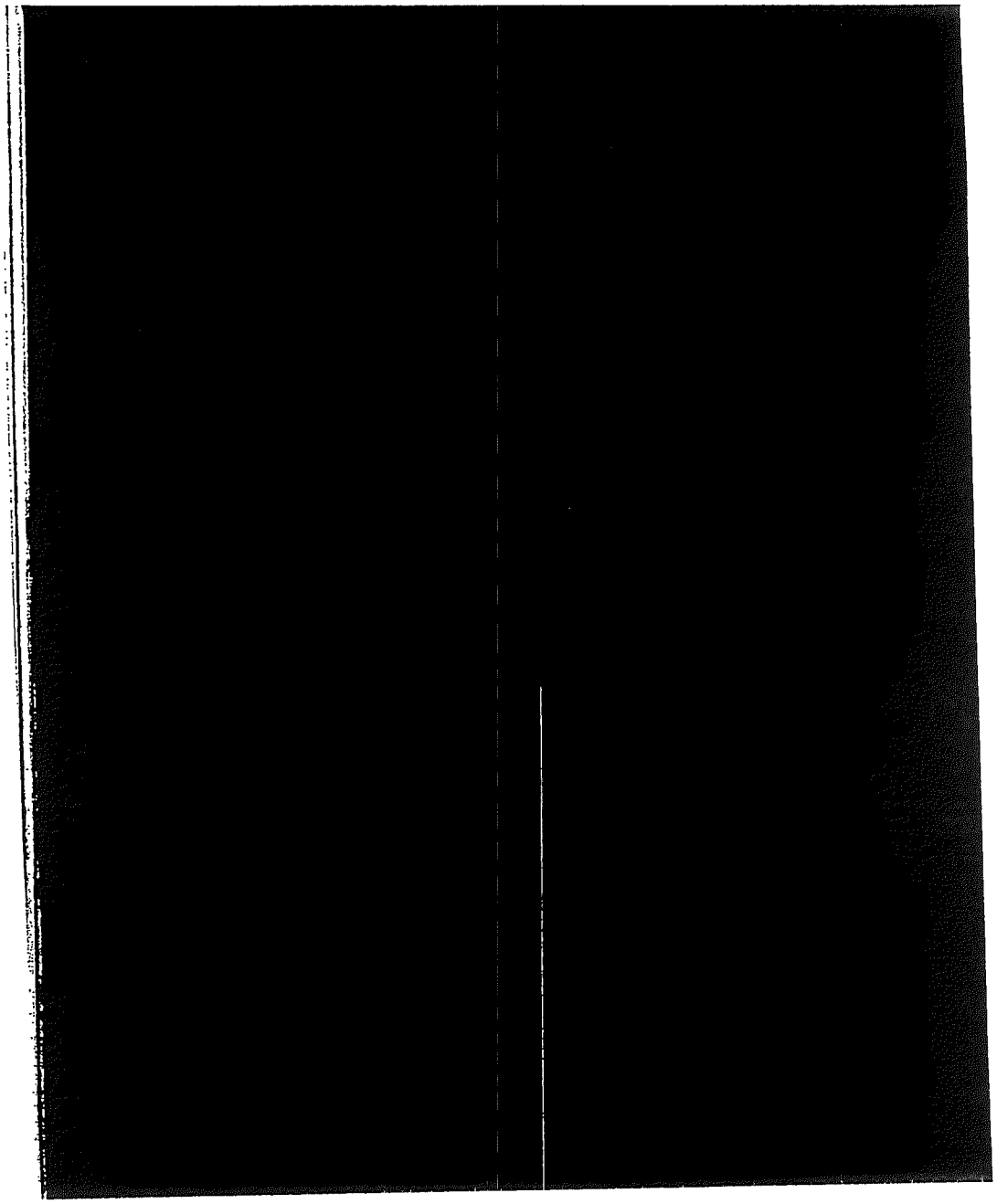
Paediatric Prescriber

ROYAL BELFAST HOSPITAL
FOR SICK CHILDREN

Paediatric Prescriber

Third Edition - July 1994

The ROYAL
HOSPITALS
Royal Belfast Hospital for Sick Children
180 Falls Road
Belfast BT12 6BE



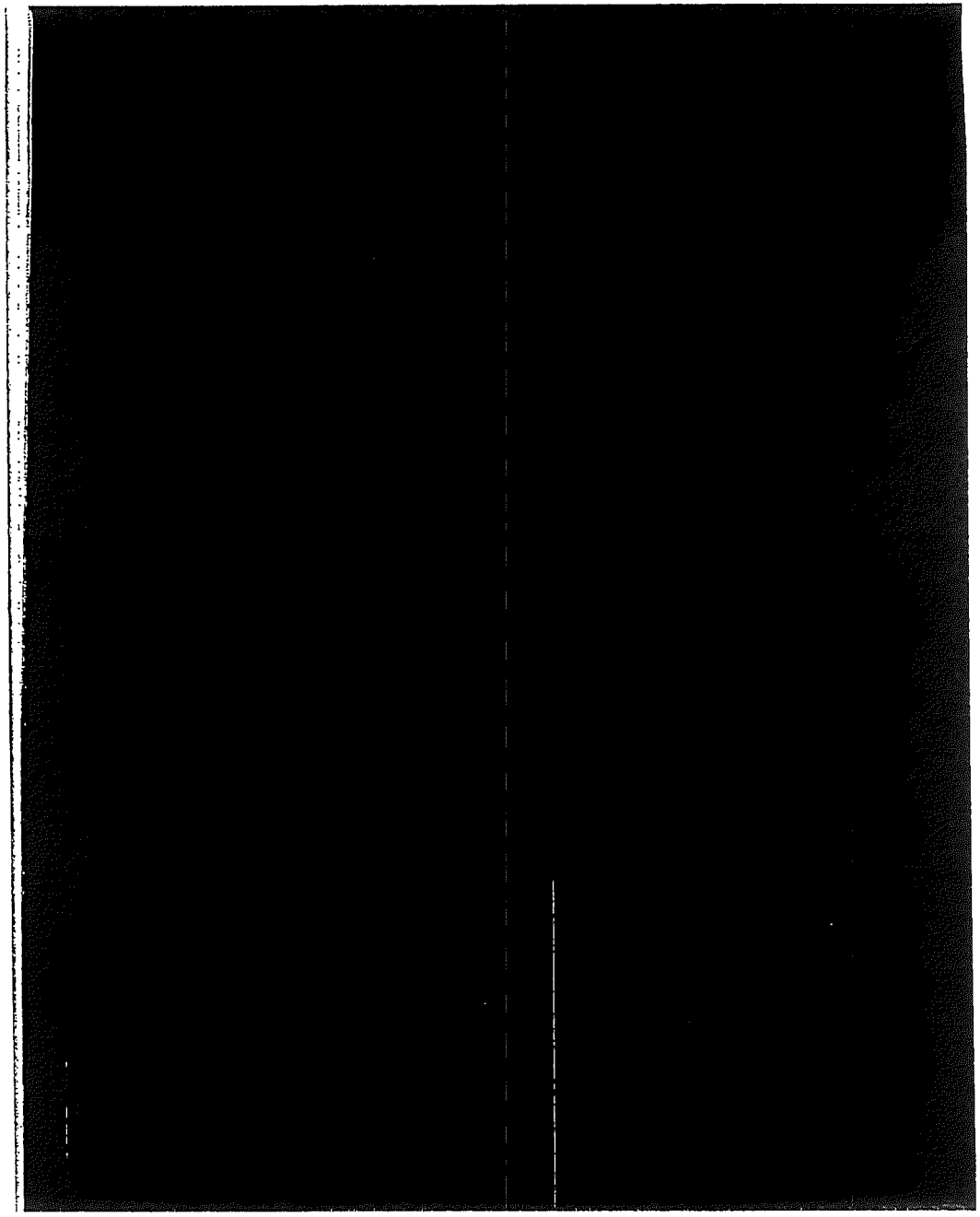
126

CONTENTS

Acknowledgements 1
General Guidelines 2
Gastrointestinal System 4
- Gastrointestinal Infections 5
- Infantile Gastrointestinal Reflux 5
- Reflux Oesophagitis And Peptic Ulcer Disease 6
- Helicobacter Pylori Gastritis 7
- Chronic Inflammatory Bowel Disease 8
- Liver Disease 9
- Orthotopic Liver Transplant 9
- Bowel Preparation 10
- Laxatives 11

