

OXFORD MEDICAL PUBLICATIONS

Paediatric Anaesthesia

Published and forthcoming Oxford Specialist Handbooks

General Oxford Specialist Handbooks

A Resuscitation Room Guide (Banerjee and Hargreaves)

Oxford Specialist Handbooks in End of Life Care

Cardiology: From advanced disease to bereavement (Beattie, Connelly, and Watson eds.)

Nephrology: From advanced disease to bereavement (Brown, Chambers, and Eggeling)

Oxford Specialist Handbooks in Anaesthesia

Cardiac Anaesthesia (Barnard and Martin eds.)

Neuroanaesthesia (Nathanson and Moppett eds.)

Obstetric Anaesthesia (Clyburn, Collis, Harries, and Davies eds.)

Paediatric Anaesthesia (Doyle ed.)

Oxford Specialist Handbooks in Cardiology

Cardiac Catheterization and Coronary Angiography (Mitchell, Leeson, West, and Banning)

Pacemakers and ICDs (Timperley, Leeson, Mitchell, and Betts eds.)

Echocardiography (Leeson, Mitchell, and Becher eds.)

Heart Failure (Gardner, McDonagh, and Walker)

Nuclear Cardiology (Kelion, Loong, and Sabharwal)

Oxford Specialist Handbooks in Neurology

Epilepsy (Alarcon, Nashaf, Cross, and Nightingale)

Parkinson's Disease and Other Movement Disorders (Edwards, Bhatia, and Quinn)

Oxford Specialist Handbooks in Paediatrics

Paediatric Gastroenterology, Hepatology, and Nutrition (Beattie, Dhawan, and Puntis eds.)

Paediatric Nephrology (Rees, Webb, and Brogan)

Paediatric Neurology (Forsyth and Newton eds.)

Paediatric Oncology and Haematology (Bailey and Skinner eds.)

Paediatric Radiology (Johnson, Williams, and Foster)

Oxford Specialist Handbooks in Surgery

Hand Surgery (Warwick)

Neurosurgery (Samandouras)

Otolaryngology and Head and Neck Surgery (Corbridge and Warner)

Plastic and Reconstructive Surgery (Giele and Cassell eds.)

Renal Transplantation (Talbot)

Urology (Reynard, Sullivan, Turner, Feneley, Armenakas, and Mark eds.)

Vascular Surgery (Hands, Murphy, Sharp, and Ray-Chaudhuri)

Paediatric Anaesthesia

Edited by

Edward Doyle

Consultant Paediatric Anaesthetist,
Royal Hospital for Sick Children,
Edinburgh,
Scotland, UK

OXFORD
UNIVERSITY PRESS

OXFORD

UNIVERSITY PRESS

Great Clarendon Street, Oxford OX2 6DP

Oxford University Press is a department of the University of Oxford.

It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide in

Oxford New York

Auckland Cape Town Dar es Salaam Hong Kong Karachi

Kuala Lumpur Madrid Melbourne Mexico City Nairobi

New Delhi Shanghai Taipei Toronto

With offices in

Argentina Austria Brazil Chile Czech Republic France Greece

Guatemala Hungary Italy Japan Poland Portugal Singapore

South Korea Switzerland Thailand Turkey Ukraine Vietnam

Oxford is a registered trade mark of Oxford University Press
in the UK and in certain other countries

Published in the United States

by Oxford University Press, Inc., New York

© Oxford University Press, 2007

The moral rights of the author have been asserted

Database right Oxford University Press (maker)

First published 2007

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, without the prior permission in writing of Oxford University Press, or as expressly permitted by law, or under terms agreed with the appropriate reprographics rights organization. Enquiries concerning reproduction outside the scope of the above should be sent to the Rights Department, Oxford University Press, at the address above

You must not circulate this book in any other binding or cover and you must impose the same condition on any acquirer

British Library Cataloguing in Publication Data

Data available

Library of Congress Cataloging in Publication Data

Data available

Typeset by Newgen Imaging Systems (P) Ltd., Chennai, India

Printed in Italy

on acid-free paper by

Lego S.p.A.

ISBN 978-0-19-920279-9

10 9 8 7 6 5 4 3 2 1

Oxford University Press makes no representation, express or implied, that the drug dosages in this book are correct. Readers must therefore always check the product information and clinical procedures with the most up-to-date published product information and data sheets provided by the manufacturers and the most recent codes of conduct and safety regulations. The authors and the publishers do not accept responsibility or legal liability for any errors in the text or for the misuse or misapplication of material in this work. Except where otherwise stated, drug dosages and recommendations are for children.

Contents

Detailed contents *vii*

Contributors *xix*

Symbols and abbreviations *xxi*

Section 1: Physiology, pharmacology, and psychology

- | | | |
|---|---|----|
| 1 | Anatomy, physiology, and psychology <i>Volker Lesch</i> | 3 |
| 2 | Paediatric pharmacology and fluid administration <i>Volker Lesch</i> | 25 |

Section 2: Paediatric anaesthesia

- | | | |
|---|--|-----|
| 3 | Principles of paediatric anaesthesia <i>Pamela Eccles</i> | 49 |
| 4 | Paediatric anaesthetic equipment <i>Fiona Kelly</i> | 79 |
| 5 | Practical procedures and postoperative care <i>Francois Taljard</i> | 111 |

Section 3: Intraoperative and postoperative analgesia

- | | | |
|---|--|-----|
| 6 | Acute pain and postoperative analgesia <i>Mandy Sim</i> | 145 |
| 7 | Regional anaesthetic techniques: peripheral blocks <i>Steve Roberts</i> | 171 |
| 8 | Regional anaesthetic techniques: central blocks <i>Graham Bell</i> | 195 |

| | |
|--|--|
| Section 4: Elective surgery | |
| 9 | Day case, general, ENT, orthopaedic, neurosurgery, and maxillofacial surgery <i>Manchula Navaratnam</i> 219 |
| 10 | Ophthalmology, plastics, oncology, radiology, thoracic, and dental surgery <i>Andrew Morrison</i> 297 |
| 11 | Congenital heart disease <i>Anne Goldie</i> 361 |
| Section 5: Neonatal and emergency procedures | |
| 12 | Emergency surgery: neonatal, general, and airway <i>Emma Dickson</i> 387 |
| 13 | Emergency anaesthesia: orthopaedics, plastics, neurosurgery, ophthalmology, maxillofacial <i>Alison Carlyle</i> 429 |
| Section 6: Problems during anaesthesia resuscitation, syndromes, and sedation | |
| 14 | Problems during anaesthesia, resuscitation, and patient transfer <i>Carolyn Smith</i> 479 |
| 15 | Syndromes and conditions with implications for anaesthesia <i>Anthony Moores</i> 525 |
| 16 | Sedation for diagnostic and therapeutic procedures <i>Anthony Moores</i> 599 |
| 17 | Key references and further reading 609 |
| | Index 613 |

Detailed contents

Contributors *xix*

Symbols and abbreviations *xxi*

Section 1 Physiology, pharmacology, and psychology

- 1 Anatomy, physiology, and psychology** **3**
Volker Lesch
 Introduction 4
- Paediatric anatomy:**
 Upper airway 5
 Lower airway 6
 Central nervous system 7
- Paediatric physiology:**
 Respiratory physiology 8
 Cardiovascular physiology 10
 Hepatic physiology 14
 Renal physiology 16
 Central nervous system physiology 18
 Thermal control 20
- Psychology:**
 Psychology, anxiety, and preoperative preparation 22
 Developmental stages 23
 Preoperative preparation and parents in the anaesthetic room 24
-

| | |
|---|-----------|
| 2 Paediatric pharmacology and fluid administration | 25 |
| <i>Volker Lesch</i> | |
| Paediatric pharmacology | 26 |
| Pharmacokinetics | 27 |
| Intravenous anaesthetic agents | 30 |
| Inhalational anaesthetic agents | 32 |
| Neuromuscular blockers | 34 |
| Opioids | 36 |
| Non-steroidal anti-inflammatory drugs (NSAIDs) | 38 |
| Paracetamol | 39 |
| Local anaesthetics | 40 |
| Fluid balance and fluid administration | 41 |
| Preoperative fluids and fluid resuscitation | 42 |
| Intraoperative fluid administration | 43 |
| Maintenance fluid regimens | 44 |

Section 2 Paediatric anaesthesia

| | |
|---|-----------|
| 3 Principles of paediatric anaesthesia | 49 |
| <i>Pamela Eccles</i> | |
| Range of patients | 50 |
| Preoperative assessment | 52 |
| Preoperative fasting | 56 |
| Parental presence at induction | 57 |
| Play specialists and distraction | 58 |
| Premedication | 60 |
| Venous access | 62 |
| Inhalational induction of anaesthesia | 64 |
| Preoperative issues: | |
| The child with a 'cold' | 66 |
| Heart murmurs | 70 |
| Asthma | 72 |

Attention deficit hyperactivity disorder
(ADHD) 74
Infectious diseases 76
Immunizations 77

4 Paediatric anaesthetic equipment 79

Fiona Kelly

Airway equipment:

Paediatric face masks 80
Oropharyngeal airways 82
Laryngeal mask airway 84
Laryngoscopes 88
Endotracheal tubes 92
Breathing systems 96
Ventilators 100

Monitoring equipment:

Pulse oximetry 102
Blood pressure measurement 104
Temperature monitoring 106
Warming devices 108
Peripheral venous cannulae 110

5 Practical procedures and postoperative care 111

Francois Taljard

Practical procedures:

