Levodopa 100 mg Carbidopa 10 mg	100 mg bd up to 250 mg qid if necessary
'Sinemet Plus'	125	Levodopa 100 mg Carbidopa 25 mg	
'Sinemet-275'	275	Levodopa 250 mg Carbidopa 25 mg	
'Sinemet CR'	Tablets CR	Levodopa 200 mg Carbidopa 50 mg	1 bd
*Co-beneldopa 'Madopar'	Capsules 62.5	Levodopa 50 mg Benserazide 12.5 mg	50 mg bd up to 200 mg qid if necessary
	125	Levodopa 100 mg Benserazide 25 mg	
	250	Levodopa 200 mg Benserazide 50 mg	

	Dispersible Tablets 62.5	Benserazide 12.5 mg Levodopa 50 mg	
	125	Benserazide 25 mg Levodopa 100 mg	
	Capsules SR 125	Benserazide 25 mg Levodopa 100 mg	See BNF for dosing guidelines

Other Drugs

*Benzhexol	Tablets 2 mg	1 mg daily up to maximum of 5-15 mg/day in divided doses
Procyclidine	Tablets 5 mg	5-15 mg (maximum 30 mg) daily for drug (neuroleptic)-induced parkinsonism
	Syrup 2.5 mg/5 ml 5 mg/5 ml	
	Injection 5 mg/ml	

MANAGEMENT OF STATUS EPILEPTICUS

- For more information see BNF 4.8.2.

To arrest a seizure, use IV diazepam 10 mg slowly. This is of no value if the seizure has spontaneously ceased. If seizures recur, treat as for status epilepticus, defined as a generalised tonic-clonic seizure lasting longer than 5 mins, or consecutive tonic-clonic seizures without recovery of consciousness in between.

1. DIAZEPAM (as DIAZEMULS) 5-10 mg IV as bolus followed by 20 mg/hour by IV infusion (120 mg diazepam as Diazemuls in 500 ml 5% Dextrose). Increase or decrease infusion rate according to seizure response. Do not give diazepam as an IM injection. Respiratory depression can occur.

2. PHENYTOIN 15 mg/kg by SLOW IV injection (50 mg/min).

3. Start regular anticonvulsants - carbamazepine, sodium valproate, phenytoin - orally or by nasogastric tube as soon as possible.

   If seizures still occur despite this, take expert advice. The following may be considered.

4. CHLORMETHIAZOLE 0.8% solution IV, 500 ml 2-8 hourly.

   If seizures still occur:

5. Consider artificial ventilation and barbiturate infusion.

CONTACT NEUROLOGY DEPARTMENT SOONER RATHER THAN LATER.

ANTICONVULSANTS - For more information see BNF 4.8.

- **Does the patient have seizures at all?**
- **Do the seizures need treatment?**
- **What sort of seizures are they?**
- **New effective anticonvulsants are available and are particularly useful in refractory cases.**
- **Consult with Neurology Department.**

Abbreviations: P = Partial: G = Generalised: A = Absence

*Carbamazepine (P, G)	Tablets 100 mg 200 mg 400 mg Tablets CR 200 mg 400 mg Chewtabs 100 mg 200 mg Liquid 100 mg/5 ml	100 mg bd, increasing by 100 mg/day every 3 days to 300 mg bd, then by clinical response
*Sodium Valproate (A, G)	Tablets 200 mg 500 mg Tablets MR 200 mg 300 mg Liquid 200 mg/5 ml Syrup 200 mg/5 ml	200 mg bd increasing over 10 days to 500 mg bd, then by clinical response
*Phenytoin (G, P)	Capsules 50 mg Suspension 30 mg/5 ml	300 mg/day in 2 divided doses increasing in small increments according to clinical response or plasma levels. Should not be used in women if possible

ANALGESIC DRUGS
(INCLUDING NON-STEROIDAL ANTI-INFLAMMATORY DRUGS)

ANALGESICS - For more information see BNF 4.7.

- **Analgesic doses are for a 70 kg adult.**
- **Avoid prn dosing for chronic pain.**
- **Potent IV drugs should be diluted and given slowly.**
- **All potent analgesics can cause respiratory depression. For this give NALOXONE INJECTION (0.4 mg/ml) 0.5-1 ml.**

Guidelines for Postoperative Pain

1. Check ward policy.

2. Preoperative ressurance decreases postoperative pain.

3. Remember

   Drug action prolonged in renal or hepatic disease and elderly.

   - Preoperative benzodiazepines may increase drug effects.
   - Analgesic accumulation may occur from theatre and recovery room.

4. Before prescribing:

   - Check drugs already given in theatre and recovery.
   - Check anaesthetist's advice.

5. Example for 70 kg adult give:

   - 10-15 mg morphine IM.
   - Assess effects, eg pain relief or over sedation and adjust next dose.
   - Only write up repeated doses at time of second ward prescription.

6. In problem patients the IV route is preferable. Morphine Sulphate, half the corresponding IM dose, given slowly.

ANALGESICS FOR MILD-MODERATE PAIN

- For more information see BNF 4.7.1.

- **High dose codeine preparations cause constipation and are potentially addictive.**

*Paracetamol	Tablets Dispersible tablets 500 mg Oral solution 120 mg/5 ml	500 mg-1 g 6 hourly Maximum daily dose 8 g

Co-codamol 8/500 (codeine phosphate 8 mg, paracetamol 500 mg)	Tablets	1-2 tablets every 4-6 hours
	Effervescent tablets	Maximum 8 tablets daily
Co-codamol 30/500 (codeine phosphate 30 mg, paracetamol 500 mg)	Tablets	1-2 every 6 hours Maximum 6 daily
*Aspirin	Tablets, dispersible 300 mg	300-900 mg 4-6 hourly
	Tablets EC 300 mg 600 mg	
*Dihydrocodeine	Tablets 30 mg	30 mg 4-6 hourly
	Tablets SR 60 mg	1 bd
	Elixir 10 mg/5 ml	
	Injection 50 mg	50 mg SC or IM 6 hourly

ANALGESICS FOR SEVERE PAIN

- For more information see BNF 4.7.2.

- **Morphine and pethidine have a short duration of action.**
- **Use slow-release for chronic or terminal pain.**

*Morphine Sulphate/HCL	Elixir (specify strength) (see BNF 4.7.2.)	10-20 mg 4-6 hourly
*Morphine Sulphate	Tablets 10 mg 20 mg	10-20 mg 4-6 hourly
	Tablets SR 10 mg 30 mg 60 mg 100 mg 200 mg	30-60 mg 12 hourly adjusted according to response
	Injection 10 mg 15 mg 30 mg	10-15 mg SC, IM or slow IV 4-6 hourly

	Suppositories 15 mg 30 mg	15-30 mg 4-6 hourly
Morphine with Cyclizine 'Cyclimorph'	Injection 10 mg/ml 15 mg/ml With cyclizine 50 mg/ml	1 ml 4-6 hourly (maximum 3 doses in 24 hours)
*Diamorphine	Injection 5 mg 10 mg	5-10 mg SC, IM or slow IV
*Pethidine	Tablets 50 mg	50-100 mg 4 hourly
	Injection 50 mg/ml 100 mg/ml	50-100 mg SC, IM or slow IV 4 hourly

TRIGEMINAL NEURALGIA

- For more information see BNF 4.7.3.

*Carbamazepine	Tablets 100 mg 200 mg	100 mg bd up to 1.2 g in divided doses

MIGRAINE, ACUTE THERAPY

- For more information see BNF 4.7.4.1.