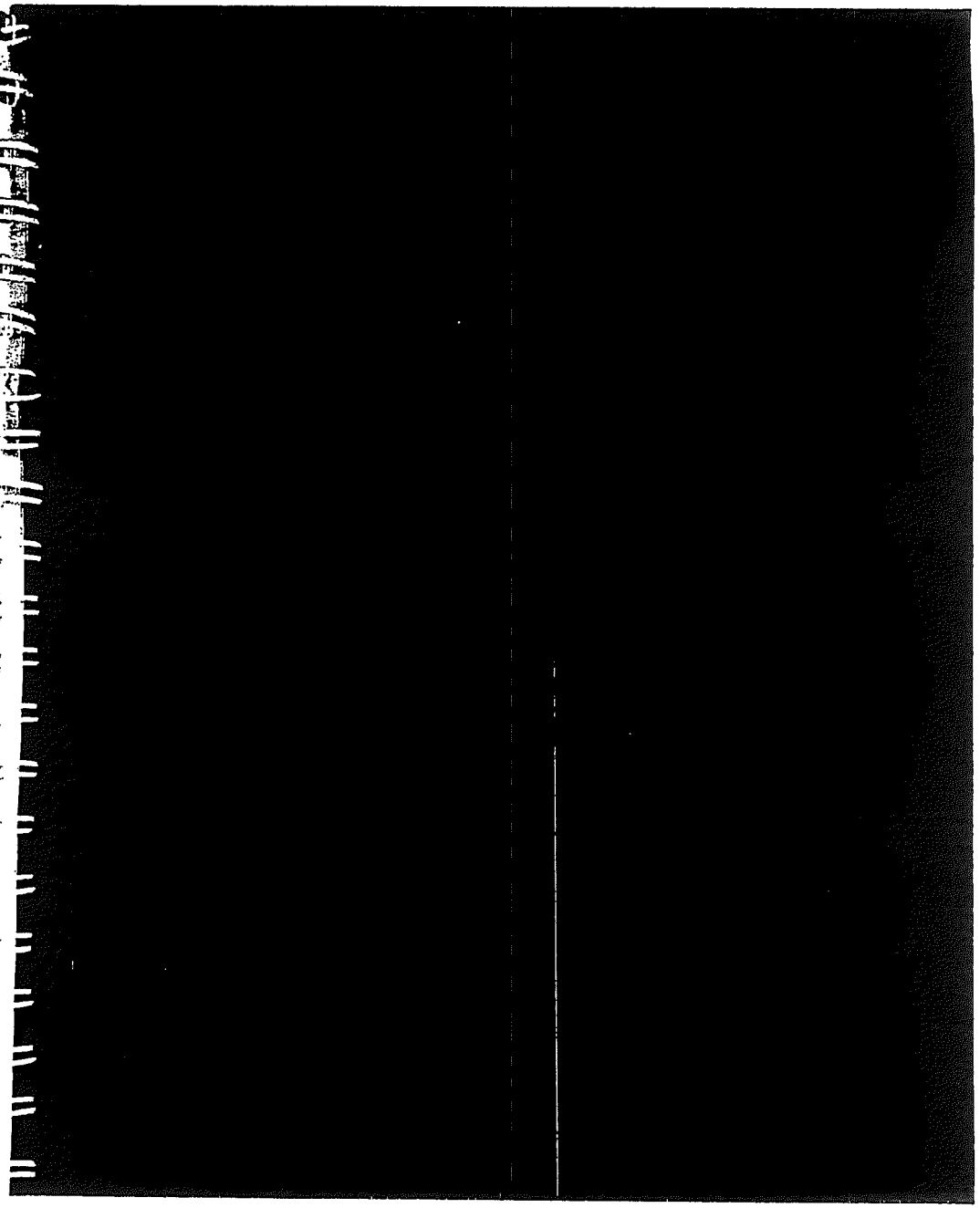
Cardiovascular System 12
- Congestive Heart Failure 13
- Cardiopulmonary Resuscitation 15
- Cardiac Dysrhythmias 17
- Duct Dependant Cyanotic Congenital Heart Disease 20
- Cyanotic Spells 21
- Antithrombotic Post Shunt Therapy 21
- Bacterial Endocarditis Prophylaxis 22
- Childhood Blood Pressure 28
- Antihypertensives 30

Respiratory System 34
- Acute Severe Asthma Attack 34
- Less Severe Exacerbations Of Asthma 36
- Management Of Childhood Asthma 37
- Drugs Used In Asthma 40