Basic airway management 112
Advanced airway management 114
Endotracheal intubation 116
Difficult airway management 118
Fibreoptic endotracheal intubation 123
Peripheral venous cannulation 128
External jugular vein cannulation 129
Internal jugular vein cannulation 130
Femoral vein cannulation 132
Intraosseous cannulation 134
Radial artery cannulation 136
Femoral artery cannulation 137

Postoperative care:

Recovery area (post anaesthetic care unit) 138

High Dependency Unit (HDU) 140

Intensive Care Unit (ICU) 142

Section 3 Intraoperative and post-operative analgesia**6 Acute pain and postoperative analgesia 145***Mandy Sim*

Principles of analgesia in children 146

Pain assessment 147

Neonates 148

Infants 149

Pre-school children 150

School children 152

Adolescents 153

Drugs 154

Paracetamol 156

Non-steroidal anti-inflammatory drugs 157

Opioids 158

Local anaesthetics 159

Antiemetics 160

Acute severe pain 162

Protocols and monitoring 163

Intravenous morphine infusion 164

Patient controlled analgesia 166

Nurse controlled analgesia 167

Epidural infusion analgesia 168

7 Regional anaesthetic techniques: peripheral blocks 171*Steve Roberts*

Overview and safety 172

Infiltration and field block 174

Ilioinguinal/iliohypogastric nerve block 176

Rectus sheath block 178

Penile nerve block 180

Ring block and digital nerve block 182

- Axillary brachial plexus block 183
 - Supraclavicular brachial plexus block 184
 - Femoral nerve block 186
 - Fascia iliaca compartment block 188
 - Ankle block 189
 - Sciatic nerve block 190
 - Popliteal nerve block 192
-

8 Regional anaesthetic techniques: central blocks 195

Graham Bell

- Overview and safety 196
 - Pharmacology 198
 - Caudal epidural blockade 200
 - Epidural blockade 205
 - Caudal catheter technique 208
 - Subarachnoid (spinal) blockade 210
 - Psoas (lumbar) plexus blockade 212
 - Paravertebral blockade 214
-

Section 4 Elective surgery

9 Day case, general, ENT, orthopaedic, neurosurgery, and maxillofacial surgery 219

Manchula Navaratnam

Day case surgery and anaesthesia:

- Selection and exclusion criteria 220
- Facilities and procedures 222
- Analgesia and discharge 223

General paediatric surgery:

- Circumcision 226
- Preputioplasty 228
- Hypospadias repair 230
- Inguinal hernia repair and hydrocele 232
- Orchidopexy 234
- Pyeloplasty and nephrectomy 236
- Laparoscopy 238
- Fundoplication 242

Ear, nose, and throat surgery:

- Myringotomy and grommets 247

- Tonsillectomy 248
 - Middle ear surgery 252
 - Bronchoscopy 254
 - Microlaryngeal surgery 258
 - Orthopaedic surgery:**
 - Developmental (congenital) dysplasia of the hip (DDH) 262
 - Congenital talipes equinovarus (clubfoot) 266
 - Femoral osteotomy 268
 - Pelvic osteotomy 270
 - Scoliosis 272
 - Neurosurgery:**
 - Ventriculo-peritoneal (V-P) shunt insertion 280
 - Baclofen pump insertion 282
 - Craniotomy 284
 - Arterio-venous malformation embolization 288
 - Maxillofacial and craniofacial surgery:**
 - Mandibular surgery 292
 - Craniofacial surgery 294
-

10 Ophthalmology, plastics, oncology, radiology, thoracic, and dental surgery **297**

Andrew Morrison

Ophthalmology:

- Ophthalmic surgery 298
- Examination under anaesthesia and intraocular pressure measurement 300
- Strabismus 302
- Cataract extraction 304
- Glaucoma 306

Plastic surgery:

- Lumps and bumps 308
- Otoplasty 310
- Cleft lip and palate 312
- Syndactyly 316
- Free flap surgery 318

Oncology:

- Oncology 322

Lumbar puncture, intrathecal drugs, bone marrow aspiration, and trephines 326

Insertion of Portacath or Hickman line 328

Bone marrow harvest 330

Wilms' tumour (nephroblastoma) 332

Neuroblastoma 336

Phaeochromocytoma 340

Radiotherapy 344

Radiology:

Radiology 346

Computed tomography (CT) 348

Magnetic resonance imaging (MRI) 350

Thoracic surgery:

Thoracotomy and thoracoscopy 354

Dental surgery:

Dental and oral surgery 358

11 Congenital heart disease

361

Anne Goldie

Overview and classification of congenital heart disease 362

Fetal circulation 364

Assessment of patients with CHD 366

Conduct of anaesthesia in CHD 368

Cardiac catheterization 372

Closed cardiac procedures 374

Systemic arterial–pulmonary arterial shunt 374

Coarctation of the aorta 374

Patent ductus arteriosus 374

Epicardial pacemaker insertion 374

Pulmonary artery banding 375

Cardiopulmonary bypass 376

Deep hypothermic circulatory arrest (DHCA) 380

Open cardiac procedures—notes on specific lesions 382

Atrial septal defect 382

Ventricular septal defect 382

Atrio-ventricular septal defect 382

- Tetralogy of Fallot 382
Transposition of the great arteries 383
-

Section 5 Neonatal and emergency procedures

12 Emergency surgery: neonatal, general, and airway 387

Emma Dickson

Rapid sequence induction 388

Neonatal surgery:

Principles of neonatal anaesthesia 390

Pyloromyotomy 394

Oesophageal atresia (tracheo-oesophageal fistula) repair 396

Necrotizing enterocolitis 400

Abdominal wall defects: gastroschisis and exomphalos 402

Imperforate anus 404

Congenital diaphragmatic hernia 406

Myelomeningocele 408

General surgery:

Appendicectomy 410

Intussusception 412

Acute scrotum 414

ENT:

Bleeding tonsil or adenoids 416

Foreign body removal 418

Stridor 420

Tracheostomy 424

Choanal atresia 426

13 Emergency anaesthesia: orthopaedics, plastics, neurosurgery, ophthalmology, maxillofacial 429

Alison Carlyle

Orthopaedic surgery:

Orthopaedics 430

Forearm fractures 432

Supracondylar fracture 434

- Femoral shaft fractures 436
Septic arthritis 438
- Plastics:**
Plastic surgery 440
Lacerations 441
Nerve and tendon repairs 442
Burns and scalds 444
Anaesthesia for patients with burns and scalds 450
Analgesia for patients with burns and scalds 454
- Neurosurgery:**
Neurosurgery 455
Blocked ventriculo-peritoneal shunt 456
Head injury: initial resuscitation and management 458
Evacuation of intracranial haematoma 464
- Ophthalmic surgery:**
Ophthalmology 466
Perforating eye injury 468
Retinal detachment 470
- Maxillofacial surgery:**
Dental abscess 472
Facial trauma 474
-

Section 6 Problems during anaesthesia, resuscitation, syndromes, and sedation

- 14 Problems during anaesthesia, resuscitation, and patient transfer 479**
Carolyn Smith
- Anaesthesia:**
Problems during anaesthesia 480
Hypoxia 482
Airway obstruction 484
Laryngospasm 486
Bronchospasm 487
Hypotension 488
Dysrhythmias 489
Anaphylaxis 490

- Hyperthermia 492
 - Malignant hyperthermia (MH) 494
 - Hypothermia 496
 - Failed intubation 498
 - Can't intubate, can't ventilate (CICV) 500
 - Resuscitation:**
 - Basic life support 502
 - Choking 504
 - Advanced life support 506
 - Asystole or PEA (pulseless electrical activity) 508
 - Ventricular fibrillation or pulseless ventricular tachycardia 508
 - Dysrhythmias 510
 - Hypothermia 514
 - Newborn life support 516
 - Emergency drugs: dilutions and doses 518
 - Patient transfer:**
 - Principles of stabilizing a critically ill child in a general hospital 520
 - Interhospital transfer to a paediatric intensive care unit 522
-

15 Syndromes and conditions with implications for anaesthesia **525**

Anthony Moores

- Arthrogryposis multiplex congenita 526
- Branchial (pharyngeal) arch syndromes 528
- Cerebral palsy 530
- Diabetes mellitus 532
- Down's syndrome 536
- Epidermolysis bullosa 540
- Epilepsy 542
- Haemophilia and von Willebrand's disease 544
- HIV/AIDS 548
- Juvenile chronic arthritis 552
- Liver failure 554
- Klippel–Feil syndrome 560
- Marfan's syndrome 562

| | |
|-------------------------|-----|
| Muscular dystrophies | 564 |
| Myasthenia gravis | 568 |
| Myopathies | 572 |
| Myotonic syndromes | 576 |
| Mucopolysaccharidoses | 580 |
| Osteogenesis imperfecta | 584 |
| Prematurity | 586 |
| Renal failure | 590 |
| Sickle cell disease | 596 |

16 Sedation for diagnostic and therapeutic procedures **599**

Anthony Moores

Overview 600

Management of sedation 602

Drugs used for sedation 606

17 Key references and further reading **609**

Index 613

Contributors

Graham Bell

Consultant Paediatric Anaesthetist,
Royal Hospital for Sick Children,
Glasgow, UK

Alison Carlyle

Anaesthetic Department, Royal
Hospital for Sick Children,
Edinburgh, UK

Emma Dickson

Consultant Paediatric Anaesthetist,
Royal Hospital for Sick Children,
Edinburgh, UK

Pamela Eccles

Royal Hospital for Sick Children,
Edinburgh, UK

Anne Goldie

Consultant Paediatric Anaesthetist,
Royal Hospital for Sick Children,
Glasgow, UK