*Aspirin	Tablets, dispersible 300 mg	300-600 mg at onset
*Paracetamol	Tablets 500 mg Tablets, soluble 500 mg	500 mg-1 g at onset Maximum daily dose 8 g
*Metoclopramide	Tablets 10 mg	10 mg at onset

MIGRAINE, PROPHYLAXIS

- For more information see BNF 4.7.4.2.

- **In patients with more than one attack a month prophylactic agents eg beta-blockers (propranolol or metoprolol) or pizotifen may be tried.**

*Propranolol	Tablets 10 mg 40 mg	10-40 mg bd
*Pizotifen	Tablets 0.5 mg 1.5 mg	1.5 mg at night or 500 micrograms tid Maximum 6 mg/day

NOCTURNAL CRAMPS

*Quinine Sulphate	Tablets 200 mg 300 mg	200-300 mg at night

NON-STEROIDAL ANTI-INFLAMMATORY ANALGESICS

- For more information see BNF 10.1.

- **Gastric irritation, allergy, fluid retention, haemorrhage and renal failure can occur.**
- **Usually taken with meals.**
- **Established preference must be considered.**
- **Try simple analgesics first.**
- **Caution in elderly, with avoidance of medium and long-acting agents.**
- **Caution when combined with diuretics - check renal function.**
- **May reduce effect of anti-hypertensive drugs.**
- **Relatively ineffective in OA - try simple analgesics first.**
- **In patients with proven peptic ulcer consider addition of misoprostol or ranitidine.**
- **Use with caution in patients with asthma, renal or heart failure.**

INFLAMMATORY JOINT PAIN FLOW CHART

Initial drug	Ibuprofen	
If side-effects try	Naproxen	Warfarin dose not altered
If inadequate pain relief	Diclofenac	

NON-STEROIDAL ANTI-INFLAMMATORY DRUGS

*Ibuprofen	Tablets 200 mg 400 mg	0.6-1.2 g daily in 2-3 divided doses
	Suspension 100 mg/5 ml	
*Naproxen	Tablets 250 mg 500 mg	250-500 mg bd
	Suspension 250 mg/10 ml	
	Suppositories 500 mg	One at bedtime
*Diclofenac	Tablets 25 mg 50 mg	75-150 mg daily in 2-3 divided doses after food
	Dispersible tablets 50 mg	
	Tablets MR 75 mg 100 mg	75-100 mg daily
	Capsules MR 100 mg	
	Injection 25 mg/ml	75 mg daily IM (Maximum 2 days)
	Suppositories 25 mg 50 mg 100 mg	75-150 mg daily in divided doses
Ketoprofen	Capsules 50 mg 100 mg	100-200 mg daily in 2-4 divided doses with food
	Capsules MR 100 mg 150 mg 200 mg	100-200 mg once daily with food
	Suppositories 100 mg	100 mg at bedtime

GOUT - For more information see BNF 10.1.4.

- **Fasting blood sample.**

- **Exclude secondary causes - blood and renal disease, drugs.**

- **Maintain urine output.**

ACUTE phases of gout are usually treated with NSAIDs eg diclofenac or indomethacin.

In patients unable to tolerate NSAIDs, steroids or colchicine are alternatives.

Chronic Phase

*Allopurinol	Tablets 100 mg 300 mg	200-600 mg in 2-3 divided doses
Sulphinpyrazone	Tablets 100 mg 200 mg	100 mg daily with food Increase to 200 mg tid Reduce to maintain

Cover the first month of prophylactic treatment (eg allopurinol) with an anti-inflammatory drug, as acute flare-ups may occur.

INFECTIONS

EXAMPLE ANTIBIOTIC POLICY FOR COMMON DISEASES

ORGAN/ CONDITION	MOST COMMON ORGANISM	MOST COMMON ORGANISM NEEDING TREATMENT	ANTIBIOTIC IF CLINICALLY NECESSARY BEFORE CULTURE RETURNS
Sore throats	Virus (70%)	Streptococcus pyogenes	Penicillin V Erythromycin for penicillin sensitive patients
Otitis media	Pneumococcus	Pneumococcus or H. influenzae	Ampicillin group
Acute or Acute on chronic bronchitis	Virus	Pneumococcus or Haemophilus (Do not routinely prescribe for other organisms cultured from sputum without careful clinical assessment)	Ampicillin group Trimethoprim
Pneumonia	Pneumococcus	Pneumococcus	Benzylpenicillin unless post influenza or direct sputum indicates otherwise. If penicillin allergic use erythromycin
Life-threatening infection	Variable	Variable	Consult Bacteriology Department for appropriate regimen
Pyelonephritis	E coli	E coli	Aminoglycosides, Cefotaxime Trimethoprim
Cystitis	50% negative culture	E coli	Trimethoprim Co-amoxiclav
Diarrhoea	Invasive or toxin producing bacteria		No routine antibiotics

INFECTIONS

- **Always take appropriate specimens before commencing treatment.**
- **For empiric treatment always use guidelines on page 47.**
- **When prescribing outside these guidelines, contact Bacteriology Department.**
- **Do not confuse prophylaxis and treatment - perioperative prophylaxis should rarely exceed 24 hours.**
- **Indiscriminate prescribing promotes nosocomial infections.**

PENICILLINS - For more information see BNF 5.1.1.

PENICILLINASE-SENSITIVE PENICILLINS

- For more information see BNF 5.1.1.1.

- **Resistance to pneumococcus occurs in up to 15%. Consult bacteriologist.**

*Benzylpenicillin	Injection 300 mg 600 mg (1 mega unit = 600 mg)	600-1200 mg daily IV in divided doses. Up to 16 g (24 mega units) in special cases
*Phenoxymethylpenicillin (Penicillin V)	Tablets 250 mg	250-500 mg qid before meals
	Suspension 125 mg/5 ml 250 mg	

PENICILLINASE-RESISTANT PENICILLINS

- For more information see BNF 5.1.1.2.

- **Flucloxacillin and cloxacillin will be regarded as interchangeable.**

*Flucloxacillin	Capsules 250 mg 500 mg	250-500 mg qid before meals
	Syrup 125 mg/5 ml 250 mg/5 ml	
	Injection 250 mg 500 mg	250-500 mg qid IM or 500 mg-1 g IV 4-6 hourly

BROAD-SPECTRUM PENICILLINS

- **Ampicillin or its analogues will be regarded as interchangeable.**

*Ampicillin	Capsules 250 mg 500 mg	250 mg-1 g qid before meals
	Syrup 125 mg/5 ml 250 mg/5 ml	
	Injection 250 mg 500 mg	500 mg-1 g IM or slow IV 4-6 hourly
*Amoxycillin	Capsules 250 mg 500 mg	250 mg tid doubled in severe infection
	Dispersible tablet 500 mg	
	Suspension 125 mg/5 ml 250 mg/5 ml 125 mg/1.25 ml	
	Sachets 750 mg/sachet 3 g/sachet	3 g for dental prophylaxis
Co-amoxiclav (amoxycillin and clavulanic acid)	Tablets 250/125 500/125	250-500 mg 8 hourly (expressed as amoxycillin)
	Injection 500/100 1000/200	1 g every 6-8 hourly

CEPHALOSPORINS - For more information see BNF 5.1.2.

- **IV cephalosporins are expensive and only used when the drug can not be taken orally, or for initial dose. Change from IV to oral as soon as possible.**

- **Oral cefuroxime has low oral bioavailability and not well tolerated.**

Cefaclor	Capsules 250 mg 500 mg	250-500 mg every 8 hours
	Tablets MR 375 mg	375-750 mg every 12 hours with food

Cefuroxime	Injection 250 mg 750 mg 1.5 g	750 mg-1.5 g every 8 hours
Cefotaxime	Injection 1 g 2 g	1-2 g every 12 hours

TETRACYCLINES - For more information see BNF 5.1.3.