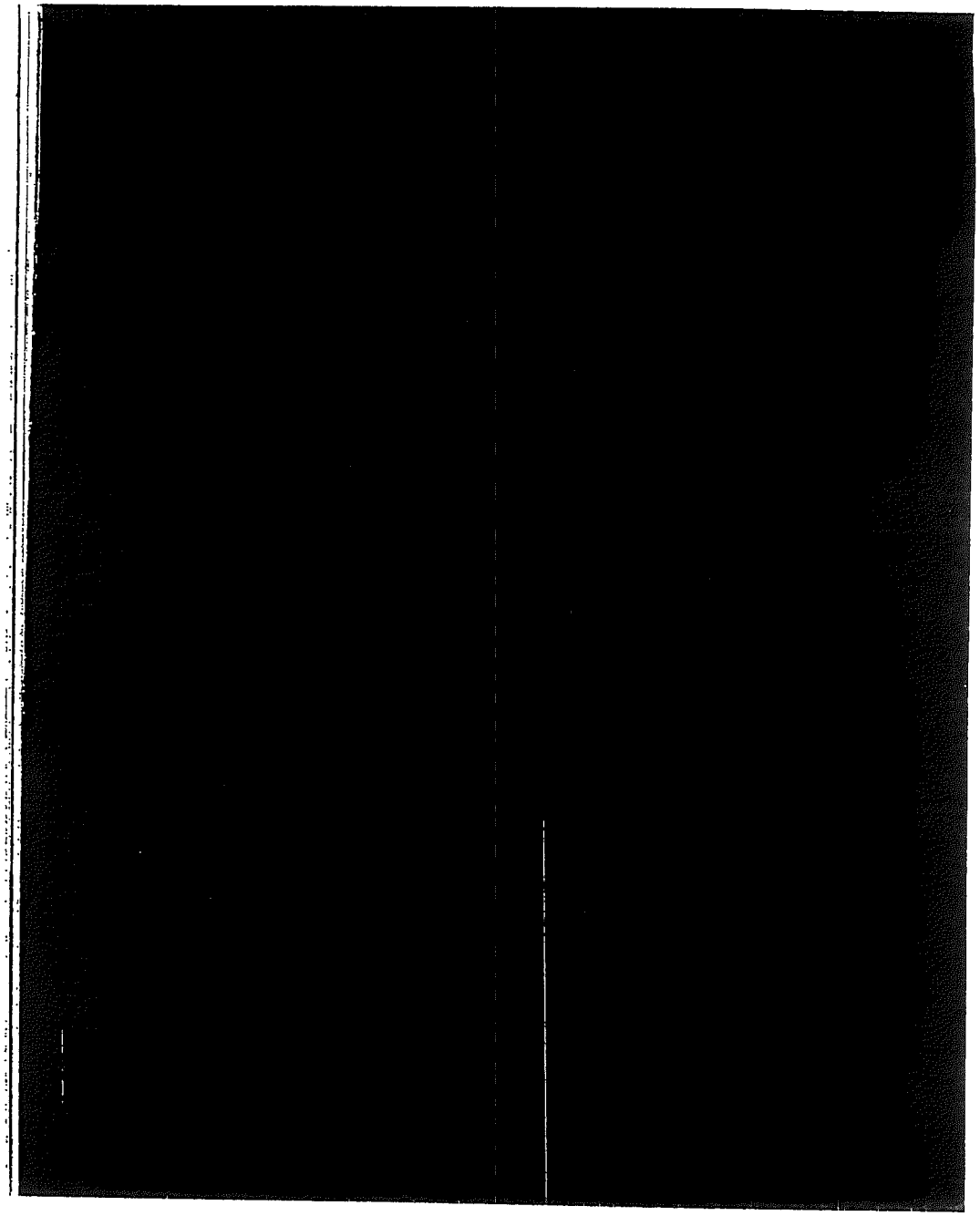


127

Central Nervous System 50
Classification Of Seizures 51
Seizure Syndromes Of Infancy And Childhood 52
Sleep EEG 54
Status Epilepticus 55
Drugs Used In Epilepsy 56
Analgesics 68
Sedatives 69
Infections 75
Life-Threatening Infections 75
Other Infections 78
Chemoprophylaxis To Prevent Bacterial Infection 79
Non-Bacterial Infections 81
Dosage Of Antibiotics 82
Endocrine System 98
Diabetic Ketoacidosis 98
Cerebral Oedema 104
Surgery In Diabetic Children 10
Hypoglycaemia 107
Insulin 10
Diagnostic Tests 110
Hormonal Therapy 11
Nephrology 116
Hyperkalaemia 11
Acidosis 117
Management Of Childhood Nephrotic Syndrome 118
Dangers Of Immunosuppressive Therapy 12
Dialysis 121
Management Of Peritonitis During Dialysis 12
Antibiotics Used In CAPD Peritonitis 123
Blockage Of PD Cannula 12
Other Drugs Used In Renal Disease 124
Renal Transplantation 12



Nutrition, Intravenous Infusions & Blood Products 126
Vitamin And Mineral Supplements 126
Guidelines To Infant Feeding 132
Parenteral Nutrition 132
Intravenous Fluids 136
Blood Products 137
Burns 139
Ear, Nose & Throat 142
Disorders Of The Ear 142
Disorders Of The Nose 145
Disorders Of The Mouth And Pharynx 147
Skin 148
Management Of Common Paediatric Skin Disorders 148
Poisoning 153
Treatment Of Poisoning - General Guidelines 153
Paracetamol 160
Antidotes 164
Anaphylaxis 166
Paediatric resuscitation chart 168
RBHSC Emergency Box Drugs - Paediatric Doses 170
Children's Average Weight (Kg) 171
Nomogram Of Body Surface Area 172
Alphabetical Index 174



Paediatric Prescriber

ACKNOWLEDGEMENTS

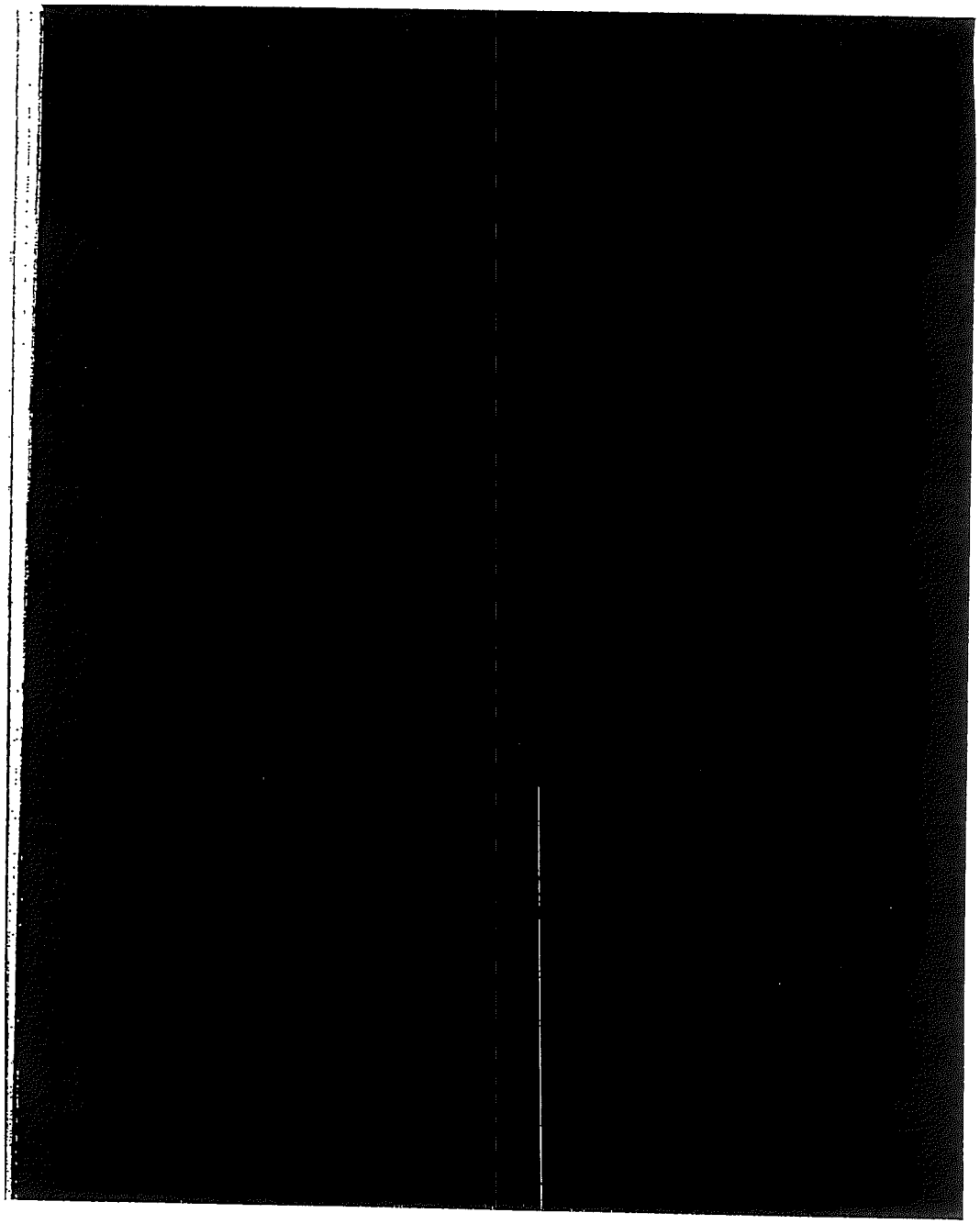
Compiled by:

ANNE BURNS (Pharmacy Department, Royal Hospitals)
DENNIS CARSON (Department of Child Health, RBHSC)

This booklet outlines the first-line drug therapy currently used in The Royal Belfast Hospital for Sick Children. We acknowledge with gratitude the contributions made by the following medical staff - Mr D A Adams, Dr D J Carson, Dr J R Corbett, Dr B G Craig, Dr M Dalzell, Dr S I Dempsey, Dr T Gallagher, Dr E M Hicks, Dr E Magill, Mr R Millar, Dr J M Savage, Dr M D Shields and Dr M C Stewart. Special thanks are due to Miss Cresta Bradley for her secretarial assistance.

We wish to thank the following:

The Welsh National Poisons Unit for permission to use their adaptation of the graph by Proudfoot 'plasma paracetamol concentrations'; Churchill Livingstone for permission to include the nomograms of body surface area; Dr Peter Oakley, Consultant Anaesthetist, North Staffordshire Hospital for permission to include the paediatric resuscitation chart; Smith & Nephew Pharmaceuticals Ltd for permission to include the body surface area chart.



130

GENERAL GUIDELINES

1. Drugs should be prescribed by their approved name, printed clearly in block capitals and dated.

2. The dosage of single drug preparations, whether in liquid or solid form, should be prescribed as a weight, ie gram (g), milligram (mg) or microgram (mcg).