Fiona Kelly

Department of Anaesthesia, Royal
Hospital for Sick Children,
Edinburgh, UK

Volker Lesch

Consultant Anaesthetist,
Kantonsspital,
St. Gallen, Switzerland

Anthony Moores

Consultant Paediatric Anaesthetist,
Royal Hospital for Sick Children,
Glasgow, UK

Andrew Morrison

Fellow in Paediatric Anaesthesia,
Vancouver, British Columbia,
Canada

Manchula Navaratnam

Royal Hospital for Sick Children,
Glasgow, UK

Steve Roberts

Consultant Paediatric Anaesthetist,
Royal Liverpool Children's NHS
Trust, Liverpool, UK

Mandy Sim

Clinical Nurse Specialist, Royal
Hospital for Sick Children,
Edinburgh, UK


Carolyn Smith

Consultant Paediatric
Anaesthetist, Royal Hospital
for Sick Children,
Edinburgh, UK

Francois Taljard

Royal Hospital for Sick Children,
Edinburgh, UK

Symbols and abbreviations

| | |
|--|---|
| ♂ | male |
| ♀ | female |
| ↑ | increase |
| ↓ | decrease |
| → | leading to |
|  | cross reference |
| 2,3 DPG | 2,3-diphosphoglycerate |
| ACT | activated clotting time |
| ADH | antidiuretic hormone |
| ADHD | attention deficit hyperactivity disorder |
| AED | automated external defibrillator |
| AIDS | acquired immune deficiency syndrome |
| ALL | acute lymphoblastic leukaemia |
| AMC | arthrogryposis multiplex congenita |
| AML | acute myeloid leukaemia |
| APL valve | adjustable pressure limiting valve |
| APLS | advanced paediatric life support |
| ARF | acute renal failure |
| ASA | American Society of Anesthesiologists |
| ASD | atrial septal defect |
| ASIS | anterior superior iliac spine |
| ATP | adenosine triphosphate |
| AVSD | atrioventricular septal defect |
| BPD | bronchopulmonary dysplasia |
| BSA | body surface area |
| CAPD | continuous ambulatory peritoneal dialysis |
| CBF | cerebral blood flow |
| CBV | cerebral blood volume |
| CCPD | continuous cycling peritoneal dialysis |
| CHD | congenital heart disease |
| CMAP | compound muscle action potential |
| CMV | cytomegalovirus |
| CNS | central nervous system |

| | |
|-----------------|--|
| CO | cardiac output |
| CO ₂ | carbon dioxide |
| CPAP | continuous positive airway pressure |
| CPB | cardiopulmonary bypass |
| CPK | creatinine phosphokinase |
| CRF | chronic renal failure |
| CPP | cerebral perfusion pressure |
| CPR | cardiopulmonary resuscitation |
| CSF | cerebrospinal fluid |
| CT | computerised tomography |
| CXR | chest radiograph |
| DA | ductus arteriosus |
| DDAVP | 1-desamino-8-D-arginine vasopressin |
| DDH | developmental dysplasia of the hip |
| DHCA | deep hypothermic circulatory arrest |
| DLT | double lumen tube |
| DNA | deoxyribonucleic acid |
| DS | Down's syndrome |
| DV | ductus venosus |
| ECG | electrocardiogram |
| ECMO | extracorporeal membrane oxygenation |
| EEG | electroencephalogram |
| EMG | electromyogram |
| EMLA | eutectic mixture of local anaesthetics |
| ESR | erythrocyte sedimentation rate |
| ETT | endotracheal tube |
| FBC | full blood count |
| FG | French gauge |
| FFP | fresh frozen plasma |
| FO | foramen ovale |
| FRC | functional residual capacity |
| FVC | forced vital capacity |
| GFR | glomerular filtration rate |
| GOR | gastro-oesophageal reflux |
| Hb | haemoglobin |
| HbA | haemoglobin A |
| HbC | haemoglobin C |
| HbF | fetal haemoglobin |

| | |
|--------|--|
| HbS | haemoglobin S |
| HDU | High Dependency Unit |
| HIV | human immunodeficiency virus |
| HVA | homovanillic acid |
| HME | heat and moisture exchanger |
| IAP | intra-abdominal pressure |
| ICP | intracranial pressure |
| ICU | Intensive care unit |
| IDDM | insulin dependent diabetes mellitus |
| IO | intraosseous |
| IOP | intraocular pressure |
| IPPV | intermittent positive pressure ventilation |
| ISO | International Organisation for Standardisation |
| IU | international units |
| IV | intravenous |
| IVC | inferior vena cava |
| IVH | intraventricular haemorrhage |
| JCA | juvenile chronic arthritis |
| KCl | potassium chloride |
| kPa | kilopascal |
| L | litre |
| LA | left atrium; local anaesthetic |
| LED | light emitting diode |
| LET | lidocaine, epinephrine and tetracaine mix |
| LMA | laryngeal mask airway |
| LV | left ventricle |
| LVH | left ventricular hypertrophy |
| MAC | minimum alveolar concentration |
| MAP | mean arterial pressure |
| mcg | microgram |
| MEPs | motor evoked potentials |
| MH | malignant hyperthermia |
| min | minute/s |
| mIBG | meta-iodo-benzyl guanidine |
| mL | millilitre |
| mmHg | millimetres of mercury |
| mmol | millimoles |
| mOsmol | milliosmoles |

| | |
|-------|--|
| MPS | mucopolysaccharidosis |
| MRI | magnetic resonance imaging |
| MUA | manipulation under anaesthesia |
| ng | nanogram |
| NIPS | Neonatal/Infant Pain Scale |
| NSAID | non-steroidal anti-inflammatory drug |
| PA | pulmonary artery |
| PBF | pulmonary blood flow |
| PCA | postconceptual age |
| PCA | patient controlled analgesia |
| PCV | pressure controlled ventilation |
| PDA | patent ductus arteriosus |
| PDPH | post dural puncture headache |
| PEA | pulseless electrical activity |
| PEEP | positive end-expiratory pressure |
| PEFR | peak expiratory flow rate |
| PET | positron-emission tomography |
| PFC | persistent fetal circulation |
| PICU | paediatric intensive care unit |
| PNS | peripheral nerve stimulator |
| PONV | postoperative nausea and vomiting |
| PT | prothrombin time |
| PTT | partial thromboplastin time |
| PUJ | pelviureteric junction |
| PVR | pulmonary vascular resistance |
| RA | right atrium |
| RAE | Ring, Adair, and Elwyn endotracheal tube |
| RhF | rheumatoid factor |
| RSI | rapid sequence induction |
| RTI | respiratory tract infection |
| RV | right ventricle |
| sec | second/s |
| SCBU | special care baby unit |
| SPECT | single photon emission computed tomography |
| SSEPs | somatosensory evoked potentials |
| SV | stroke volume |
| SVC | superior vena cava |
| SVR | systemic vascular resistance |

| | |
|------------------|--------------------------------------|
| SVT | supraventricular tachycardia |
| t _{1/2} | half life |
| t _{max} | time to maximum plasma concentration |
| TGA | transposition of the great arteries |
| TIVA | total intravenous anaesthesia |
| TMJ | temporomandibular joint |
| TT | thrombin time |
| U&E | urea and electrolytes |
| US | ultrasound |
| V _d | volume of distribution |
| VMA | vanillylmandelic acid |
| V-P | ventriculo-peritoneal |
| VSD | ventricular septal defect |
| vWD | von Willebrand's disease |
| vWF | von Willebrand factor |
| WCC | white cell count |

Index

A

- α-receptor blockade 341
- ABC approach 464, 520
- ABCD clinical assessment 520
- abdominal wall defects 402
- absorption 27
- acetazolamide 306
- aciclovir 550
- acid base balance 591
- α-1 acid glycoprotein 198–9
- acute chest syndrome 598
- acute pain and post-operative analgesia 145–70
 - acute severe pain 162
 - adolescents 153
 - antiemetics 160–1
 - drugs 154–5
 - epidural infusion analgesia 168–9
 - infants 149
 - local anaesthetics 159
 - monitoring and observations 164–5
 - neonates 148
 - non-steroidal anti-inflammatory drugs 157
 - nurse controlled analgesia 167
 - opioids 158, 164
 - pain assessment 147
 - paracetamol 156
 - patient controlled analgesia 166
 - pre-school children 150–1
 - principles of analgesia 146
 - protocols and monitoring 163
 - school children 152
- Acute Pain Service 163
- adenoids, bleeding 416
- adenosine 511
- adolescents 153
- adrenaline 518
 - anaesthesia 487, 490
 - axillary brachial plexus block 183
 - bronchoscopy 258, 262
 - caudal epidural blockade 204
 - congenital heart disease 378
 - dental surgery 359
 - ENT 419
 - fascia iliaca compartment block 188
 - femoral nerve block 186
 - neonatal surgery 409
 - neurosurgery 457
 - plastic surgery 310, 314
 - resuscitation 508, 510, 516
 - advanced life support 506
 - AED 508
 - age-dependent body composition 26
 - airway adjuncts 113
 - airway features and Down's syndrome 538
 - airway features and mucopolysaccharidoses 581–2
 - airway management
 - advanced 114–15
 - basic 112–13
 - difficult 118, 118–19, 118–22
 - airway obstruction 112, 484
 - airway opening manoeuvres 502
 - airway resistance 6, 8
 - airway/respiratory checks 521
 - alanine aminotransferase 556
 - albumin 556, 558, 559
 - alfentanil 371, 559
 - congenital heart disease 379
 - ophthalmic surgery 471
 - orthopaedic surgery 432
 - renal failure 594
 - alimemazine 379
 - alkaline phosphatase 556
 - allergies history 53
 - alprostadil 518
 - alraccurium 543
 - altered drug pharmacokinetics 558
 - alveolar ventilation 8
 - American Society of Anaesthesiologists 118, 600
 - aminoglycosides 591
 - aminophylline 72–3, 487, 490, 518
 - aminosteroid compounds 34
 - amiodarone 199, 508, 509, 511, 518
 - amphotericin B 550
 - analgesic 61, 604
 - asthma 73
 - bronchoscopy 258
 - caudal epidural blockade 203
 - circumcision 226, 227
 - craniotomy 288
 - day case surgery 223
 - dental surgery 359
 - ENT 416
 - epidermolysis bullosa 541
 - fundoplication 247
 - general paediatric surgery 224
 - general surgery 415
 - haemophilia 545
 - hypospadias repair 231
 - inguinal hernia repair and hydrocele 233
 - laparoscopy 240, 243
 - microlaryngeal surgery 262
 - neonatal surgery 392–3, 398, 405
 - neurosurgery 459
 - oncology 329, 330, 334, 337
 - orchidopexy 235
 - orthopaedic surgery 433, 435
 - pelvic osteotomy 273
 - plastic surgery 310, 311, 313, 317, 320, 451, 452
 - preputioplasty 228
 - pyeloplasty and nephrectomy 237
 - renal failure 594
 - thoracotomy and thoracoscopy 356
 - see also acute pain and post-operative analgesia
 - anaphylaxis 490
 - anatomy of infant and neonatal airway 5