*Oxytetracycline	Tablets 250 mg	250-500 mg qid

MACROLIDES - For more information see BNF 5.1.5.

Erythromycin	Capsules 250 mg	250-500 mg every 6 hours
Erythromycin Lactobionate	Injection 1 g	2 g daily in divided doses by slow IV or infusion
Clarithromycin	Tablets 250 mg	250-500 mg every 12 hours
	Injection 500 mg	500 mg bd by IV infusion

4-QUINOLONES - For more information see BNF 5.1.12.

- **Not for first-line treatment. Consult Bacteriology Department.**

Note potentially dangerous interaction with theophylline.

Ciprofloxacin	Tablets 250 mg	500 mg-1.5 g/day in 2 divided doses

AMINOGLYCOSIDES - For more information see BNF 5.1.4.

- **Potential 8th nerve damage.**
- **Toxicity increased by cephalosporins, potent diuretics, renal failure and in the elderly.**
- **Plasma levels should be checked.**
- **Therapeutic courses should be short.**

Gentamicin	Injection 40 mg/ml	5-7 mg/kg/day in single dose in patients with normal renal function
Trough Plasma Levels:	Just before next dose Should be 1-2 mg/l	

OTHER ANTIMICROBIALS

- For more information see BNF 5.1.11.

*Trimethoprim	Tablets 100 mg 200 mg	200 mg bd
	Injection 20 mg/ml	150-250 mg bd by slow IV
*Metronidazole	Tablets 200 mg 400 mg	Anaerobes: 400 mg tid Trichomonas: 200 mg tid for 7 days or
	Suspension 200 mg/5 ml	800 mg in morning. 1200 mg in evening for 2 days
	Suppositories 500 mg 1 g	1 g every 8 hours
	Injection 500 mg/100 ml	

ANTIFUNGAL DRUGS - For more information see BNF 5.2.

*Nystatin	Tablets 500,000 units	One every 6 hours
	Suspension 100,000 units/ml	
*Amphotericin	Lozenges 10 mg	10 mg qid dissolved in mouth
	Tablets 100 mg	100-200 mg every 6 hours
	Suspension 100 mg/ml	
Fluconazole	Capsules 50 mg 150 mg 200 mg	Dosage regimens vary according to condition - see BNF
Itraconazole	Capsules 100 mg	2 bd for 1 day (candidiasis) For other infections - see data sheet

ANTIVIRAL DRUGS - For more information see BNF 5.3.

*Aciclovir	Tablets 200 mg 400 mg 800 mg	H. zoster 800 mg 5 times daily H. simplex 200 mg 5 times daily. Prevention of recurrence 200 mg 4 times daily
	Cream 5%	
	Infusion 250 mg	5 mg/kg tid - slow IV

ANTHELMINTICS - For more information see BNF 5.5.

Thread Worms and Roundworms

Piperazine + Senna	Granules (sachet) 4 g piperazine	One sachet in a small glass of milk or water, repeated after 14 days

ENDOCRINE SYSTEM

- **Do not start life time therapy on the basis of one isolated hormone estimation.**

MANAGEMENT OF DIABETIC KETOACIDOSIS

- INITIAL INVESTIGATION: Venous blood glucose, urea, electrolytes, osmolality (Na + K) x 2 + glucose + urea m.Osm/kg), arterial pH, std bicarb, blood gases; urine ketones, and ECG to assess hyperkalaemia effects. PROCEED NOW TO TREATMENT.

- OTHER INVESTIGATIONS: Chest X-ray, MSU, throat swab, sputum, blood culture, FBP and DWCC. Exclude blood loss.

- REPEAT INVESTIGATIONS: Glucose, urea, electrolytes, blood gases at 2 hours, 5 hours, 8 hours. Capillary blood glucose hourly.

- OBSERVATIONS: BP half hourly, temperature 2 hourly. Consciousness (alert, drowsy, stupor, coma). Intake/output chart.

- TREATMENT: IV INFUSION FLUIDS: 0.9% saline (or 0.45% if Na > 155 mmol/l). Change to 5% dextrose when blood glucose < 13 mmol/l.

	1st	next	next	next	then
Time:	½ hour	hour	2 hours	8 hours	8 hourly
Volume:	1 L	1 L	1 L	2 L	1 L

- INSULIN (Short-acting):

  (a) 20 units IM stat then 5 units IM hourly or in special circumstances:

  10 units IM + 10 units IV stat then 5 units hourly by IV infusion in HAEMACCEL using accurate infusion pump.

  (b) When blood sugar < 10 mmol/l give:

  5 units IM 2 hourly; or 12 units in each 500 ml 5% dextrose. Insulin and 5% dextrose should be continued under acute protocol until urine or serum ketones are normal, which may take a longer time.

- POTASSIUM:

  15 mmol/hour from time of first insulin. Increase to 30 mmol/hour if K^+ < 4 mmol/l, and to 40 mmol/hour if K^+ < 3 mmol/l. STOP if K^+ > 5.5 mmol/l. May continue oral K^+ for up to 5 days.

- BICARBONATE:

  If pH < 7.0 give 500 ml 1.4% HCO_3 + 20 mmol K^+ over 30 mins through Y connector and adjust fluid balance.

- INTUBATE STOMACH if unconscious.

INSULIN - For more information see BNF 6.1.1.

- **All insulin preparations are now supplied at a strength of 100 units/ml.**
- **If necessary, other insulin preparations may be ordered by the Pharmacy at short notice.**
- **Most insulins are biosynthetic human. Velosulin and Insulatard are available as porcine insulins. Hypurin Neutral, Isophane and Protamine Zinc insulin are available as beef insulins.**
- **Mixtures of short and medium insulins are available in the Humulin M and Mixtard ranges.**
- **Prescribe by proprietary name.**
- **Many insulins are now available in cartridges for use in pen injection devices.**
- **All patients should be advised on the safe disposal of needles.**

SHORT-ACTING INSULIN (SOLUBLE OR NEUTRAL)

*Human Actrapid	Required dose IV, IM or SC
*Humulin S	Required dose IV, IM or SC
*Human Velosulin	Required dose IV, IM or SC
Hypurin Neutral	Required dose IV, IM or SC

INTERMEDIATE-ACTING INSULIN (ISOPHANE)

*Human Insulatard	Required dose by SC
*Humulin I	Required dose by SC
Hypurin Isophane	Required dose by SC

INTERMEDIATE-ACTING (INSULIN ZINC SUSPENSION)

*Human Monotard	Required dose by SC
*Humulin Lente	Required dose by SC

LONG-ACTING INSULIN

*Human Ultratard	Required dose by SC
Humulin Zn	Required dose by SC

BIPHASIC INSULINS

- **Mixtures of short- and intermediate-acting insulins are available in proportions of 10% to 50%, short-acting with 90% to 50% isophane insulins.**

*Mixtard	10/90, 20/80, 30/70, 40/60, 50/50	Required dose by SC
*Humulin	10/90, 20/80, 30/70, 40/60, 50/50	Required dose by SC

ORAL ANTIDIABETIC DRUGS

- For more information see BNF 6.1.2.

- **If diet alone insufficient.**

- **Care with long-acting preparations in the elderly (chlorpropamide, glibenclamide).**

- **Biguanides contraindicated in renal, hepatic or cardiac failure.**

SULPHONYLUREAS

*Tolbutamide	Tablets 500 mg	500 mg tid, increasing if necessary to 1 g bd
*Glibenclamide	Tablets 2.5 mg 5 mg	5 mg daily before breakfast, increasing monthly to a maximum of 5 mg tid
Gliclazide	Tablets 80 mg	40 mg bd initially, increasing to maximum of 320 mg daily in divided doses

BIGUANIDES

*Metformin	Tablets 500 mg 850 mg	850-1500 mg daily in divided doses

OTHER ANTIDIABETIC DRUGS

Acarbose	Tablets 50 mg 100 mg	50 mg daily initially with main meal (first mouthful) increasing to 50 mg tds

TREATMENT OF HYPOGLYCAEMIA

- For more information see BNF 6.1.4.