3. The dosage of a preparation containing two or more drugs should be described using the proprietary name and quantity required eg Dioralyte one sachet 4 hourly, Ketovite liquid 5 ml once daily.

4. It is not acceptable to write prn alone after a drug. The minimum time interval, dose and route of administration must be specified.

5. Cancellation of a prescription should be carried out by drawing a line distinctly through the entry to be cancelled. The date of cancellation and signature should be written in the space provided.

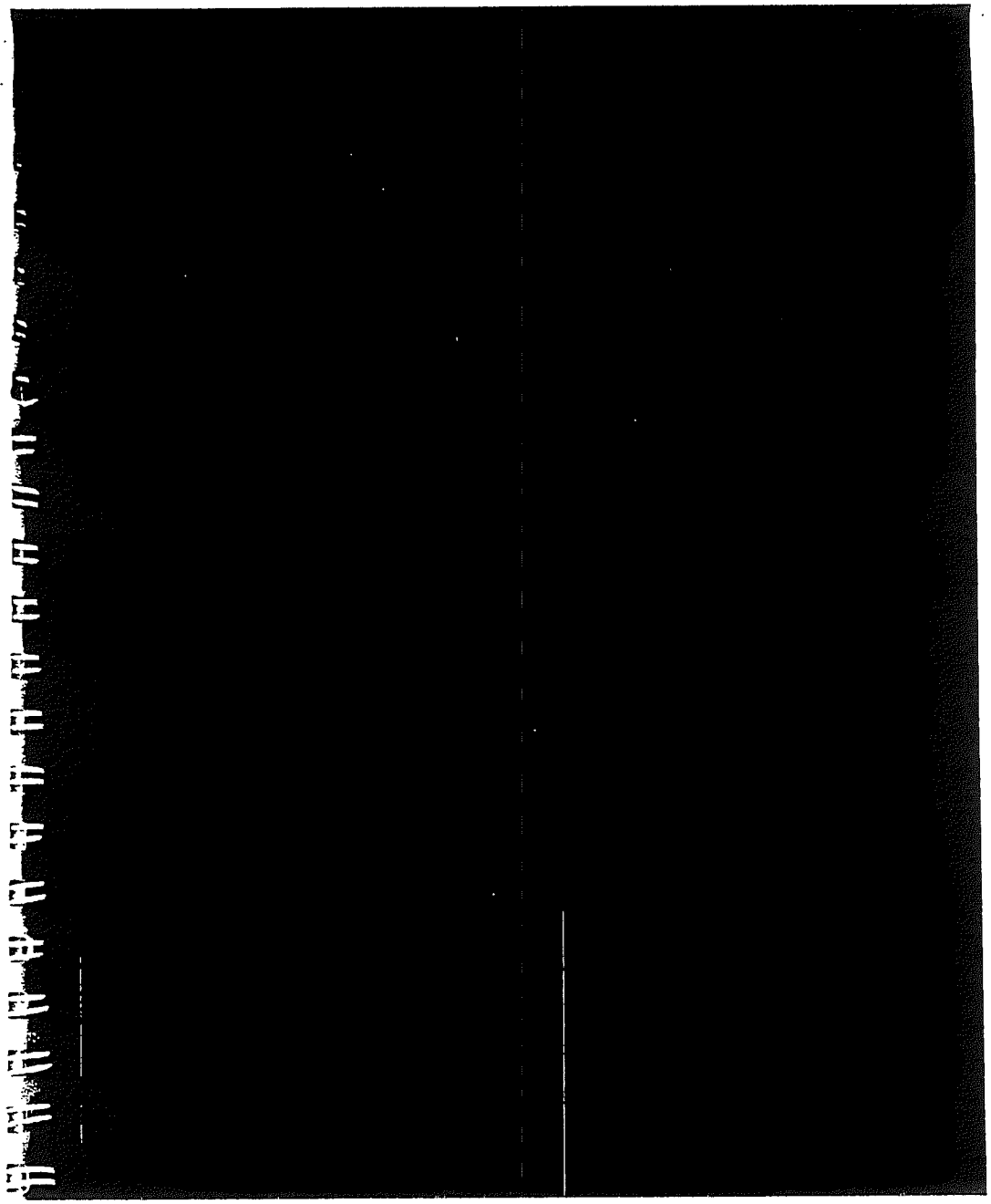
6. The ward sister or nurse in charge must be informed of any change in drug prescriptions.

7. Drugs dispensed from wards and A&E should be provided in child-resistant containers with the following information:

   (a) name of drug

   (b) dosage (for liquid preparations this should also be recorded as a volume for parents information)

   (c) route of administration



MANAGEMENT OF SEIZURES IN CHILDREN

Definitions

1. A seizure is a sudden, excessive, disorderly electrical discharge of neurones.

2. Epilepsy is a tendency to recurrent seizures.

NB Do not diagnose epilepsy after a single seizure.

OTHER CAUSES OF "TURNS"

these include
- Breath holding attacks
- Syncope
- Night terrors

CLASSIFICATION OF SEIZURES

The classification of every seizure is important for investigation and management. A simplified form of the latest International Classification of Seizures (NOT OF EPILEPSIES) is as follows:

1. **Partial (focal) seizures** (electrical discharge and seizure starting focally).

   (a) simple - consciousness is maintained.
   (b) complex - consciousness is impaired or lost
   (c) either (a) or (b) evolving to generalised tonic-clonic convulsion

2. **Generalised seizures** (electrical discharges and seizures starting bilaterally).

   Absence, tonic, clonic, tonic-clonic, atonic and myoclonic.

3. **Unclassifiable.**

   eg lack of adequate information about the seizure(s).

[redacted]

SEIZURE SYNDROMES OF INFANCY AND CHILDHOOD

Neonatal Seizures
Birth to 1 month.

Infantile Spasms (West's Syndrome)
1 to 12 months (max 2 to 6 months).

Febrile Seizures
6 months to 5 years.

Minor Motor (Myoclonic/Atonic) Epilepsy
2 - 6 years.

Primary Generalised Epilepsy
Absence - 3 to 13 years
Tonic-clonic - 5 to 15 years.

Partial (Focal) Epilepsy
Any age (NB benign focal epilepsy of childhood 5 to 10 years).

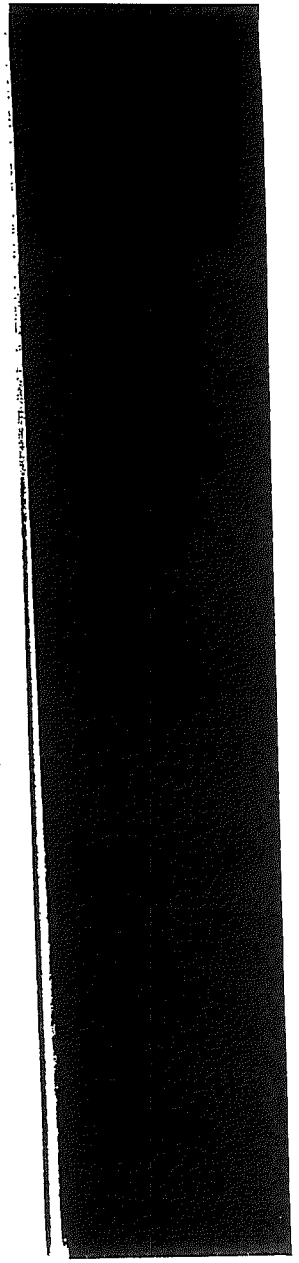
Secondary Seizures
eg hypoglycaemia, hyocalcaemia, hypertension.

ALWAYS REMEMBER

1. Seizures are common, alarming and potentially fatal or damaging
2. Seizures may indicate underlying disease or dysfunction of the brain.
3. Seizures often cause children to be given medication long term.
4. Every anticonvulsant has some unwanted effects.