- angiotensin converting enzyme inhibitors 333, 591
- angiotensin II antagonists 333
- ankle block 189
- anoplasty 405
- antacid 61
- anterior fontanelle 7
- anterior superior iliac spine 176
- anthracyclines 323
- antibiotics
- craniotomy 285
 - ENT 419
 - Klippel Feil syndrome 561
 - Marfan's syndrome 562
 - maxillo facial surgery 473
- sickle cell disease 598
- anticholinergics 256
- anticholinesterases 568, 569, 570
- myotonic syndromes 577, 578
- renal failure 594
- anticonvulsants 543
- antiemetic
- acute pain and post-operative analgesia 160–1
 - fundoplication 247
 - intravenous opioid infusion 164
 - laparoscopy 240
 - ophthalmic surgery 303, 305, 307
 - orchidopexy 235
 - orthopaedic surgery 433
 - patient controlled analgesia 166
 - plastic surgery 320
 - pyeloplasty and nephrectomy 237
 - scoliosis 280
- antihistamines 160–1, 490, 608
- anti-muscarinic agents 160–1
- anti-neoplastic drugs 591
- antisialogogues 61, 119–20, 124, 126
- anxiety 22
- anxiolytics 24
- Apgar score 516
- aplastic crises 598
- APLS guidelines 459, 464
- appendectomy 410
- aprotinin 274, 376, 383
- arterio-venous malformation embolization 288–9
- arthrogram 262–3
- arthrogryposis multiplex congenita 526
- articaine 359
- ASA status 602
- ascites 557
- ASIS 188
- aspartate aminotransferase 556
- asthma 72–3
- asystole or PEA (pulseless electrical activity) 13, 508
- atelectasis 483
- ATLS guidelines 459
- atomoxetine 76
- atracurium 34, 559, 570, 594
- atrial septal defect 382
- atrio-ventricular septal defect 382
- atropine 61, 240, 518
- bronchoscopy 256
 - ENT 419, 421, 426
 - epidermolysis bullosa 541
 - general surgery 415
 - neonatal surgery 391, 393, 395, 404
 - ophthalmic surgery 300, 301, 303, 466
- resuscitation 509
- attention deficit hyperactivity disorder 74–5
- audit 223
- autoregulation 18
- autosomal recessive limb girdle dystrophy 565
- AVPU scale 459
- axilla 106
- axillary brachial plexus block 183
- azathioprine 569
- B**
- β agonists 72
- baclofen 282–3, 530
- β -adrenergic blockers 72–3, 306
- Bain 101
- Bair Hugger 109
- barbiturates 379, 577
- basic life support 502
- Becker's muscular dystrophy 564
- behavioural techniques 603
- benzodiazepines 60, 606
- cerebral palsy 531
- congenital heart disease 376, 379
 - liver failure 558
 - myotonic syndromes 577
 - plastic surgery 454
- benzylisoquinolinium compounds 34
- Berman type 125
- best motor response 461, 462
 - best verbal response 461, 462
- beta-blockers 562, 591
- bicarbonate 518, 574
- bilirubin 14, 556
- biochemistry 521
- birth, changes at 11
- birth to six months 23
- bite blocks 276
- bladder 106
- bleomycin 323
- blood
- brain barrier 7
 - and fluid warmers 109
 - loss 274
 - pressure measurement 104–5
 - samples 490
 - tests and HIV/AIDS 551
 - volume 42
- body fluid compartment 26
- body and limb movements 148
- bone marrow aspiration 326–7
- bone marrow harvest 330–1
- botulinum toxin type A 530
- brachial plexus block 317
- bradyarrhythmias 510
- bradycardia 13
- branchial (pharyngeal) arch syndromes 528–9
- branchial remnants 308
- breathing 96–9, 502
- bronchodilators 549
- prematurity 586
 - sickle cell disease 598
- therapy 490
- bronchoscopy 254–7
- bronchospasm 487
- bullous lung disease 76
- bumps see lumps and bumps
- bupivacaine 40, 159, 518
- caudal epidural blockade 203
 - epidural infusion analgesia 168–9
 - oncology 329
 - paravertebral blockade 215
 - pharmacology 198, 199
 - plastic surgery 310, 314

psoas (lumbar) plexus
 blockade 213
 subarachnoid (spinal)
 blockade 211
 bupropion 76
 burns 444–6, 450, 454
 BURP manoeuvre 120

C

caffeine 587
 calcium chloride 518
 calcium gluconate 518
 cannulation
 external jugular vein
 129
 femoral artery 137
 femoral vein 132–3
 internal jugular vein
 130–1
 intraosseous 134–5
 peripheral venous 128
 radial artery 136
 can't intubate, can't
 ventilate (CICV) 122,
 498, 500
 captopril 333
 carbamazepine 543
 cardiac catheterization
 368
 cardiac filling 377
 cardiac function 366, 565
 cardiac input 13
 cardiac output, reduction in
 488
 Cardiff blade 89
 cardiopulmonary bypass
 surgery 370, 376
 cardiopulmonary resuscita-
 tion 502, 508, 509
 cardiovascular check 521
 cardiovascular features
 liver failure 557
 and prematurity 587
 renal failure 592
 cardiovascular history 52
 cardiovascular markers
 148
 cardiovascular parameters
 with age 13
 cardiovascular physiology
 10
 cardiovascular status 390
 cardiovascular system and
 HIV/AIDS 549, 551
 carina 6
 cataract extraction 306–7
 catecholamines 76
 caudal catheter technique
 208
 caudal epidural blockade
 200–4
 cefotaxime 518
 central blocks see regional
 anaesthetic techniques:
 central blocks
 central nervous system 7,
 18–19, 322–3
 HIV/AIDS 549–50
 renal failure 592
 central neuraxial blockade
 551
 central venous pressure
 18
 cerebral blood flow 18,
 278
 cerebral cortex 7
 cerebral metabolism 18
 cerebral palsy 268–9, 269,
 271, 530
 cerebral perfusion pressure
 18
 cerebrospinal fluid 7, 278,
 280–1, 456
 cervical lymphadenitis
 309
 cervical lymphadenopathy
 309
 cervicofacial dermoids
 308
 CHARGE association 367
 chemotherapy 323–4
 chest wall compliance 6, 9
 Child/Pugh risk assessment
 for liver disease 556
 Children's Coma Scale 459
 Children's Hospital of
 Eastern Ontario Pain
 Scale 149
 chirocaine 172
 chloral hydrate 608
 chlorphenamine 490
 chlorpromazine 608
 choanal atresia 426
 choking 504
 ciclosporin 553, 569,
 591
 cimetidine 61
 circle systems 97–8, 101
 circulation 502
 circumcision 226–7
 cisatracurium 559
 cisplatin 323
 clearance 27–8
 cleft lip and palate 312–15
 clobazam 543
 clonazepam 543
 clonidine 61, 76, 379
 caudal epidural blockade
 204
 hypospadias repair 231
 closed cardiac procedures
 374
 clubfoot 266
 co-trimoxazole 549
 coagulation defects 378
 coagulopathy 274
 coarctation of the aorta
 374
 codeine phosphate 158,
 604
 asthma 73
 circumcision 226, 227
 craniotomy 288
 dental surgery 359, 360
 developmental dislocation
 of hip 266
 ENT 416, 427
 general surgery 411, 415
 hypospadias repair 231
 inguinal hernia repair and
 hydrocele 233
 mandibular surgery 295
 maxillo facial surgery 473,
 475
 middle ear surgery 254
 neonatal surgery 393,
 405, 409
 neurosurgery 457
 oncology 329, 330
 ophthalmic surgery 303,
 305, 307, 469
 orchidopexy 235
 orthopaedic surgery 430,
 433, 436, 439
 pelvic osteotomy 273
 plastic surgery 310, 311,
 314, 317, 442, 454
 tonsillectomy 249
 ventriculo-peritoneal
 shunt insertion 282
 'cold' or respiratory tract
 infection 66–8
 colour scales 150–1
 Comfort scale 148
 computed tomography
 348–9
 congenital anomalies 390
 congenital diaphragmatic
 hernia 406
 congenital heart disease
 11, 536
 cardiac catheterization
 368
 cardiopulmonary bypass
 376
 closed cardiac procedures
 374
 deep hypothermic
 circulatory arrest
 380
 fetal circulation 364
 open cardiac procedures
 382
 overview and classification
 362
 patient assessment
 366–7