- **If patient is conscious, oral glucose is the safest treatment.**

- **Glucose injection is dangerous outside a vein. Always use a cannula.**

Glucose	Injection 50%	50 ml IV
Glucagon	Injection 1 mg/ml	1 mg IM

THYROID - For more information see BNF 6.2.

- **Confirm hypothyroidism by both low T_4 and raised TSH levels.**

*L-Thyroxine	Tablets 25 micrograms 50 micrograms 100 micrograms	50-100 micrograms initially, increasing by 25-50 micrograms monthly to 100-200 micrograms daily
Liothyronine	Injection 20 micrograms	5-20 micrograms IV initially, for emergency use in coma only

ANTITHYROID DRUGS - For more information see BNF 6.2.2.

*Carbimazole	Tablets 5 mg 20 mg	Initially 20-40 mg daily, reducing to maintenance of 5-15 mg daily

BONE METABOLISM - For more information see BNF 6.6.

- **See also Vitamin D.**

- **Consider specialist referral.**

CORTICOSTEROIDS AND RELATED DRUGS

- For more information see BNF 6.3.

- **For long-term use, a Steroid Treatment Card should always be carried.**

REMEMBER: Normal daily output = 30 mg hydrocortisone.
Maximum stress output = 300 mg hydrocortisone.
Observe for crisis during withdrawal or rapid reduction.

Drug and Relative Potency		Sodium Retention	Anti-Inflammatory
Cortisone	100 mg	++	+
Hydrocortisone	80 mg	++	+
Prednisolone	20 mg	+	++
Betamethasone	3 mg	+	++
Dexamethasone	3 mg	+	++

Hydrocortisone	Tablets 10 mg 20 mg	Replacement: 20 mg am and 10 mg pm
Hydrocortisone	Injection 100 mg 500 mg	100-500 mg IM or slow IV
*Prednisolone	Tablets 1 mg 5 mg	5-60 mg daily as a single or bd dose
	Tablets EC 2.5 mg 5.0 mg	5-60 mg daily as a single or bd dose
Prednisolone Acetate	Injection 25 mg/ml	IM or intra-articular
Dexamethasone	Tablets 500 micrograms 2 mg	0.5-5 mg daily as single or divided dose
	Injection 4 mg/ml	Cerebral Oedema: Initially 4-20 mg IM or slow IV Transfer to oral
	Injection 20 mg/ml	Shock: (NB Not Septic) 2-6 mg/kg slow IV

Methylprednisolone	Injection 40 mg 125 mg 500 mg 1 g 2 g	Shock: (NB Not Septic) 0.5-30 mg/kg by slow IV daily

Potent Sodium Retaining Steroid

Fludrocortisone	Tablets 100 micrograms	50-300 micrograms daily

OBSTETRICS, GYNAECOLOGY AND URINARY TRACT DISORDERS

DRUGS ACTING ON UTERINE SMOOTH MUSCLE

- For more information see BNF 7.1.

*Ergometrine	Tablets 500 micrograms	500 micrograms 8 hourly for not more than 48 hours
	Injection 500 micrograms/ml	125-250 micrograms IV or IM
Carboprost	Injection 250 micrograms/ml	250 micrograms by deep IM. If necessary, repeat at intervals of 1½ hours Total dose should not exceed 2 mg (8 doses). For severe cases - see BNF 7.1.1.
Oxytocin, synthetic 'Syntocinon'	Injection 5 units/ml, 1 ml amp	For induction - see local hospital protocol or see BNF 7.1.1. for detail. For prevention of postpartum haemorrhage or for post-abortion bleeding 5 units by slow IV injection
Oxytocin and Ergometrine 'Syntometrine'	Injection (oxytocin 5 units/ml ergometrine 500 micrograms/ml)	1 ml IM 0.5-1 ml
Dinoprostone	Vaginal tablets 3 mg	See BNF 7.1.1. for details or consult local hospital protocol
	Vaginal gel 400 micrograms/ml	

UTERINE RELAXANT - For more information see BNF 7.1.3.

- **See local hospital protocol for prevention of labour.**

Ritodrine	Tablets 10 mg	10 mg every 2 hours for 24 hours, then 10-20 mg qid
	Injection 10 mg/ml	50-350 micrograms/min IV

VAGINAL AND PERINEAL PREPARATIONS

- For more information see BNF 7.2.

- **See section on antifungal drugs page 52.**
- **Treatment of sexual partner if indicated.**

TOPICAL OESTROGEN

Dienoestrol	Cream 0.01%	1-2 applicatorfuls daily
Oestriol	Pessary 500 micrograms	1 pessary or applicatorful daily
	Cream 0.01%	
*Clotrimazole	Cream 1%	2-3 times daily
	Vaginal tablets	100 mg for 6 nights 200 mg for 3 nights 500 mg for single night
*Metronidazole	Tablets 200 mg	200 mg tid for 7 days For other presentations - see page 51
Miconazole	Cream 2%	1 application nocte for 7 nights
	Pessaries 100 mg	2 pessaries for 7 nights
Clindamycin	Cream 2%	1 applicatorful nightly

FOR RESISTANT THRUSH

Fluconazole	Capsules 150 mg	150 mg single dose

HORMONE THERAPY - For more information see BNF 6.4.

PROGESTOGENS

Dydrogesterone	Tablets 10 mg	Dosage regimens vary according to condition See BNF 6.4.1.2.
Medroxyprogesterone	Tablets 2.5 mg 5 mg 10 mg	Dosage regimens vary according to condition See BNF 6.4.1.2.
Norethisterone	Tablets 1 mg 5 mg	Dosage regimens vary according to condition See BNF 6.4.1.2.

HORMONE REPLACEMENT THERAPY

- For more information see BNF 6.4.1.

- **Hormone replacement therapy (HRT) is indicated in women with climacteric symptoms; premature menopause; osteoporosis.**

- **HRT is contraindicated in women with oestrogen-dependent tumours, liver disease, thromboembolic disease or unexplained vaginal bleeding.**

- **HRT should be continued for 5-10 years in women who require it for climacteric symptoms. Those at high risk of osteoporosis should have long-term therapy.**

- **In women who have had a hysterectomy, unopposed oestrogen is acceptable; otherwise a progestogen must be given for at least 10 days each month to prevent endometrial hyperplasia.**

- **HRT contains less oestrogen than oral contraceptives and therefore the risk of thromboembolic complications should be less.**

OESTROGEN-ONLY

*Oestrogens, conjugated	Tablets 625 micrograms 1.25 mg	0.625 mg-1.25 mg daily
Oestradiol	Tablets 2 mg	1-2 tablets daily Start on 5th day of menstruation or arbitarily if absent
	Patch 25 micrograms/24 hours 50 micrograms/24 hours 100 micrograms/24 hours	Apply 1 patch twice weekly. Start with 50 micrograms patch for first month Adjust dose according to response

COMBINED PREPARATIONS (SEQUENTIAL OESTROGEN AND PROGESTERONE)

Oestradiol Valerate 2 mg; Oestradiol Valerate 2 mg and Levonorgestrel 75 micrograms 'Nuvelle'	Tablets	As per calendar pack See BNF 6.4.1.
Oestradiol 2 mg, Oestriol 1 mg; Oestradiol 2 mg, Oestriol 1 mg and Norethisterone 1 mg; Oestradiol 1 mg, Oestriol 500 micrograms 'Trisequens'	Tablets	
Oestradiol 50 micrograms per 24 hours; Oestradiol 50 micrograms and Norethisterone 250 micrograms per 24 hours 'Estracombi'	Patch	Apply oestradiol patch twice weekly for 2 weeks followed by combined patch twice weekly for 2 weeks

For patients whose menopause is complete.