General Guidelines

1. Diagnosis depends almost entirely on history. Energetically seek a cause of seizures.
2. A prolonged convulsion (>20 mins) is potentially serious and treatment should be considered to prevent recurrence.
3. Monotherapy is generally more effective than combinations.
4. Routine monitoring is not appropriate. Monitor serum drug concentration to detect non-compliance, toxicity or inadequate dosage. When taking blood also check full blood count, platelets and liver function tests.
5. When stopping therapy do so gradually especially with barbiturates and benzodiazepines.



15

6. At time of diagnosis discuss with parents the nature of the disorder, drug therapy, duration of treatment, potential side-effects, education and first aid for seizures. Give written information if possible after any seizure.

7. Remember to give advice about safety at home eg shower preferable to bath, supervise swimming, cycling, climbing and advise about photic sensitivities.

SLEEP EEG

During an EEG, interictal epileptiform activity may be enhanced by hyperventilation, photic stimulation or a short period of sleep.

Preparation for Sleep EEG

1. Curtail night's sleep before EEG to 5 hrs.

2. Normal meals and medicines are important but avoid stimulants such as caffeine eg Coca-Cola on the day of test

3. If necessary give chloral hydrate 30-50 mg/kg immediately before recording.

STATUS EPILEPTICUS

Seizures ↓	DIAZEPAM ↓	(1 mg per year + 1) high rectal or slow IV
> 10 mins ↓ →	PHENYTOIN ↓	15 mg/kg (max 1g) slow IV push (Rate 1 mg/kg/min) (if on phenytoin chronically 10 mg/kg)
+ 20 mins ↓	Diazepam ↓	Repeat dose
+ 10 mins	Phenobarbitone 10-20 mg/kg	Monitor respiration continuously ? Admit to ICU

- "ABC" of resuscitation (see page 15)
- Maintain homeostasis; monitor vital signs; keep thinking of cause; ? tests
- Once seizure controlled, institute maintenance therapy, keep parents informed and supported. In older children/adolescents/adults - watch out for 'pseudo seizures' status.

[redacted]

DRUGS USED IN EPILEPSY

TYPE OF EPILEPSY	FEATURES OF SEIZURE	DRUGS	INVESTIGATIONS	PROGNOSIS AND PLANS
Primary generalised absence	Short staring attacks	ethosuximide sodium valproate clonazepam	EEG 3 per second spike and wave.	Usually easily controlled. Treat until 2 yrs free of seizures. Then try off drug.
tonic-clonic	Generalised convulsion	carbamazepine phenytoin sodium valproate clobazam valproate	EEG generalised discharges.	EEG may help.
absence + tonic-clonic				CT/MRI usually reserved for intractable cases
Partial (focal) simple	Focal features, fully conscious	carbamazepine sodium valporate	Look for underlying focal cerebral cause. Tests include metabolic and infective screen, Wood's light examination of skin, CT/MRI scan, ultrasound scan of head in infants. EEG is normal or shows focal discharges, more obvious during sleep.	Control may be elusive, especially if a structural lesion is identifiable. Same rules as above. Drug combinations may be necessary, but are unlikely to improve control over adequate monotherapy. Resective surgery in selected, medically intractable cases.
complex	Focal features, unaware or frankly unconscious.	phenytoin clobazam vigabatrin lamotrigine		
evolving	Secondary generalised convulsion.			
Infantile spasms	"Salaam attacks" or less florid variants. May be extension in attacks, also laugh or cry.	(a) ‡ACTH 20-100 IU/day (2-6 weeks) (b) vigabatrin (c) nitrazepam clonazepam sodium valproate lamotrigine	Full investigation needed as above. Cases split into two groups: (a) cryptogenic; (b) symptomatic.	Prognosis is very poor, especially in the symptomatic group. Most have chronic epilepsy with moderate to severe mental handicap and variable neurological dysfunction.

TYPE OF EPILEPSY	FEATURES OF SEIZURES	DRUGS	INVESTIGATIONS	PROGNOSIS AND PLANS
Minor motor epilepsy (myoclonic/atonic)	Mixture of seizures: myoclonic jerks, atonic (drop) attacks, "atypical absence", tonic and tonic-clonic.	clonazepam/clobazam sodium valproate nitrazepam ethosuximide vigabatrin lamotrigine	As above.	Prognosis poor for this group. Seizures often intractable and interfere with function even when mental and neurological handicap minimal. Ketogenic diet may be useful, but difficult. Avoid phenobarbitone. Consider callosotomy.
"Sylvian" seizures	Focal seizures with prominent orobucco-facial features.	carbamazepine sodium valproate phenytoin	EEG often dramatically abnormal with florid rolandic discharges especially when drowsy.	Control usually very easy. EEG guides remission usually in early teens. Prognosis for ultimate remission is good.
Isolated myoclonic epilepsy	Small boys or teenagers with myoclonus usually in the morning	clonazepam sodium valproate	EEG generalised spike and polyspike discharges +/- photosensitivity.	In Juvenile Myoclonic Epilepsy, lifelong treatment is required.
Reflex epilepsy	Absence or myoclonus precipitated by a variety of stimuli.	sodium valproate (or nil)	EEG may show photosensitivity.	Avoid stimulus. May remit or be life-long.
Neonatal seizures	Variable: generalised, focal or multifocal, clonic, tonic, myoclonic, "minimal" or "subtle".	phenobarbitone phenytoin (IV only) clonazepam	Always secondary eg infection, metabolic, structural disorders. If intractable, try pyridoxine 50-100 mg IV during EEG recording.	Prognosis depends on cause and extent of insult. NB In infants absorption of orally administered phenytoin is unpredictable. Caution with benzodiazepines because of respiratory depression.

[redacted]

87

DRUG	MAJOR USES	DOSE	THERAPEUTIC LEVEL (TROUGH)	COMMENTS
Phenobarbitone	Neonates and infants < 6 mths. IV in status epilepticus	Load: 10-20 mg/kg IV slowly. Maintenance: orally 5-10 mg/kg/day (neonates) 5 - 6 mg/kg/day (infants) Once daily	20 - 40 mg/l	An excellent and safe anti-convulsant, but excessive side effects. Contra-indicated in school age children. Tablets 15 mg, 30 mg, 60 mg, 100 mg. Injection 15 mg, 30 mg and 200 mg in 1 ml. Various strengths of oral liquid available as a special from Pharmacy.
Ethosuximide	Absence (petit mal), some myoclonic/atonic seizures.	< 5 yrs 125 mg/day 5 - 10 yrs 250 mg/day > 10 yrs 500 mg/day usually in 2 divided doses. Push dose if tolerated (max 1g)	40 - 100 mg/l	Excellent for a narrow band of seizure types. Relatively safe and inexpensive. Capsules 250 mg. Elixir 250 mg/5 ml "Emeside" more palatable than Zarontin".