- congenital muscular dystrophy 565
 congenital talipes equinovarus (clubfoot) 266
 consent 54, 602
 continuous positive airway pressure 9, 112, 113, 256, 257
 contrast media 347
 corticosteroids 72–3
 CPP 464
 craniofacial surgery 290, 294
 craniostomosis 294
 craniotomy 284–6
 cricoid pressure 120
 cricothyroidotomy 122, 500
 CRIES 148
 critical temperature in neonates and adults 21
 croup 421
 crying 148
 cryoprecipitate 333
 CVS 582
 cyclizine 161, 303, 305, 469, 471
 cyclopentolate 298–9
 cyclophosphamide 569
 cystic hygroma 309
 cytarabine 326
- D**
- dantrolene 495, 518, 530
 day case surgery 220
 analgesia and discharge 223
 facilities and procedures 222
 selection and exclusion criteria 220–1
 DDAVP 546, 547
 dead space 8, 9
 deep hypothermic circulatory arrest 380
 defibrillation 506, 508
 dehydration 41
 dental abscess 472
 dental and oral surgery 358–60
 desflurane 32, 33, 558, 559
 desmopressin 545
 developmental (congenital) dislocation of the hip (DDH) 262, 268–9, 270
 developmental stages 23
 dexamethasone 36, 518
 bronchoscopy 256
 dental surgery 359
 ENT 419
 ophthalmic surgery 303, 305, 307
 sickle cell disease 598
 tonsillectomy 249, 251
 dexamphetamines 75
 dextrose 44, 518
 diabetes mellitus 532
 diamorphine 36, 168–9, 206
 diaphragmatic muscles 6
 diastolic pressure 13
 diazepam 60, 518, 606
 cerebral palsy 530
 liver failure 558
 neurosurgery 460
 diclofenac sodium 38, 157
 dental surgery 359
 laparoscopy 240
 ophthalmic surgery 298–9
 plastic surgery 310, 314, 317
 difficult airway 118
 anticipated difficult 119–21
 difficult intubation 119, 122
 unexpected 121, 499
 Difficult Airway Society 498
 difficult intubation 118
 difficult laryngoscopy 118, 119, 122
 difficult mask ventilation 118
 DiGeorge sequence 367
 digital nerve block 182
 diphtheria 76
 distraction techniques 58
 distribution 27–8
 diuretics and prematurity 586
 dobutamine 518
 dopamine 518
 attention deficit hyperactivity disorder 74–5
 congenital heart disease 378
 neonatal surgery 403
 receptor antagonists 160–1
 Down's syndrome 536
 doxorubicin 323
 drugs
 acute pain and post-operative analgesia 154–5
 emergency 518
 sedation 606
 Duchenne muscular dystrophy 564
 ductus venosus 15
 dysrhythmias 489, 510
- E**
- ear, nose and throat 12, 246
 bronchoscopy 254–7
 choanal atresia 426
 foreign body removal 418
 microlaryngeal surgery 258–9
 middle ear surgery 252
 myringotomy and grommets 247
 stridor 420
 tonsil or adenoids, bleeding 416
 tonsillectomy 248–51
 tracheostomy 424
 easy airway, difficult intubation 119
 edrophonium 570
 efavirenz 550
 elective anaesthesia and peripheral venous cannulation 128
 electrocardiogram 208
 electrolyte balance 44, 45, 588, 591
 emergency anaesthesia and peripheral venous cannulation 128
 emergency drugs: dilution and doses 518
 Emery-Dreifuss muscular dystrophy 565
 EMLA (eutectic mixture of local anaesthetics) cream 62–3, 174, 604
 encephalopathy 555, 556
 endobronchial tubes 94
 endocarditis prophylaxis 371
 endocrine features and Down's syndrome 537
 endotracheal intubation 116–17
 difficult 118–19, 119–21
 unexpected 121
 endotracheal tubes 5, 9, 92–4
 craniotomy 284
 dental surgery 359
 maxillo facial surgery 474
 microlaryngeal surgery 258
 neonatal surgery 397
 neurosurgery 457
 oncology 330
 ophthalmic surgery 470
 radiology 351
 enflurane 543, 594
 Entonox 32

- ephedrine 75
 epicardial pacemaker
 insertion 374
 epicardial (surface)
 echocardiography 377
 epidermolysis bullosa 540
 epidural blockade 205–7
 epidural space 7
 epiglottis 5, 421
 epilepsy 542
 Equanox 32
 equipment 79–110
 blood pressure
 measurement 104–5
 breathing systems 96–9
 endotracheal tubes 92–4
 face masks 80
 laryngeal mask airway
 84–6
 laryngoscopes 88–90
 oropharyngeal airways
 82–3
 peripheral venous
 cannulae 110
 pulse oximetry 102–3
 radiology 346
 temperature monitoring
 106–7
 ventilators 100–1
 warming devices 108
 esmolol 341
 estimated blood volume
 13
 ethosuximide 543
 ethyl chloride 63
 etomidate 276, 371
 examination 53
 excretion 28
 exomphalos 402
 external jugular vein
 cannulation 129
 extracellular fluid
 compartment 26
 eye opening 461, 462
- F**
- Face, Legs, Activity, Cry and
 Consolability (FLACC)
 scale 149
 face masks 80
 Faces Pain Assessment Tool
 150–1, 151
 facial expression 148
 facial trauma 474
 facilities and procedures for
 day case surgery 222
 faciocraniosynostoses 294
 facioscapulothoracic muscu-
 lar dystrophy 565
 factor VIII concentrate
 544–5, 545–7
- family history of inheritable
 diseases 52
 fascia iliaca compartment
 block 188
 fasting 603
 fat 26
 felypressin 359
 femoral artery cannulation
 137
 femoral nerve block 186,
 436, 437
 femoral osteotomy 268–9
 femoral shaft fractures
 436
 femoral vein cannulation
 132–3
 fentanyl 607
 asthma 73
 baclofen pump insertion
 283
 caudal epidural blockade
 204
 circumcision 226
 congenital heart disease
 371, 379
 dental surgery 359
 epidural blockade 206
 epidural infusion analgesia
 168–9
 femoral osteotomy 269
 inguinal hernia repair and
 hydrocele 233
 liver failure 559
 maxillo facial surgery
 475
 neonatal surgery 407
 neurosurgery 457, 465
 oncology 340
 ophthalmic surgery 468,
 471
 orchidopexy 235
 orthopaedic surgery 432,
 439
 plastic surgery 454
 renal failure 594
 ventriculo-peritoneal
 shunt insertion 281
 see also fentanyl citrate
 fentanyl citrate 36
 ENT 416, 426
 fundoplication 244
 general surgery 410, 412,
 415
 maxillo facial surgery
 473
 neonatal surgery 392,
 398, 403, 405, 409
 oncology 329, 330
 ophthalmic surgery 303,
 305, 307
 orthopaedic surgery 435
 plastic surgery 310, 314,
 317, 442, 451
- pyeloplasty and
 nephrectomy 236
 thoracotomy and
 thoracoscopy 356
 tonsillectomy 249
 fetal blood flow 10
 fetal circulation 10–12, 11,
 364
 FFP 333
 fiberoptic endotracheal
 intubation 123–7
 field block 174
 flow generators 100
 fluid administration see
 pharmacology and fluid
 administration
 fluid balance 333, 337
 prematurity 588
 renal failure 591
 fluids 109, 392, 521
 flumazenil 606
 forearm fractures 432
 foreign body removal 418
 four years to six years 23
 FRC 8
 free flap surgery 318–21
 frusemide 285
 fundoplication 242–4
- G**
- gabapentin 543
 gallamine 594
 gases 109
 gastro-oesophageal reflux
 242–4
 gastrointestinal system
 537
 HIV/AIDS 550
 prematurity 588
 renal failure 592
 gastroschisis 402
 general paediatric surgery
 224
 circumcision 226–7
 fundoplication 242–4
 hypospadias repair 230–1
 inguinal hernia repair and
 hydrocele 232–3
 laparoscopy 238–41
 orchidopexy 234
 preputioplasty 228
 pyeloplasty and
 nephrectomy 236–7
 general surgery 12
 appendicectomy 410
 intussusception 412
 scrotum, acute 414
 gentamicin 326
 gestation 390
 Glasgow Coma Scale 459,
 461, 462