Oestradiol 2 mg and Norethisterone 1 mg 'Kliofem'	Tablets	1 tablet daily without interruption
Tibolone	Tablets 2.5 mg	2.5 mg daily

DRUGS FOR GENITOURINARY DISORDERS

- For more information see BNF 7.4.

- **Asymptomatic bacteriuria of pregnancy is a special case.**

- **Sterile pyuria may indicate past antibiotic therapy, analgesic nephropathy, contamination with vaginal secretions, fungal infection, TB, carcinoma or urethritis.**

- **Five days antimicrobial therapy is usually adequate but should be checked if clinically indicated.**

- **Persistent or frequent infection requires clinical and other investigation.**

- **SEE ANTIMICROBIALS**
  Antimicrobial policy - page 47.

- **See cardiovascular system for diuretics.**

- **RENAL FAILURE: No drug is completely safe.**
  If necessary consult Renal Unit, Belfast City Hospital.

- **PREGNANCY: Extra precautions with all drugs.**

DRUGS FOR URINARY FREQUENCY

- For more information see BNF 7.4.2.

Oxybutynin	Tablets 2.5 mg	2.5-5 mg 2-3 times daily
	5 mg	Start with low dose

DRUGS FOR URINARY RETENTION

- For more information see BNF 7.4.1.

- **Caution first dose may cause hypotension.**

Alfuzosin	Tablets 2.5 mg	2.5 mg 3 times daily
Doxazosin	Tablets 1 mg	Initially 1 mg daily, depending
	2 mg	on response, dose may be
	4 mg	increased in 2 mg increments
		to a maximum of 8 mg
		Titration interval is 1-2 weeks
		Usual dose 2-4 mg

NUTRITION AND BLOOD

MINERALS AND VITAMINS

POTASSIUM - For more information see BNF 9.2.

- **Care in renal failure.**
- **Care with potassium-sparing drugs.**
- **Normal diet = 65-150 mmol K^+ per day.**
- **Give at least an extra 20 mmol K^+ per day for prevention of hypokalaemia.**
- **1 mmol K^+ = 39 mg.**
- **Correction of severe hypokalaemia may require potassium infusion. Monitor serum K^+ carefully.**
- **Strong potassium injection is dangerous and should only be used in designated areas.**

*'Slow-K'	Tablets SR	1 tablet = 8 mmol K^+
*'Sando-K'	Tablets, effervescent	1 tablet = 12 mmol K^+

HYPERKALAEMIA - For more information see BNF 9.2.

- **For emergency treatment of hyperkalaemia, 50 ml of glucose 50% with 5-10 units of soluble insulin can be given.**

Calcium Polystyrene Sulphonate 'Calcium Resonium'	Powder	15 g 6-8 hourly orally or 30 g rectally

PHOSPHATE - For more information see BNF 9.5.

Sodium and Potassium Phosphate 'Phosphate-Sandoz'	Tablets, effervescent	1 tablet = 17 mmol PO_4

CALCIUM - For more information see BNF 9.5.

- **Average diet 15-25 mmol Ca^{2+} a day.**
- **Minimum requirement 5-10 mmol.**
- **Ensure normal Vitamin D intake.**
- **1 mmol Ca^{2+} = 40 mg.**

*Calcium Lactate Gluconate 'Sandocal-400'	Tablets, effervescent 10 mmol Ca^{2+}	1-2 daily
'Sandocal-1000'	25 mmol Ca^{2+}	
	Injection 10%	5-10 ml by slow IV
Calcium Carbonate 'Calcichew' 'Calcichew Forte'	Tablets 12.6 mmol Ca^{2+} 25 mmol Ca^{2+}	1-2 daily

SODIUM - For more information see BNF 9.2.

- **Care in heart or renal failure.**

- **1 mmol Na^{+} = 23 mg.**

Sodium Bicarbonate	Tablets 300 mg	Up to 9 g daily (100 mmol)
Sodium Chloride 'Slow Sodium'	Tablets SR 600 mg (10 mmol)	Up to 200 mmol daily

ANAEMIA

- **Determine the cause of the iron deficiency.**

- **Daily iron requirements:**

  Male: 1 mg.
  Female: 2 mg - Pregnancy 4 mg during second and third trimesters.

- **Diet contains:**

  5 mg iron per 1000 calories food.
  10% normally absorbed.
  Absorption decreased by food, tetracyclines and other drugs.
  May be increased by Vitamin C.

- **Utilisation of iron:**

  Haemoglobin contains 3.4 mg Fe/1 g Hb ie 50 mg Fe/100 ml blood.
  With iron replacement Hb may INCREASE by 0.1-0.2 g/100 ml blood/day.

- **Therapy:**

  At least 250 mg ELEMENTAL iron daily is needed for maximum production. If blood loss is halted and diet corrected, smaller amounts regularly will be sufficient. Side-effects are often corrected by dose adjustment.

- **Check haemoglobin to assess change.**

- **Continue treatment for 3 months to replenish stores.**

ORAL IRON - For more information see BNF 9.1.1.

*Ferrous Sulphate	Tablets 200 mg (60 mg Fe)	1-3 tablets daily
*Ferrous Fumarate	Tablets 304 mg (100 mg Fe)	1 tablet or capsule daily
	Capsules 305 mg (100 mg Fe)	
	Syrup 140 mg (45 mg Fe)/5 ml	10 ml 1-2 times daily

IRON AND FOLATE FOR PREGNANCY

*Iron Plus Folate 'Galfer FA, Pregaday'	Tablets 100 mg Fe + Folate 350 micrograms	1 tablet daily

MACROCYTIC ANAEMIA - For more information see BNF 9.1.2.

- **Ensure adequate folate supplements before and during first trimester.**

*Folic Acid	Tablets 400 micrograms 5 mg	1 tablet daily
*Hydroxocobalamin (Vitamin B_{12})	Injection	1000 micrograms daily IM for 5 days then 3 monthly

VITAMINS

- **Except in starvation, bowel disease, renal disease or hepatic disease, true vitamin deficiency is rare in this society.**

- **Many foods now contain supplement of vitamins hence extra Vitamin A and D may be toxic.**

- **Vitamin prescriptions are no substitute for proper food in the young, pregnant or elderly.**

NORMAL ADULT DAILY NEEDS

- **Fat soluble vitamins (excess toxic):**

  Vitamin A - 2250 iu
  Vitamin D - 400 iu

- **Water soluble vitamins (excess excreted):**

Ascorbic Acid (Vitamin C)	**60 mg**
Thiamine (Vitamin B_1)	**1.5 mg**
Riboflavine (Vitamin B_2)	**1.3 mg**
Pyridoxine (Vitamin B_2)	**2 mg**
Nicotinamide	**20 mg**
Folate	**200 micrograms**
Vitamin B_{12}	**2 micrograms**

- **Vitamin D therapy:**

Prophylaxis	**500 iu daily**
Osteomalacia	**10,000-50,000 iu daily**

VITAMIN B - For more information see BNF 9.6.2.

Nicotinamide	Tablets 50 mg	
*Pyridoxine	Tablets 20 mg 50 mg	
Thiamine	Tablets 25 mg 50 mg 100 mg 300 mg	10-25 mg daily in mild chronic deficiency 200-300 mg daily in severe deficiency

VITAMIN C - For more information see BNF 9.6.3.