[redacted]

179

DRUG	MAJOR USES	DOSE	THERAPEUTIC LEVEL (TROUGH)	COMMENTS
Phenytoin	Partial (focal) seizures, generalised tonic-clonic convulsion, IV in status epilepticus.	Load: 15-20 mg/kg IV (max 1 g) - slow push at a rate not >1 mg/kg/min Maintenance: orally 5 - 6 mg/kg/day in young children. Once daily. Lower dose/kg for older children. Adult dose approximately 300 mg/day	Blood levels are useful - aim for a level of 15-20 mg/l	Excellent anti-convulsant both IV (rapid onset of action, non-sedative) and orally. Unwanted effects eg allergic rash, gum hypertrophy limit use. NB all preparations have different bioavailability. Do not interchange. Phenytoin base 90 mg is equivalent to Phenytoin Sod 100 mg "Epanutin" mixture 30 mg/5 ml phenytoin base Infatab 50 mg phenytoin base capsules 25 mg, 50 mg, 100 mg phenytoin sod. Shake mixture thoroughly.
Lamotrigine	3rd line drug for infantile spasms, minor motor seizures, resistant absences, partial seizures	<u>Child not taking valproate</u> 2 mg/kg/day for 2 wks, then 5 mg/kg/day for 2 wks, then 5-15 mg/kg/day maintenance in 2 divided doses <u>Child taking valproate</u> 0.2 mg/kg/day for 2 wks, then 0.5 mg/kg/day for 2 wks, then 1-5 mg/kg/day maintenance in 2 divided doses		Newly licensed for paediatric use June 1994 Adverse effects: drowsiness, unsteadiness or hyperactivity. Skin rash may evolve to Stevens-Johnson syndrome Tablets 25 mg, 50 mg, 100 mg Dispersible tablets 5 mg, 25 mg, 100 mg

		DOSE	THERAPEUTIC LEVEL (TROUGH)	COMMENTS
Carbamazepine	Partial (focal) seizure. Generalised tonic-clonic convulsions	10-30 mg/kg/day in 2-3 divided doses. The total daily oral dose should be increased by 25% to achieve the rectal dose	8 - 12 mg/l	Excellent drug. Minimal effect on school performance. Start with low dose and increase. Allergic rash can occur. Max dose 1.6 g/day. Tablets 100 mg, 200 mg, 400 mg. Chewtabs 100 mg Syrup 100 mg/5 ml. 'Tegretol Retard' tablets modified-release, 200 mg, 400 mg Suppositories 125 mg, 250 mg
Sodium valproate	Absence, especially in association with generalised convulsions. Infantile spasms. Myoclonus, tonic, reflex seizures.	20-40 mg/kg/day orally or by IV infusion in two divided doses. Initially 5mg/kg bd increasing slowly by 5 mg/kg bd according to response up to maximum 40 mg/kg/day	40 - 100 mg/l	Wide "spectrum" of activity but unwanted effects are serious eg liver dysfunction may occur. Tabs 200 mg, 500 mg. Tabs crushable 100 mg Syrup 200 mg/5 ml. Injection 400 mg vial. FBP, platelets and LFTs should be checked for first 3 mths of therapy.
Paraldehyde	Intractable convulsive seizures/status epilepticus.	1 ml/yr mixed in equal volume with mineral oil. Given rectally. May be repeated in 1 hr then half dose 3 hourly	-	Safe. May also be used IV. Max single dose 10 ml. Repeated doses may cause proctitis.

DRUG	MAJOR USES	DOSE	THERAPEUTIC LEVEL	COMMENTS
Vigabatrin	Second or third line drug for: - infantile spasms - partial seizures Add on therapy for medically refractory epilepsy	40-100 mg/kg/day in 2 or 3 divided doses		Caution in myoclonus. Tablets 500 mg Powder in sachets 500 mg
Benzodiazepines Diazepam	Status epilepticus.	(age in yrs + 1) mg Give slowly IV or rectally.	-	injection (solution) 5 mg/ml injection (emulsion) 5 mg/ml "Stesolid" rectal tubes 5 mg and 10 mg in 2.5 ml solution. 1.25 mg and 2.5 mg strengths available as a 'special' from pharmacy.
Nitrazepam	Infantile spasms. Chronic therapy in some epilepsies.	2.5 mg nocte and bd - qid Increase slowly	-	Suspension 2.5 mg/5 ml. Tablets 5 mg
Clonazepam	Myoclonic/atonic, partial, generalised epilepsies.	The initial dose should not exceed 250 mcg nocte (0-5 yrs) or 500 mcg nocte (5-12 yrs). This may be increased slowly until a suitable maintenance dose is achieved usually in the range: 0.5 - 1 mg/day (0-1 yr) 1-3 mg/day (1-5 yr) 3-6 mg/day (5-12 yr)	-	Tablets 0.5 mg, 2 mg Injection 1 mg/ml. Given in two divided doses.
Clobazam	Myoclonic/atonic, partial, generalised epilepsies.	10 mg tid		Capsules 10 mg ‡Tablets 5 mg

ANALGESICS

An acute pain service is available at the Royal Belfast Hospial for Sick Children. Junior staff seeking advice about analgesia, in particular systemic opiates, should contact the consultant anaesthetist on duty in the Intensive Care Unit.

Paracetamol may be adequate for mild intensity pain or as a supplement to other forms of analgesia. It is often prescribed for its antipyretic effect. The oral route is best since rectal absorption is erratic.

Aspirin should only be prescribed for children <12 yrs in specific clinical conditions, eg rheumatoid arthritis or Kawasaki disease.

In general intramuscular analgesia should be avoided in children.

(See table of analgesic drugs on pages 70 and 71).

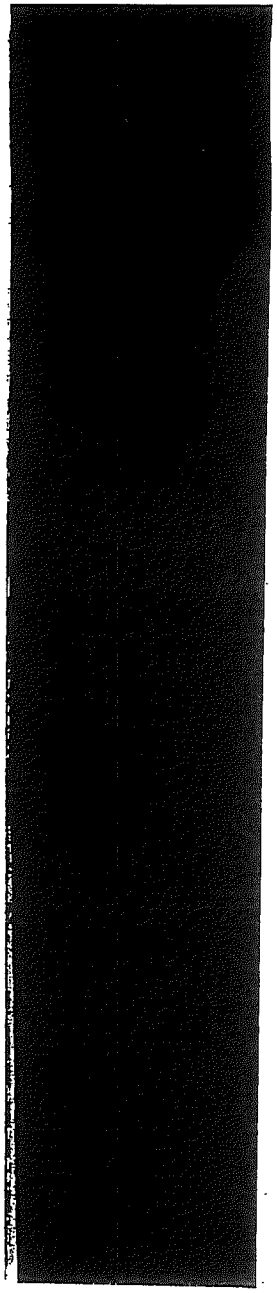
SEDATIVES

In general sedative drugs should only be prescribed after careful consideration of the clinical condition.

Pain should be treated with an analgesic rather than a sedative.

Antihistamines are sometimes chosen for their sedating effect in pruritus (see page 152).

(See table of sedative drugs on pages 72 and 73).



DRUG	ROUTE	SINGLE DOSE	NOTES
Paracetamol	Oral Rectal	60 - 120 mg (<1 yr) 120 - 250 mg (1 - 5 yrs) 250 - 500 mg (6 - 12 yrs)	May be repeated 6 hourly if necessary. Tablets 500 mg Oral suspension 120 mg/5 mls, 250 mg/5 mls Suppositories 120 mg, 240 mg
Ibuprofen	Oral	50 mg (1 - 2 yrs) 100 mg (3 - 7 yrs) 200 mg (8 - 12 yrs)	Can be given tid - qid Not recommended for children under 1 year or children weighing less than 7 kg. Suspension 100 mg/5 ml
*Diclofenac sodium	Oral Rectal	1 mg/kg	May be repeated 8 - 12 hourly if necessary Not to be used in children < 1 year or in any patients with a bleeding disorder. Caution in patients with renal or hepatic disease or those having urological surgery
Dihydrocodeine tartrate	Oral IM	500 mcg/kg	May be repeated 4 - 6 hourly if necessary. Not generally recommended < 4 yrs. Elixir 10 mg/5 ml Injection 50 mg/ml
Pethidine hydrochloride	IV/IM	1.0 - 1.5 mg/kg	May be repeated 6 hourly if necessary Produces prompt but short-lasting analgesia. Injection 50 mg/ml.
Morphine sulphate	IV/IM	100 - 200 mcg/kg	Titrate dose according to response. Monitor respiratory system closely.