- glaucoma 306–7
glomerular filtration rate 16
glucose containing fluids 43
glucose reabsorption 16
glucose requirement 18
glycaemia control 588
glyceryl trinitrate 376, 562
glycopyrronium bromide 61, 120
ENT 243, 419, 421, 426
epidermolysis bullosa 541
general paediatric surgery 240
general surgery 415
myasthenia gravis 569
neonatal surgery 393
ophthalmic surgery 300, 303, 466
gold 553
Goldenhar syndrome 528
goniometry 306
grommets 247
Guedel oropharyngeal airway 82, 82–3
- H**
- H₂ receptor antagonists 61
haematological features
Down's syndrome 537
HIV/AIDS 550
prematurity 588
renal failure 591–2
haematology 521
haemophilia A 544–5
haemophilia B (Christmas disease) 545
haemorrhage 556–7
half-life 27–8
halothane 32, 33
ENT 418, 419, 421
fibreoptic endotracheal intubation 124
inhalational induction 64–5
liver failure 559
microlaryngeal surgery 258
muscular dystrophy 565
head injury: initial resuscitation and management 458
heart failure 13
heart murmurs 70
heart rate 13, 488
heat and moisture exchanging (HME) filters 109
heating blankets and mattresses 109
hemifacial microsomia see Goldenhar syndrome
- heparin 376
hepatic glucose storage 15
hepatic physiology 14–15
Hickman line insertion 328–9
high dependency unit 140, 142, 334, 338, 342, 356
history 52
HIV/AIDS 548
Hodgkin's lymphoma 323
Humphrey ADE 97, 99, 101
Hunter's syndrome 580, 581
Hurler-Scheie's syndrome 580, 581
Hurler's syndrome 580
hydrocele 232–3
hydrocortisone 326, 487, 490
hyperglycaemia 43
hyperkalaemia 595
hyperthermia 106–7, 492, 494
hypervolaemia 319
hypoglycaemia 43, 535
hyponatraemia 43, 45
hypospadias repair 230–1
hypotension 206, 488
hypothermia 106–7, 496, 514
congenital heart disease 377
interhospital transfer 522–3
plastic surgery 451
hypoventilation 482
hypovolaemia 41, 488
hypoxia 366, 482
hypoxic gas mixture 482
- I**
- ibuprofen 38, 61, 157
circumcision 227
dental surgery 359
general surgery 415
mandibular surgery 295
maxillo facial surgery 473, 475
middle ear surgery 254
myringotomy and grommets 248
neurosurgery 457
ophthalmic surgery 469, 471
orthopaedic surgery 433, 430, 436, 439
plastic surgery 442, 454
tonsillectomy 250
ilioinguinal/iliohypogastric block 176–7
imaging 460
- immune system 537
immunity and renal failure 592
immunizations 77
immunosuppression 569
imperforate anus 404
induction agents 578, 594
infants 149
circulation 13
maintenance fluid regimens 44–5
infection 521
HIV/AIDS 549, 551
liver failure 557
infectious diseases 76
infiltration 174
infrared thermometers 106
inguinal hernia repair 232–3
inhalational anaesthetic agents 32–3
inhalational induction of anaesthesia 64–5
inotropes 490
intensive care unit 140, 142
intercostal muscles 6
interhospital transfer to paediatric intensive care unit 522–3
internal jugular vein cannulation 130–1
intracranial haematoma, evacuation of 464
intracranial pressure 18, 278, 281, 458–9, 460
craniofacial surgery 294
neurosurgery 456, 457, 464
intralipid 199
intraocular pressure 298–9, 300–1, 306, 307
ophthalmic surgery 468
intraosseous cannulation 134–5
intrathecal drugs 326, 326–7
intravenous anaesthetic agents 30–1
intubation, failed 498
intussusception 412
investigations 53
IPPV 9, 113
anaesthesia 484
congenital heart disease 371
inguinal hernia repair and hydrocele 232, 233
neonatal surgery 395, 398, 400, 401
oncology 329, 330
radiology 351
isoflurane 32, 33, 371, 559
congenital heart disease 371

liver failure 558
 haemophilia 545
 immunoglobulin 569, 570
 neonatal surgery 408

J

jaundice 555
 juvenile chronic arthritis 552

K

Kearnes-Sayre syndrome 573
 ketamine 31, 60, 61, 518, 607–8
 anaesthesia 487
 antiemetic 280
 asthma 73
 caudal epidural blockade 204
 congenital heart disease 371
 hypospadias repair 231
 neonatal surgery 391
 ophthalmic surgery 298–9, 300, 301, 307
 plastic surgery 454
 scoliosis 276
 ketoconazole 550
 Klippel Feil syndrome 560

L

lacerations 441
 lamotrigine 543
 laparoscopy 238–41
 laryngeal mask airway 84–6, 113, 114–15
 anaesthesia 500
 bronchoscopy 257
 dental surgery 359
 fiberoptic endotracheal intubation 123
 inguinal hernia repair and hydrocele 232
 intubating 86
 with oesophageal drain (LMA-ProSeal) 86
 oncology 329
 orthopaedic surgery 437
 radiology 351
 single use 86
 laryngoscopes 88–90
 laryngospasm 485
 larynx 5
 laser surgery tubes 94
 laser treatment 306
 Leigh syndrome 574

leukaemia 322
 leukotriene-receptor antagonists 72–3
 levobupivacaine 40, 159
 ankle block 189
 axillary brachial plexus block 183
 caudal epidural blockade 203, 204
 circumcision 226
 congenital talipes equinovarus 267
 developmental dislocation of hip 263
 epidural blockade 206
 epidural infusion analgesia 168–9
 fascia iliaca compartment block 188
 femoral nerve block 186
 hypospadias repair 231
 ilioinguinal/iliohypogastric block 176
 inguinal hernia repair and hydrocele 233
 neonatal surgery 405
 paravertebral blockade 215
 peripheral blocks 172
 pharmacology 198
 popliteal nerve block 192
 preputioplasty 228
 psoas (lumbar) plexus blockade 213
 LF-P model 123–4
 LF2 model 123–4
 lidocaine, epinephrine (adrenaline) and tetracaine mix (LET) 174
 light-emitting diodes (LEDs) 102–3
 lignocaine 62, 126, 518
 asthma 73
 bronchoscopy 256
 circumcision 226, 227
 dental surgery 359
 ENT 419
 fiberoptic endotracheal intubation 124
 microlaryngeal surgery 258
 oncology 340
 ophthalmic surgery 468
 pharmacology 199
 subarachnoid (spinal) blockade 211
 limited tubular function 16
 lipinavir 550
 liver failure 554
 acute 554–5
 chronic 555–9
 liver metabolism 15

Liverpool Infant Distress Scale 148
 local anaesthetic 40
 acute pain and post-operative analgesia 159
 craniotomy 288
 general surgery 410, 415
 neonatal surgery 409
 neurosurgery 457
 oncology 338
 pyeloplasty and nephrectomy 237
 renal failure 594
 scoliosis 280
 lorazepam 460, 518
 lower airway 6
 Luer lock connectors 122
 lumbar paravertebral block 215
 lumbar puncture 326–7
 lumps and bumps 308–9
 Lund and Browder burns chart 445
 lungs, insensible losses from 9
 lymphomas 323

M

McArdle's disease 574–5
 McCoy laryngoscope 120
 Macintosh blade 88, 89
 magnesium 199, 509, 518
 sulphate 341, 487
 magnetic resonance imaging 350–3
 malignant hyperthermia 494
 mandibular surgery 292–3
 mandibulofacial dysostosis see Treacher Collins syndrome
 mannitol 518, 559
 craniotomy 285
 neurosurgery 464
 Mapleson A 97
 Mapleson D 97
 Mapleson F 96, 99
 Marfan's syndrome 562
 Maroteaux-Lamy syndrome 581
 mastoidectomy 252
 maxillofacial surgery 290, 429–76
 dental abscess 472
 facial trauma 474
 mean arterial pressure 18, 464
 measles 76
 Mediwrap 108
 MELAS 573

- melatonin 608
 MERRF 573
 mesenchymal diseases 272
 metabolic features and liver failure 557
 metabolism 28
 methaemoglobinaemia 40
 methohexitone 543
 methotrexate 326, 553
 methylphenidate 75
 methylprednisolone 553
 metoclopramide 61, 161
 Microcuff tubes 94
 microlaryngeal surgery 258–9
 microlaryngeal tubes 94
 midazolam 60, 61, 226, 518, 606
 cerebral palsy 531
 congenital heart disease 371
 dental surgery 358
 Down's syndrome 537
 epilepsy 543
 liver failure 558
 neurosurgery 459
 oncology 340
 preoperative 24
 scoliosis 273
 middle ear surgery 252
 Miller blade 89
 Miller laryngoscope 120
 milrinone 378, 383
 mivacurium 34, 559, 570
 monitoring 163, 164–5
 morphine 371, 604, 607
 asthma 73
 caudal epidural blockade 204
 cerebral palsy 531
 congenital heart disease 379
 epidural blockade 206
 epidural infusion analgesia 168–9
 infusion chart 165
 liver failure 559
 neonatal surgery 407
 neurosurgery 465
 orthopaedic surgery 433, 434, 437
 pelvic osteotomy 270
 plastic surgery 320
 renal failure 594
 see also morphine sulphate 36
 morphine sulphate 36, 158
 acute severe pain 162
 baclofen pump insertion 283
 circumcision 226
 congenital talipes equinovarus 267
 craniotomy 288
 developmental dislocation of hip 263, 266
 ENT 416, 426
 epidural infusion analgesia 169
 femoral osteotomy 269
 fundoplication 244
 general surgery 410, 411, 412, 413, 415
 hypospadias repair 231
 inguinal hernia repair and hydrocele 233
 intravenous opioid infusion 164
 laparoscopy 240, 243
 mandibular surgery 295
 maxillo facial surgery 475
 middle ear surgery 253
 neonatal surgery 392, 393, 398, 403, 405, 409
 nurse controlled analgesia 167
 oncology 329, 330, 334, 337, 338, 342
 orchidopexy 235
 orthopaedic surgery 435, 436
 patient controlled analgesia 166
 pelvic osteotomy 273
 plastic surgery 310, 314, 317, 442, 447, 451, 452, 454
 pyeloplasty and nephrectomy 236, 237
 scoliosis 280
 thoracotomy and thoracoscopy 356
 tonsillectomy 249
 morphine sulphate solution 454
 Morquio's syndrome 581, 582
 motor evoked potentials 276
 mucopolysaccharidosis 119, 580
 mucositis 323–4
 multi-organ failure 76
 mumps 76
 muscle glycogenoses 574
 muscle relaxants 276, 565, 570, 575
 see also non-depolarizers
 muscle tissue 26
 muscle weakness 565
 muscular dystrophies 564
 myasthenia gravis 568
 myelomeningocele 408
 myocarditis 76
 myocardium 13
 myopathies 572
 myotonia congenita (Thomsen's disease) 577
 myotonic syndromes 576
 myringotomy 247
- N**
 naloxone 204, 518
 nasal mask 359
 nasogastric losses 44
 nasopharyngeal airways 83, 106, 113
 National Institute for Health and Clinical Excellence 131
 NCA 288
 necrotizing enterocolitis 400
 needle cricothyroidotomy 500–1
 needle placement 203
 neonatal circulation 13
 neonatal compared with myocardial function 13
 Neonatal and Infant Pain Scale (NIPS) 148
 Neonatal Pain, Agitation and Sedation Score 148
 neonatal surgery 12
 abdominal wall defects: gastrochisis and exomphalos 402
 congenital diaphragmatic hernia 406
 imperforate anus 404
 myelomeningocele 408
 necrotizing enterocolitis 400
 oesophageal atresia (tracheo-oesophageal fistula) repair 396–7
 principles of anaesthesia 390
 pyloromyotomy 394
 rapid sequence induction 388
 neonates 20, 44, 148
 neostigmine 393, 518, 570
 nephrectomy 236–7
 nephroblastoma see Wilms' tumour
 nerve repairs 442
 neuroblastoma 336–9
 neurological check 521
 neurological features
 Down's syndrome 537
 prematurity 587
 neuromuscular blockers 34, 391, 459, 578