*Ascorbic Acid	Tablets 50 mg 200 mg 500 mg	50-500 mg daily

VITAMIN D - For more information see BNF 9.6.4.

Calcium and Ergocalciferol	Tablets Calcium 97 mg Ergocalciferol 10 micrograms (400 units)	
*Calciferol	Tablets, high strength 250 micrograms (Vitamin D 10,000 iu)	For dose see BNF 9.6.4.

VITAMIN K - For more information see BNF 9.6.6. and BNF 2.8.2.

Phytomenadione	Tablets 10 mg	1 tablet daily
	Injection 2 mg/ml 10 mg/ml in mixed micelles	For potentially fatal and severe haemorrhages 5 mg by slow IV injection following withdrawal of anticoagulant. For less severe haemorrhage 0.5-2 mg by slow IV injection. See BNF 2.8.2.

MIXED VITAMINS - For more information see BNF 9.6.7.

Multivitamins	Tablets	1-2 daily (Equivalent to Vitamins BPC Capsules)
*Parenteral Vitamins (maintenance) 'Pabrinex'		As needed. Change to oral therapy after initial dose or as soon as possible

- **Anaphylactic shock may occasionally follow injection.**

TOTAL PARENTERAL NUTRITION

Total parenteral nutrition (TPN) is the technique of providing complete nutritional support (protein, calories, fluids, electrolytes, vitamins, minerals and trace elements) when abnormalities or dysfunction of the gastrointestinal tract do not allow oral or enteral feeding, or when there are increased metabolic requirements due to surgery or sepsis that cannot be satisfied via the gastrointestinal tract.

Nutrients are infused into a central vein according to a strict protocol designed to avoid metabolic, infective and mechanical complications. A *standard* TPN solution (see below) should be used to provide approximately 1.5 g protein/kg body weight/day (0.24 g Nitrogen) and 125 Kcal/g nitrogen for most patients requiring TPN. Specialist advice should be sought for patients with special needs or with complex metabolic nutritional problems requiring prolonged nutritional support.

The standard TPN solution will be supplied by Pharmacy in the volume requested (usually 2500 ml) for 24 hour infusion. Fat emulsion (500 ml of 20% emulsion - 1100 Kcals) may be added to replace carbohydrate calories. The standard TPN solution is prepared under sterile laminar flow conditions in Pharmacy. No additions should ever be made to the bag after it leaves Pharmacy and no injection should be given into the intravenous feeding line. Manipulations of fluid/electrolyte and acid/base balance should be made using a separate peripheral intravenous infusion.

Important Points

1. If the gastrointestinal tract is available, use it!

2. The IV feeding line is '*sacrosanct*' and should be used exclusively for nutrient therapy.

3. Complications of TPN are usually due to violations of management protocol.

4. There is rarely any need for emergency nutritional intervention.

5. Nutritional support is also rarely required for patients who are without food for a limited period only.

STANDARD TOTAL PARENTERAL NUTRITION (TPN) SOLUTION*

CONTENTS

In 2500 ml		In 1000 ml	
N	16.5	6.6 g	N
Calories	2200	880	Cals
Na	98 mmol	39 mmol	Na
K	80 mmol	32 mmol	K
P	40 mmol	16 mmol	P
Ca	7.5 mmol	3 mmol	Ca
Mg	14 mmol	6 mol	Mg
Zn	40 micromol	22.4 micromol	Zn

+ Additrace and MV1-12

Additrace 1 x 10 ml amp contains		MV1-12 lyophilized 1 vial contains	
Iron	20 micromol	Ascorbic acid	100 mg
Zinc	100 micromol	Vitamin A	3300 USP units
Mn	5 micromol	Vitamin D	200 USP units
Cu	20 micromol	Thiamine (B1)	3.0 mg
Cr	0.2 micromol	Riboflavine (B2)	3.6 mg
Se	0.4 micromol	Pyridoxine (B6)	4.0 mg
Iodide	1 micromol	Nicotinamide	40.0 mg
Fluoride	50 micromol	Panthenol	15.0 mg
Molybdenum	0.2 micromol	Vitamin E	10 USP units
		Biotin	60 micrograms
		Folic acid	400 micrograms
		Cyanocobalamin (B12) (contains no Vitamin K)	5 micrograms

*. As used in RVH.

EYE PREPARATIONS

EYE PREPARATIONS - For more information see BNF 11.

- **In general principle it is better that patients with eye complaints are seen by an ophthalmologist before treatment is started.**
- **In particular, a slit-lamp assessment is required before using steroids or antiglaucoma drugs.**
- **Treat bacterial infection energetically ie hourly drops initially.**
- **Assess visual acuity in a patient with an eye complaint.**
- **Discard multi-application containers after one month of opening to avoid contamination.**
- **The Ophthalmology Department in RVH provides a 24-hour emergency service.**
- **Use single dose preparations, where available.**

BACTERIAL INFECTION - For more information see BNF 11.3.1.

- **Treat energetically ie drops hourly or ointment 3 hourly initially.**
- **Aplastic anaemia has been reported with chloramphenicol.**

*Chloramphenicol	Eye drops 0.5%	Apply hourly initially
	Eye ointment 1%	Apply 3 hourly initially
Fusidic Acid (To be used only when organism is resistant to chloramphenicol)	Eye drops 1%	Apply twice daily

VIRAL INFECTION - For more information see BNF 11.3.3.

*Aciclovir	Eye ointment 3%	Apply 5 times daily (continue for at least 3 days after complete healing)

GLAUCOMA - For more information see BNF 11.6.

- **A ophthalmologist must see before starting treatment.**

- **Most of these drugs have local and systemic effects - beta-blocker eye drops are contraindicated in patients with asthma or a history of COAD.**

*Pilocarpine	Eye drops 2% 4%	Apply qid
Adrenaline	Eye drops 1%	Apply bd
*Timolol	Eye drops 0.5%	Apply bd
Acetazolamide	Tablets 250 mg	2-4 tablets daily
	Capsules SR 250 mg	1-2 capsules daily

LOCAL ANAESTHETIC AGENTS

- For more information see BNF 11.7.

*Amethocaine	Eye drops 1%
Oxybuprocaine (Benoxinate)	Eye drops 0.4%

STEROIDS - For more information see BNF 11.4.

- **Slit-lamp assessment required before prescribing.**

- **Used under expert supervision.**

- **Do not prescribe for undiagnosed "red eye".**

Prednisolone	Eye drops 0.5%	Apply qid
Dexamethasone	Eye drops 0.1%	Apply qid
*Betamethasone	Eye ointment 0.1%	Apply 2-4 times daily

MYDRIATICS - For more information see BNF 11.5.

- **To dilate pupil - care where risk of closed angle glaucoma ie hypermetropic patients (long-sighted with magnifying spectacles).**

- **Warn patients not to drive for 12 hours after mydriasis.**

Tropicamide	Eye drops 1%	Standard, easily reversible mydriatic
Cyclopentolate	Eye drops 1%	For resistant cases only eg some diabetics
Atropine	Eye ointment 1%	

TEAR DEFICIENCY AND SYMPTOMATIC RELIEF

- For more information see BNF 11.8.1. and 11.8.2.

*Hypromellose	Eye drops 0.3%	As needed
Liquid Paraffin 'Lacri-Lube'	Eye ointment	As needed
Sodium Chloride 'Minims'	Eye drops 0.9%	As needed

DIAGNOSTIC PREPARATIONS

- For more information see BNF 11.8.2.