[redacted]

SEDATIVES

DRUG	ROUTE	SINGLE DOSE	NOTES
Chloral hydrate	Oral	20 - 50 mg/kg	Order strength as required from pharmacy Give well diluted in water or juice.
CM3 Pethidine 25 mg/ml Chlorpromazine 6.25 mg/ml Promethazine 6.25 mg/ml	 IM IV	 0.1 ml/kg 0.05 ml/kg	 Monitor cardiopulmonary function carefully 2.15 ml ampoule
Diazepam	IV	0.1 - 0.2 mg/kg	Give slowly Caution - transient respiratory depression.
Promethazine hydrochloride	Oral	5-10 mg (6-12 mths) 15-20 mg (1-5 yrs) 20-25 mg (6-10 yrs)	Syrup 5 mg/5ml. Tablets 10 mg and 25 mg. If given twice daily use lower dose.
Trimeprazine	Oral	2-4 mg/kg	Tablets 10 mg. Syrup 7.5 mg/5 ml. Forte 30 mg/5ml

[redacted]

INFECTIONS

TREATMENT OF BACTERIAL AND OTHER INFECTIONS

Before starting therapy every effort must be made to obtain appropriate specimens for culture. Blood, urine and CSF will usually be required in seriously ill infants and sputum in older children with pneumonia.

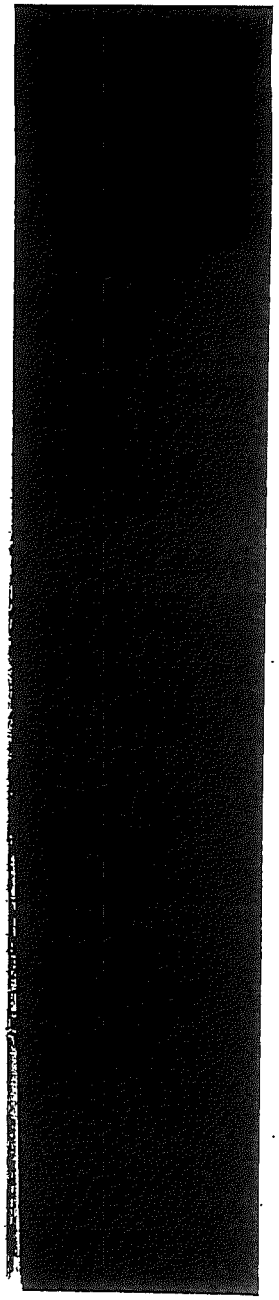
The following guidelines apply only to initial treatment. Subsequent therapy will be modified according to the clinical course and the results of culture sensitivity.

LIFE-THREATENING INFECTIONS

MENINGITIS

Neonatal	Consider Group B streptococcus, Escherichia coli, Listeria monocytogenes. Cefotaxime and Ampicillin.
Infants and Children	Consider Neisseria meningitidis, Haemophilus influenzae type B, Streptococcus pneumoniae 1. Cefotaxime 2. Benzylpenicillin and chloramphenicol 3. Ceftriaxone as a once daily treatment
Tuberculous	Isoniazid, rifampicin and pyrazinamide (+ pyridoxine)

NB Notify all cases to public health medicine within 24 hours of recognition (by telephone and written document)



Papilloedema	Coma
Hypertension	Bradycardia
Bradypnoea or irregular respirations	Fixed dilated or unequal pupils
Absent doll's eye movements	Septic Shock
Tonic Seizures	Recent or prolonged convulsive seizures
Hemiparesis	Decerebrate or decorticate posture
Platelet count <50,000	

SEPTICAEMIA

Neonatal	Cefotaxime and ampicillin
Infants and Children	Cefotaxime

EPIGLOTTITIS

Haemphilus influenzae most common

1. Cefuroxime
2. Cefotaxime and flucloxacillin

PNEUMONIA

<5 years	Consider Streptococcus pneumoniae, Haemphilus influenzae, Staphylococcus aureus. 1. Cefuroxime (+/- erythromycin) 2. Cefotaxime (+/- flucloxacillin)
>5 years	Benzylpenicillin (lobar pneumonia) Erythromycin (Mycoplasma pneumoniae) Cefuroxime and erythromycin (bronchopneumonia) Add metronidazole if aspiration suspected.

PERFORATED APPENDIX

Cefuroxime and metronidazole

[redacted]

181

OTHER INFECTIONS

URINARY TRACT INFECTIONS

Cefotaxime if parenteral fluids required otherwise:

1. Trimethoprim
2. Cephalexin

SEPTIC ARTHRITIS AND OSTEOMYELITIS

Organism Unknown	Consider Staphylococcus aureus and Haemophilus influenza IV cefuroxime and oral fusidic acid
Staphylococcus aureus infection	IV flucloxacillin + oral fusidic acid

PERI-ORBITAL CELLULITIS

Consider	Haemophilus influenza, Staphylococcus aureus, Streptococcus pneumonia
	Cefuroxime if IV fluids required otherwise Augmentin orally

TONSILLITIS

<3 years	Amoxycillin Azithromycin
>3 years	Phenoxymethylpenicillin

OTITIS MEDIA

Amoxycillin, Augmentin
Azithromycin

CHEMOPROPHYLAXIS TO PREVENT BACTERIAL INFECTION

MENINGOCOCCAL SEPTICAEMIA AND MENINGITIS

Offer chemoprophylaxis to all contacts who in the 10 days prior to the illness:

1. shared living accommodation with the patient
2. were kissing contacts
3. gave mouth to mouth resuscitation

NB Give prophlylaxis to index case before discharge

Rifampicin

Adults and children >12 years	600 mg twice daily for 2 days
1 - 12 years	10 mg/kg twice daily for 2 days
0 - 12 months	5 mg/kg twice daily for 2 days

Ceftriaxone is the first choice in pregnant contacts or in those where compliance is in doubt 250 mg as single IM injection - adults, 125 mg as single IM injection under 12 years.

Vaccine to immediate family and close contacts if Group A or Group C Neisseria meningitidis identified.

[redacted]

HEMOPHILUS INFLUENZA TYPE B INFECTION

a. Household members of the index case if there is another child of less than 4 years in the home who has not been fully vaccinated. In addition, the contact should have been for 4 hours or more per day with the index case for at least 5 days out of the previous 7

b. All room contacts - teachers, carers and children where 2 or more cases of the disease have occurred in a play group, nursery or crèche within 120 days.

Rifampicin 20 mg/kg once daily for 4 days up to a maximum of 600 mg per day. Children under 3 months not treated.

Hib vaccine to any unimmunised household or room contact under 4 years of age and the index case.

VESICOURETERIC REFLUX AND RECURRENT UTI

1. Trimethoprim 1-2 mg/kg nocte
2. Cephalexin 5-10 mg/kg nocte
3. Nitrofurantion 1-2 mg/kg nocte

BACTERIAL ENDOCARDITIS - see pages 22 - 27.

WHOOPING COUGH

To close contacts (especially infants)
Erythromycin 40 mg/kg/day in divided doses for 14 days.

NON-BACTERIAL INFECTIONS

CANDIDIASIS	Nystatin
	Fluconazole
FUNGAL INFECTIONS	Amphotericin
GIARDIASIS	Metronidazole
	Tinidazole
PNEUMOCYSTIS CARINII	High dose co-trimoxazole
	Pentamidine
HERPES VIRUSES	Acyclovir
	Anti-varicella-zoster immunoglobulin and acyclovir for immunocompromised patients
CHLAMYDIA TRACHOMATIS	Conjunctivitis -tetracycline eye drops and oral erythromycin
	Pneumonia - erythromycin

DOSAGE OF ANTIBIOTICS

See following tables.