- neurosurgery 278, 455
arterio-venous malformation embolization 288–9
baclofen pump insertion 282–3
craniotomy 284–6
head injury: initial resuscitation and management 458
intracranial haematoma, evacuation of 464
ventriculo-peritoneal shunt 280–1, 456
neutral temperature in neonates and adults 21
nevirapine 550
newborn life support 516, 517
Newton valve 101
nitrazepam 543
nitrous oxide 32, 276, 608
inhalational induction 64–5
plastic surgery 454
non-depolarizers 34
myopathies 573
myotonic syndromes 578
neonatal surgery 391
renal failure 594
non-Hodgkin's lymphoma 323
non-nucleoside analogue reverse transcriptase inhibitors 550
non-steroidal anti-inflammatory drugs 38, 146, 157, 158, 604
antiemetics 160–1
asthma 73
baclofen pump insertion 284
bronchoscopy 258
circumcision 226
congenital talipes equinovarus 267
dental surgery 359, 360
developmental dislocation of hip 263, 266
ENT 419
femoral osteotomy 270
fundoplication 247
general surgery 410, 411, 413, 415
hypospadias repair 231
inguinal hernia repair and hydrocele 232, 233
intravenous opioid infusion 164
juvenile chronic arthritis 553
laparoscopy 243
liver failure 559
maxillo facial surgery 475
microlaryngeal surgery 262
myasthenia gravis 570
myringotomy and grommets 248
neonatal surgery 393
oncology 329, 330, 334, 337, 338, 342
ophthalmic surgery 303, 305, 307, 469
orchidopexy 235
orthopaedic surgery 433, 435, 437, 438, 439
patient controlled analgesia 166
pelvic osteotomy 273
peripheral blocks 172
plastic surgery 309, 311, 317, 320, 441, 452
preputioplasty 228
pyeloplasty and nephrectomy 237
renal failure 591, 594
scoliosis 280
thoracotomy and thoracoscopy 356
tonsillectomy 249
non-stimulants 76
Noonan syndrome 367
noradrenaline 341
anaesthesia 490
attention deficit hyperactivity disorder 74–5
neurosurgery 460, 464
normovolaemia 319
nucleoside analogue reverse transcriptase inhibitors 550
- O**
- Objective Pain Score 149
observations 164–5
occiput 5
oculoauriculovertebral dysplasia see Goldenhar syndrome
oculocardiac reflex 298–9
oesophageal atresia (tracheo-oesophageal fistula) repair 396–7
omeprazole 566
omphalocele see exomphalos
oncology 322–5
bone marrow harvest 330–1
lumbar puncture, intrathecal drugs, bone marrow aspiration and trephines 326–7
neuroblastoma 336–9
phaeochromocytoma 340–3
portacath or Hickman line insertion 328–9
radiotherapy 344–5
Wilms' tumour (nephroblastoma) 332–5
ondansetron 160–1, 161
ENT 416
fundoplication 244
general surgery 410, 415
mandibular surgery 295
middle ear surgery 253
ophthalmic surgery 303, 305, 307, 468, 471
pyeloplasty and nephrectomy 237
tonsillectomy 249, 251
open cardiac procedures 382
operating theatre 108
ophthalmic surgery 298–9
cataract extraction 306–7
examination under anaesthesia and intraocular pressure measurement 302–3
glaucoma 308–9
strabismus 304–5
ophthalmology 466
perforating eye injury 468
retinal detachment 470
opioids 36–7, 607
acute pain and post-operative analgesia 158
asthma 73
caudal epidural blockade 203–4
congenital heart disease 371, 379
craniotomy 288
dental surgery 359
ENT 416
infusion, intravenous 164
inguinal hernia repair and hydrocele 232
laparoscopy 243
liver failure 558
myasthenia gravis 570
myotonic syndromes 577, 578
oncology 327, 330, 340
orthopaedic surgery 437
plastic surgery 310
pyeloplasty and nephrectomy 237
scoliosis 280
optimal external laryngeal manipulation 120
orchidopexy 234

- oropharyngeal airway 82–3,
 113, 126
 orthopaedic surgery 260,
 430
 congenital talipes equino-
 varus (clubfoot) 266
 developmental (congeni-
 tal) dislocation of the
 hip (DDH) 262
 femoral osteotomy 268–9
 femoral shaft fractures
 436
 forearm fractures 432
 pelvic osteotomy 270
 scoliosis 272–6
 septic arthritis 438
 supracondylar fracture
 434
 osteogenesis imperfecta 584
 osteotomy
 femoral 268–9
 pelvic 270
 otoplasty 310–11
 outpatients 58
 Ovassapian type 125
 overhead infrared heaters
 109
 Oxford blade 89
 oxygen
 consumption 8, 18
 delivery, inadequate 482
 requirement 482
 supplementation 112
- P**
- pacing 377
 paediatric advanced life
 support 507
 paediatric foreign body
 airway obstruction 505
 Paediatric Intensive Care
 Society 522
 paediatric intensive care
 unit 522–3
 paediatric life support 503
 paediatric sensors 102
 pain see acute pain
 pancuronium 371, 559
 congenital heart disease
 371
 liver failure 558
 renal failure 594
 paracetamol 39, 61, 158,
 604
 acute pain and post-
 operative analgesia
 156
 anaesthesia 492
 baclofen pump insertion
 284
 bronchoscopy 258
 circumcision 227
 congenital talipes
 equinovarus 268
 craniotomy 288
 dental surgery 360
 developmental dislocation
 of hip 266
 ENT 416, 419, 426
 femoral osteotomy 270
 fundoplication 247
 general surgery 411, 413,
 415
 hypospadias repair 231
 inguinal hernia repair and
 hydrocele 233
 intravenous opioid
 infusion 164
 laparoscopy 240, 243
 mandibular surgery 295
 maxillo facial surgery 473,
 475
 microlaryngeal surgery
 262
 middle ear surgery 254
 myasthenia gravis 570
 myringotomy and
 grommets 248
 neonatal surgery 393,
 395, 398, 405, 409
 neurosurgery 457
 oncology 329, 330, 334,
 338, 342
 ophthalmic surgery 303,
 305, 307, 469, 471
 orchidopexy 235
 orthopaedic surgery 433,
 435, 436, 437, 438,
 439
 patient controlled
 analgesia 166
 pelvic osteotomy 273
 peripheral blocks 172
 plastic surgery 309, 310,
 311, 314, 317, 320, 441,
 442, 452, 454
 preputioplasty 228
 pyeloplasty and nephrec-
 tomy 237
 scoliosis 280
 ventriculo-peritoneal
 shunt insertion 282
 paraldehyde 518
 paramyotonia 577
 paravertebral blockade
 214
 parents and parental
 presence 24, 57, 390,
 521, 602
 Parkland formula 447
 patent ductus arteriosus
 374
 patients
 access and radiology 347
 covering 108
 radiology 347
 range of 50
 transfer 14
 interhospital transfer to
 paediatric intensive care
 unit 522–3
 stabilizing critically ill child
 in general hospital 520
 PCA
 antiemetic 280
 craniotomy 288
 general surgery 411
 haemophilia 545
 pyeloplasty and
 nephrectomy 237
 pelvic osteotomy 270
 penicillamine 553
 penile nerve blocks 180–1
 Penlon AV900 100
 Penlon Nuffield 200 100,
 101
 pentamidine 549, 550
 perforating eye injury 468
 perfusion pressure 319
 peripheral blocks see
 regional anaesthetic
 techniques
 peripheral nerve stimulator
 172
 peripheral venous
 cannulation 110, 128
 peroneal nerve 189
 Perthe's disease 268–9
 pertussis 76
 pethidine 75, 594
 phaeochromocytoma
 340–3
 pharmacokinetics 27–8
 pharmacology and fluid
 administration 2–25
 fluid balance and fluid
 administration 41
 inhalational anaesthetic
 agents 32–3
 intraoperative fluid
 administration 43
 intravenous anaesthetic
 agents 30–1
 local anaesthetic 40
 maintenance fluid
 regimens 44–5
 neuromuscular blockers
 34
 non-steroidal
 anti-inflammatory
 drugs 38
 opioids 36–7
 paracetamol 39
 pharmacokinetics 27–8
 pharmacology 26
 preoperative fluids and
 fluid resuscitation 42