Fluorescein Sodium	Eye drops 1%	As needed
	Strips impregnated with approx 1 mg fluorescein sodium 'Fluorets'	One strip moistoned with tear fluid, sterile water or sterile ophthalmic solution

EAR, NOSE AND OROPHARYNX PREPARATIONS

EAR PREPARATIONS - For more information see BNF 12.1.

- **What are you trying to achieve with local preparations?**

- **If external otitis is still active after 2 weeks:**

  (a) Is there underlying otitis media?
  (b) Is the patient hypersensitive to the local preparation?

- **Gentamicin drops are not recommended for in-patients. They increase the risk of resistant organisms in the hospital.**

- **Analgesic drops are not recommended. Treat the cause of the earache and use simple systemic analgesics.**

WAX - For more information see BNF 12.1.3.

Sodium Bicarbonate	Ear drops BP

ANTIFUNGAL PREPARATIONS
- For more information see BNF 12.1.1.

Clotrimazole	Solution 1%	Apply 2-3 times daily for at least 14 days after disappearance of infection

STEROID PREPARATIONS - For more information see BNF 12.1.1.

Prednisolone	Ear drops 0.5%	2-3 drops tid

STEROID WITH ANTIMICROBIAL PREPARATIONS
- For more information see BNF 12.1.1.

Betamethasone Sodium Phosphate 0.1% Neomycin Sulphate 0.5% 'Betnesol-N'	Ear drops	2 or 3 drops 2 or 3 times daily
Polymyxin B Sulphate 0.1% Neomycin Sulphate 0.5% Hydrocortisone 1% 'Otosporin'	Ear drops	Instill 3 drops 2 or 3 times daily

Triamcinolone acetonide 0.1% Neomycin 0.35% 'Audicort'	Ear drops	2-5 drops into the ear 3-4 times daily

NASAL PREPARATIONS - For more information see BNF 12.2.

- **The treatment of long standing nasal obstruction is often surgical.**
- **Decongestants should not be used for long periods.**

NASAL DECONGESTANTS - For more information see BNF 12.2.2.

- **May cause rebound congestion.**
- **Limited use due to side-effects.**

Xylometazoline	Nasal drops 0.1% 0.05%	2-3 drops tid
	Nasal spray 0.1%	1-2 sprays tid

LOCAL ANTIMICROBIALS

- For more information see BNF 12.2.3.

- **For nasal vestibule.**

Chlorhexidine and Neomycin	Cream	Apply qid

DRUGS USED IN NASAL ALLERGY

- For more information see BNF 12.2.1.

*Beclomethasone Dipropionate	Nasal spray 50 micrograms/ metered spray	2 puffs in each nostril bd
Fluticasone Propionate	Aqueous nasal spray 50 micrograms/ metered spray	2 puffs in each nostril once daily

OROPHARYNGEAL PREPARATIONS

- For more information see BNF 12.3.

- **See example antibiotic policy - page 47.**

- **Has swab been taken?**

MOUTHWASHES - For more information see BNF 12.3.4.

Oral Rinse (Sodium Benzoate Thymol)	Tablets	1 tablet dissolved in half a tumbler of warm water as required
Chlorhexidine Gluconate	Mouthwash 0.2%	Use 10 ml after meals

LOCAL ANTIFUNGAL PREPARATIONS

- For more information see BNF 12.3.2.

- **See antifungal section page 52.**

Miconazole	Oral gel 25 mg/ml	5-10 ml in mouth after food. Retain near lesions before swallowing
Nystatin	Suspension 100,000 units/ml	1 ml qid
	Pastilles 100,000 units	1 qid

APHTHOUS ULCERS - For more information see BNF 12.3.1.

*Triamcinolone Acetonide in adhesive basis 'Adcortyl in Orabase'	Oral paste 0.1%	Apply a thin layer 2-4 times daily

SKIN PREPARATIONS

SKIN PREPARATIONS - For more information see BNF 13.

- **Steroids may mask diagnosis.**
- **'Treatment' can cause additional disease.**

EMOLLIENT AND BARRIER PREPARATIONS

- For more information see BNF 13.2.

*Aqueous Cream	Cream BP	Apply prn
E45 (Liquid Paraffin, Light White Soft Paraffin Wool Fat)	Cream	Apply prn
*Emulsifying Ointment BP	Ointment	Apply prn
Hydrous Ointment BP	Ointment	Apply prn
*Paraffin, White Soft BP	Ointment	Apply prn
Zinc and Castor Oil	Ointment	Apply prn
'Sudocrem'	Cream	Apply tid
Arachis Oil	Liquid	Apply prn Caution peanut allergy
Paraffin, Liquid	Liquid	Apply prn
'Diprobase'	Cream Ointment	Apply prn

EMOLLIENT BATH ADDITIVES

- For more information see BNF 13.2.2.

*'Emulsiderm' (Liquid Paraffin 25% Isopropyl Myristate 25% Benzalkonium Chloride 0.5%)	Liquid emulsion	Add 30 ml/bath
*'Balneum' (Soya Oil)	Bath oil	Add 20 ml/bath

*'Oilatum Emollient' (Liquid Paraffin Acetylated Wool Alcohols)	Bath additive	5-15 ml/bath

ANTIPRURITIC PREPARATIONS

- For more information see BNF 13.3.

Calamine Lotion Oily BP 1980	Lotion	Apply tid

TOPICAL CORTICOSTEROIDS

- For more information see BNF 13.4.

- **Group I preparation should only be used after dermatological consultation.**

- **Only Group IV preparations should be applied to the face.**

GROUP IV - MILD POTENCY

*Hydrocortisone 1%	Cream Ointment	Apply sparingly tid

GROUP III - MODERATELY POTENT

Alclometasone Dipropionate 0.5% 'Modrasone'	Cream Ointment	Apply sparingly 2-3 times daily
*Clobetasone Butyrate 0.05% 'Eumovate'	Cream Ointment	Apply sparingly
Desoxymethasone 0.05% 'Stiedex'	LP oily cream	Apply sparingly

GROUP II - POTENT

Betamethasone Dipropionate 0.05% 'Diprosone'	Cream Ointment	Apply sparingly
*Betamethasone Valerate 0.1% 'Betnovate'	Cream Ointment Lotion	Apply sparingly

Hydrocortisone Butyrate 0.1% 'Locoid'	Cream Lipocream Ointment	Apply sparingly
Fluocinolone Acetonide 0.025% 'Synalar'	Cream Gel Ointment	Apply sparingly
GROUP I - VERY POTENT		
*Clobetasol Propionate 0.05% 'Dermovate'	Cream Ointment	Apply sparingly

CORTICOSTEROID/ANTI-INFECTIVE PREPARATIONS

- For more information see BNF 13.4.1.

GROUP IV		
*Hydrocortisone 1% with Miconazole Nitrate 2% 'Daktacort'	Cream Ointment	Apply 2-3 times daily
Hydrocortisone 1% with Clotrimazole 1% 'Canesten-HC'	Cream	Apply thinly twice daily
GROUP III		
Clobetasone Butyrate 0.05% with Oxytetracycline 3% and Nystatin 100,000 units/g 'Trimovate'	Cream	Apply thinly up to 3 times daily
GROUP II		
Betamethasone 0.1% with Clioquinol 3% 'Betnovate-C'	Cream Ointment	Apply thinly 2-3 times daily
Hydrocortisone Butyrate 0.1% with Chlorquinaldol 3% 'Locoid C'	Cream Ointment	Apply thinly 2-3 times daily

GROUP I

Clobetasol Propionate 0.05% with Neomycin 0.5% and Nystatin 100,000 units/g 'Dermovate-NN'	Cream Ointment	Apply thinly once or twice daily

PREPARATIONS FOR PSORIASIS

- For more information see BNF 13.5.