DRUG	ROUTE	TOTAL DAILY DOSE (tdd) NEONATE	1 MTH - 12 YRS	TIMES DAILY (divide tdd by this figure)	NOTES
Acyclovir	Oral	Not recommended	500 mg (<2 yrs) 1000 mg (2 - 12 yrs)	5	**Herpes Simplex**
				5	reduce oral dose in severe renal impairment
		Not recommended	800 mg (<2 yrs) 1600 mg (2 - 5 yrs) 3200 mg (6 yrs and over)	4	**Herpes Zoster** Consider IV if immunocompromised
				4	Tablets 200 mg and 400 mg suspension 200 mg/5 ml and 400 mg/5 ml
				4	
	IV infusion	30 mg/kg (0-3 mths)	15 mg/kg ($750\ mg/m^2$) (3 mths - 12 yrs)	3	**Herpes Simplex** **Recurrent Varicella Zoster**
		30 mg/kg (0-3 mths)	30 mg/kg ($1500\ mg/m^2$) 3 mths - 12 yrs)	3	**Herpes Simplex encephalitis** **Varicella Zoster** Infuse over 1 hr Reduce dose/dose frequency in renal impairment Injection - 250 mg vials
Amoxycillin	Oral	(<7 days) 60 mg/kg (>7 days) 90 mg/kg	-	2	Adjust dose in severe renal impairment
				3	
			20-50 mg/kg	3	
			1500 mg (3-10 yrs)	2 (for 2 days)	Alternative to the conventional dose in severe or recurrent acute otitis media
					Capsules 250 mg Suspension 125 mg and 250 mg/5 mls Paed. suspension 125 mg in 1.25 mls Sachets 750 mg, 3g

[redacted]

DRUG	ROUTE	TOTAL DAILY DOSE (tdd) NEONATES	1 MTH - 12 YRS	TIMES DAILY (divide tdd by this figure)	NOTES
Ampicillin	Oral	(< 7 days) 50-75 mg/kg	-	2	Capsules 250 mg Suspension 125 mg and 250 mg/5mls
		(> 7 days) 75-100 mg/kg	-	3 4	Paediatric Suspension 125 mg in 1.25 mls
	IV	-	50 mg/kg 50-100 mg/kg	4	Slow IV injection over 3-5 mins
	IV Infusion	50 mg/kg (<7 days)		2	Infuse slowly over 15-20 mins
		75 mg/kg (7-28 days)		3	
		100 mg/kg (<7 days)	-	2	**Neonatal meningitis**
		200 mg/kg (7 - 28 days)	-	4	Vials, 250 mg, 500 mg
Amphotericin	IV infusion	250 mcg/kg	250 mcg/kg	once daily	Infuse over 6 hours. Increase dose gradually to 1 mg/kg/day. "Fungizone" vial 50 mg
Amphotericin (Liposomal)	IV Infusion	1-3 mg/kg	1-3 mg/kg	once daily	Start at the lower dose and increase stepwise, as required. Infuse over 1 hr, diluted to 0.5mg/ml in glucose 5% "Ambisome" vials 50 mg.
Amoxycillin/ clavulanic acid (Augmentin)					
125/31 suspension	Oral		(1 mth - 1 yr) 0.8 ml/kg (1 - 6 yrs) 15 ml (6-12 yrs) 15 ml	3	125/31 suspension contains amoxycillin 125 mg and clavulanic acid 31 mg in 5 ml
250/62 suspension	Oral	-		3 3	250/62 suspension contains amoxycillin 250 mg and clavulanic acid 62 mg in 5 ml

DRUG	ROUTE	TOTAL DAILY DOSE (tdd) NEONATES	1 MTH - 12 YRS	TIMES DAILY (divide tdd by this figure)	NOTES
Azithromycin	Oral	-	6 months - 3 yrs (up to 15 kg) 10 mg/kg	once daily	Dose given for 3 days 'Zithromax' suspension 200 mg/5 ml Use oral syringe to measure dose in those <15 kg.
			3 - 7 years (15-25 kg) 200 mg	once daily	
			8 - 11 yrs (26-35 kg) 300 mg	once daily	
			12-14 yrs (36-45 kg) 400 mg	once daily	
Azlocillin	IV	200 mg/kg (up to 7 days)	-	2	Doses over 2g should be infused over 20-30 mins
		-	300 mg/kg (7 days - 1 yr)	3	
		-	225 mg/kg (1-14 yrs)	3	
Benzylpenicillin	IV	30-50 mg/kg (up to 7 days)	-	2	In an emergency the initial dose may be given IM 300 mg Infant 600 mg Child (1-10 yrs) 1.2g (>10 yrs)
		45-75 mg/kg (7-28 days)	-	3	
			50-100 mg/kg	4 - 12	Give 2 hourly initially in life threatening infection reducing to 6 hourly with clinical improvement
		60-100 mg/kg (up to 7 days)	-	2	**Doses for meningitis.** Higher doses can be irritant to veins - infuse over 30 mins
		90-150 mg/kg (7-28 days)	-	3	Vials 600 mg (1 mega unit)
			150 - 300 mg/kg	4-12	

DRUG	ROUTE	TOTAL DAILY DOSE (tdd) NEONATES	1 MTH - 12 YRS	TIMES DAILY (divide tdd by this figure)	NOTES
Cefotaxime	IV	50 mg/kg	100 - 150 mg/kg	2-4	Reduce dose in severe renal impairment
		150-200 mg/kg	200 mg/kg	2-4	**Severe infections eg meningitis** Vials, 500 mg, 1 g and 2 g
Ceftazidime	IV	25-60 mg/kg (up to 2 months)		2	Reduce dose and/or dose frequency in renal impairment
			30-100 mg/kg (2 mths -12 yrs)	2-3	
			up to 150 mg/kg max 6g daily	3	**For immunocompromised children or cystic fibrosis** Vials, 250 mg, 500 mg, 1 g, 2 g
Ceftriaxone	IV	not recommended <6 weeks	(6 wks - 12 yrs) 20-50 mg/kg	once daily	Doses over 50 mg/kg give by slow IV infusion over at least 30 minutes Vials 250 mg, 1g, 2g
			up to 80 mg/kg	once daily	**For severe infections** Reduce dose in pre-terminal renal failure and in renal failure with hepatic insufficiency
Cefuroxime	Oral	not recommended	(3 mths - 12 yrs) 10 mg/kg to max 250 mg daily	2	
	IV	30-100 mg/kg	30-100 mg/kg	2-3 3-4	Reduce the IV dose in renal impairment
Cephalexin	Oral	-	25-60 mg/kg	2	
			5-10 mg/kg	nocte	**Prophylaxis for Vesicoureteric reflux and recurrent UTI.** Capsules and tablets 250 mg, 500 mg suspension 125 mg and 250 mg/5ml

The initial IV fluid used for normal maintenance requirements is:

(a) 10% dextrose for neonates (5% dextrose if <1000g).

(b) 0.18% sodium chloride in 4% dextrose for infants and children.

Maintenance fluid volume requirements for young infants in 24 hrs:

	In Incubator	Under Radiant Warmers
Day 1	50-80 ml/kg	80-100 ml/kg
Day 2	80- 100 ml/kg	100-120 ml/kg
Day 3	100-120 ml/kg	120-140 ml/kg
Day 4	120-150 ml/kg	140-160 ml/kg
Day 5	150 ml/kg	160-180 ml/kg
>5 days	150 ml/kg	200 ml/kg

Maintenance electrolyte requirements in 24 hrs:

Sodium	3 mmol/kg (33 ml 0.18% NaCl = 1 mmol)
Potassium	2 mmol/kg (1 ml 7.5% KCl = 1 mmol)
Calcium	0.75 mmol/kg (4 ml 10% Calcium-Sandoz = 1 mmol)
Magnesium	0.2 mmol/kg
Phosphate	1 mmol/kg

Any patient presenting with a history of haemophilia or a congenital bleeding disorder **MUST** be referred to the Haematologist on-call.

PACKED RED CELLS

- Used for correction of anaemia.
- 4 ml/kg raises Hb by about 1g/dl.
- 15 ml/kg is usually sufficient for any one transfusion.

FRESH WHOLE BLOOD

- Sometimes used in infants with anaemia and infection or thrombocytopenia.
- 6 ml/kg raises Hb by about 1g/dl.
- In some cases, better to use packed cells, plasma and platelet concentrate.

HUMAN PLASMA PROTEIN FRACTION AND ALBUMIN

(Dilute 20% albumin solution with 3 times its volume of 0.9% NaCl or 5% dextrose).

- These may be used to restore blood volume in shock. They have the advantages that cross matching is not required and they are speedily available at ward level.
- Usually infuse 20 ml/kg rapidly before starting other IV fluids.