- **Consult Department of Dermatology.**

*Calcipotriol 0.005%	Cream Ointment	Apply twice daily Maximum 100 g per week

COAL TAR PREPARATIONS

Coal Tar	Paste 3-10%	Apply 1-3 times daily
Tar Pomade (as per Pharmacy)		
*Coal Tar Extract 5% with Allantoin 2% 'Alphosyl'	Cream Lotion	Apply 2-3 times daily
Coal Tar 10% in Water Miscible Basis 'Carbo-Dome'	Cream	Apply 2-3 times daily
Coal Tar Extract 1% 'Clinitar'	Cream	Apply 1-2 times daily
Coal Tar Solution 5% Pine Tar 5% and Salicylic Acid 2% 'Gelcosal'	Gel	Apply twice daily
Coal Tar Solution 12% Salicylic Acid 2% Precipitated Sulphur 4% and Coconut Oil 'Cocois'	Ointment	Apply at night and remove by washing in the morning

- **For tar shampoos see shampoo section pages 87-88.**

DITHRANOL PREPARATIONS

- **Consult Dermatology Department.**
- **Protect eyes.**
- **Start with weak preparations.**
- **Meticulous application to affected skin only.**

PREPARATIONS FOR ACNE - For more information see BNF 13.6.

*Benzoyl Peroxide	Gel 2.5% 5% 10%	Apply 1-2 times daily, starting with lower strength preparation
	Cream 5%	
	Lotion 5% 10%	
	Wash 10%	

- **For oxytetracycline and erythromycin - see antibiotic section page 50.**

PREPARATIONS FOR WARTS

- For more information see BNF 13.7.

Salicylic Acid Collodion BP	12%	Apply daily
Formaldehyde	Gel 1.5%	Apply twice daily

SHAMPOOS AND SCALP APPLICATIONS

Arachis Oil	Liquid	Apply prn Caution peanut allergy
Liquid Paraffin	Liquid	Apply prn
*Arachis Oil Extract of Crude Coal Tar 0.3% Cade Oil 0.3% Coal Tar Solution 0.1% Oleyl Alcohol 1% Tar 0.3% 'Polytar Shampoo'	Liquid	Use twice weekly

Coal Tar Extract 2% 'T Gel'	Shampoo	Use 1-2 times weekly
*Ketoconazole 2%	Shampoo	Use twice weekly for 2-4 weeks. Avoid for 2 weeks following topical corticosteroid treatment

ANTI-INFECTIVE SKIN PREPARATIONS

- For more information see BNF 13.10.

*Mupirocin	Ointment 2%	Apply up to 3 times daily for up to 10 days
*Polymyxin B Sulphate 10,000 units Bacitracin Zinc 500 units/g in a Paraffin Basis 'Polyfax'	Ointment	Apply tid
Silver Sulphadiazine	Cream 1%	Apply as needed. Use tube or container once only

ANTIFUNGAL PREPARATIONS

- For more information see BNF 13.10.2.

- **See antifungal section page 52.**

- **Consult Department of Dermatology.**

Miconazole	Cream 2%	Apply bd continuing for 10 days after lesions have healed
	Oral gel 25 mg/ml	5-10 ml in the mouth after food 4 times daily Retain near lesions before swallowing
*Clotrimazole	Cream 1%	Apply 2-3 times daily
	Solution	

Nystatin	Cream 100,000 units/g	Apply 2-4 times daily
	Gel	
	Ointment	
	Suspension 100,000 units/ml	100,000 units 4 times daily after food

- **Dose and duration of systemic antifungal treatment is related to site and nature of infection.**

*Griseofulvin	Tablets 125 mg	0.5-1 g daily in divided doses
	Suspension 125 mg/5 ml	
Fluconazole	Capsules 50 mg 150 mg 200 mg	50 mg daily for 7-14 days
Itraconazole	Capsules 100 mg	100 mg daily
Terbinafine	Tablets 250 mg	1 daily for 2-6 weeks

ANTIVIRAL PREPARATIONS

- For more information see BNF 13.10.3.

*Povidone-Iodine	Paint 10%	Apply twice daily
	Ointment 10%	
Aciclovir	Tablets 200 mg	200 mg 5 times daily See also page 52
	Suspension 200 mg/5 ml	

PARASITICIDAL PREPARATIONS

- **Treat all household.**

- **The current EHSSB Head Lice Policy is malathion.**

*Malathion	Liquid 0.5% (aqueous)	Apply over whole body omitting the head and neck. Wash off after 24 hours
	Lotion 0.5% (alcohol)	Rub into dry hair, scalp and affected area. Allow to dry, comb and remove by washing 12 hours later
Phenothrin	Lotion 0.2% (alcohol)	Apply to dry hair, allow to dry naturally Shampoo after 2 hours, comb while still wet

SKIN DISINFECTING AND CLEANSING AGENTS

- For more information see BNF.

Sodium Chloride	Solution for Irrigation 0.9%	As required
Potassium Permanganate	Solution Tablets 400 mg	1 tablet to 4 L of water provides a 0.01% solution
*Povidone-Iodine	Antiseptic solution 10%	As required
	Ointment 10%	
Hydrogen Peroxide	Solution 6% 3%	As required
	Cream 1.5%	

DESLOUGHING AGENTS

- For more information see BNF 13.11.7.

Benzoic Acid 0.024% Malic Acid 0.36% Propylene Glycol 1.7% Salicylic Acid 0.006% 'Aserbine'	Cream	Apply prn
Benzoic Acid 0.15% Malic Acid 2.25% Propylene Glycol 40% Salicylic Acid 0.0375% 'Aserbine'	Solution	Apply prn

WOUND MANAGEMENT PRODUCTS

MEDICATED BANDAGES

- For more information see BNF 13.13.

Zinc Paste Bandage BP
Zinc Paste and Coal Tar Bandage BP

WOUND DRESSING PADS

- For more information see BNF 13.13.5.

Perforated Film Absorbent Dressing BP
Knitted Viscose Primary Dressing BP
Charcoal Cloth Dressing
'Actisorb Plus'

TULLE DRESSING

- For more information see BNF 13.13.6.

Paraffin Gauze Dressing BP
Povidone-Iodine Fabric Dressing

GEL AND COLLOID DRESSINGS

- **The interval between dressing changes depends entirely upon the state of the wound.**

- **Heavily exuding or malodorous wounds may require daily changes.**

- **Dry wounds are changed less frequently.**

Alginate Dressing, Type C
and Wound Packing
'Kaltostat' 'Comfeel Alginate'

Hydrocolloid Dressing, Sterile, Semipermeable
'Granuflex' 'Comfeel'

Hydrogel Dressing

FOAM DRESSING

Polyurethane Foam Dressing BP
'Lyofoam' 'Allevyn'

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To: DRUG AND THERAPEUTICS COMMITTEE _____

_____ HOSPITAL

FORMULARY ADDITION OR DELETION REQUEST

I/We wish to propose that the following items be added to the Formulary.

1. Brand Name _____

   Approved Name(s) _____

   _____

   _____

   Manufacturer _____

2. Forms/Strengths requested _____

   _____

3. I/We attach documentation to support the addition of this item to the Formulary. Its addition is proposed for the following reasons.

   ☐ It is a novel drug/formulation for which there is no existing equivalent.
   ☐ It has been shown to be clinically superior/safer than existing similar drugs.
   ☐ It is cheaper than existing similar drugs.
   ☐ Other _____

   _____

   _____

4. Usage of the following drugs may be expected to decline after its introduction _____

   _____

5. I/We would recommend the deletion of the following items from the Formulary _____

   _____

Signed:

Consultant _____ Specialty _____
Consultant _____ Specialty _____
Consultant _____ Specialty _____

Date _____