- pharmacology and regional anaesthetic techniques: central blocks 198–9
 phase 1 reactions in hepatic physiology 14
 phase 2 reactions in hepatic physiology 14
 phenobarbital 543
 phenothiazines 608
 phenoxybenzamine 337, 341, 379
 phenolamine 337, 342, 376, 379
 phenylephrine 298–9, 341, 376
 phenytoin 199, 518, 543
 neurosurgery 460, 465
 physiological jaundice 14
 plasmapheresis 569, 570
 plastic surgery 297–360, 440
 burns and scalds 444–6, 450, 454
 cleft lip and palate 316–17
 free flap surgery 322–5
 lacerations 441
 lumps and bumps 310–11
 nerve and tendon repairs 442
 otoplasty 312–15
 syndactyly 318–21
 platinum-wire thermometers 106
 play specialists 24, 58
 poker chip tool 150–1
 Pompe's disease 574, 575
 popliteal nerve block 192–3
 portacath insertion 328–9
 positioning 112
 post-exposure prophylaxis 551
 post-operative analgesia
 see acute pain and post-operative analgesia
 postoperative care see practical procedures and postoperative care
 potassium sparing diuretics 591
 practical procedures and postoperative care 111–44
 airway management, advanced 114–15
 airway management, basic 112–13
 airway management, difficult 118–22
 endotracheal intubation 116–17
 external jugular vein cannulation 129
 femoral artery cannulation 137
 femoral vein cannulation 132–3
 fiberoptic endotracheal intubation 123–7
 High Dependency Unit 140
 Intensive Care Unit 142
 internal jugular vein cannulation 130–1
 intraosseous cannulation 134–5
 peripheral venous cannulation 128
 radial artery cannulation 136
 recovery area (post anaesthetic care unit) 138–9
 pre-school children 150–1
 prednisolone 518, 549
 Premature Infant Pain Profile 148
 prematurity 52, 586
 premedication 60–1
 preoperative assessment 52–4
 preoperative fasting 56
 preoperative preparation 22, 24
 preputioplasty 228
 pressure generators 100
 pressure-controlled ventilators 100
 prilocaine 40, 62, 199, 359
 primary survey and burns 446–7
 principles of anaesthesia 49–78
 asthma 72–3
 attention deficit hyperactivity disorder 74–5
 'cold' or respiratory tract infection 66–8
 heart murmurs 70
 immunizations 77
 infectious diseases 76
 inhalational induction of anaesthesia 64–5
 parental presence at induction 57
 patients, range of 50
 play specialists and distraction 58
 premedication 60–1
 preoperative assessment 52–4
 preoperative fasting 56
 venous access 62–3
 problems during anaesthesia 480
 airway obstruction 484
 anaphylaxis 490
 bronchospasm 487
 can't intubate, can't ventilate (CICV) 500
 dysrhythmias 489
 hyperthermia 492
 hypotension 488
 hypothermia 496
 hypoxia 482
 intubation, failed 498
 laryngospasm 485
 malignant hyperthermia 494
 procainamide 511
 prochlorperazine 161
 prokinetic 61
 promethazine 608
 propofol 30, 607
 anaesthesia 486
 asthma 73
 bronchoscopy 256
 congenital heart disease 371, 376, 379
 craniotomy 285
 dental surgery 359
 epilepsy 543
 liver failure 558
 microlaryngeal surgery 258
 myotonic syndromes 577
 neonatal surgery 388, 391
 neurosurgery 459
 ophthalmic surgery 301
 radiology 351
 renal failure 594
 scoliosis 273, 276
 prostaglandin 383
 protamine 378
 protease inhibitors 550
 prothrombin 556
 protocols 163
 psoas (lumbar) plexus blockade 212–13
 psychology 22
 pubic tubercle 188
 pulmonary artery banding 375
 pulmonary hypotension 378
 pulse oximetry 102–3
 pulseless electrical activity see asystole
 pulseless ventricular tachycardia see ventricular fibrillation
 pyeloplasty 236–7

- pyloromyotomy 394
 pyridostigmine 570
 bromide 568
- Q**
- quality control 223
 QUESTT tool 147
- R**
- radial artery cannulation 136
 radioimmunoassay 568
 radiology 346–7
 computed tomography 348–9
 magnetic resonance imaging 350–3
 radiotherapy 344–5
 RAE preformed tubes 94
 railroading 123–4, 126
 ranitidine 61, 566
 rapid sequence induction 388
 recovery area (post anaesthetic care unit) 138–9
 rectal site 106
 rectus sheath block 178–9
 regional anaesthesia 372, 578
 regional anaesthetic techniques: central blocks 195–216
 caudal catheter technique 208
 caudal epidural blockade 200–4
 epidural blockade 205–7
 overview and safety 196
 paravertebral blockade 214
 pharmacology 198–9
 psoas (lumbar) plexus blockade 212–13
 subarachnoid (spinal) blockade 210–11
 regional anaesthetic techniques: peripheral blocks 7–171
 ankle block 189
 axillary brachial plexus block 183
 fascia iliaca compartment block 188
 femoral nerve block 186
 ilioinguinal/iliohypogastric block 176–7
 infiltration and field block 174
 overview and safety 172–3
 penile nerve blocks 180–1
 popliteal nerve block 192–3
 rectus sheath block 178–9
 ring block and digital nerve block 182
 sciatic nerve block 190
 supraclavicular brachial plexus block 184
 regional blocks and cerebral palsy 531
 reinforced tubes 94
 remifentanyl 37, 240
 bronchoscopy 256
 congenital heart disease 371
 craniofacial surgery 295–6
 craniotomy 285
 dental surgery 359
 developmental dislocation of hip 263
 femoral osteotomy 268, 269
 fundoplication 244
 general surgery 412
 liver failure 559
 mandibular surgery 292
 maxillo facial surgery 475
 middle ear surgery 253
 myasthenia gravis 570
 neonatal surgery 398, 407
 neurosurgery 465
 oncology 333, 337, 340
 ophthalmic surgery 304, 307, 471
 pelvic osteotomy 270
 plastic surgery 313, 319
 pyeloplasty and nephrectomy 236
 scoliosis 273
 thoracotomy and thoracoscopy 356
 renal blood flow 16
 renal check 521
 renal failure 590–1
 renal function and liver failure 557
 renal physiology 16–17
 renal replacement therapy 593
 renal transplantation 593
 Rendell-Baker face mask 80
 respiratory abnormalities 366
 respiratory control, immature 9
 respiratory features HIV/AIDS 549
 liver failure 557
 mucopolysaccharidoses 582
 prematurity 586–7
 respiratory function and muscular dystrophy 565
 respiratory history 52
 respiratory markers 148
 respiratory physiology 8–9
 respiratory rate 8
 respiratory status 390
 respiratory tract 536
 resuscitation 502
 advanced life support 506
 asystole or PEA (pulseless electrical activity) 508
 basic life support 502
 choking 504
 dysrhythmias 510
 emergency drugs: dilution and doses 518
 hypothermia 514
 newborn life support 516
 ventricular fibrillation or pulseless ventricular tachycardia 508–9
 retinal detachment 470
 rewarming 514
 Reyes syndrome 38
 ribs 9
 ring block 180, 182
 Ritalin 75
 ritonavir 550
 Robertshaw blade 89
 Robertshaw laryngoscope 120
 rocuronium 34, 371, 559, 594
 ropivacaine 40, 159
 caudal epidural blockade 203
 epidural blockade 206
 epidural infusion analgesia 168–9
 paravertebral blockade 215
 pharmacology 198–9, 199
 psoas (lumbar) plexus blockade 213
 Royal Colleges of Radiologists and Anaesthetists 600
 rubella 76
- S**
- sacral anatomy 200–1, 201
 SAFE approach 502
 safety 172–3
 salbutamol 76, 487, 490, 518
 Sanfilippo's syndrome 581
 saphenous nerve 189

- saquinavir 550
 saralasin 333
 scalds 444–6, 450, 454
 Scheie's syndrome 580
 school children 152
 Schwartz-Jampel syndrome 577
 sciatic nerve block 190
 scoliosis 272–6
 scrotum, acute 414
 secondary survey and burns 447–8
 sedation for diagnostic and therapeutic procedures 16
 drugs used 606
 management 602
 overview 600–1
 sedatives 24, 60
 Seldinger technique 136
 selection and exclusion criteria for day case surgery 220–1
 sepsis 588
 septic arthritis 438
 septicaemia 76
 sequestration crisis 598
 serotonin receptor antagonists 160–1
 sevoflurane 32, 33
 bronchoscopy 256
 congenital heart disease 371
 ENT 418, 421
 fiberoptic endotracheal intubation 124
 inhalational induction 64–5
 liver failure 558, 559
 microlaryngeal surgery 258
 renal failure 594
 scoliosis 276
 Seward blade 89
 shock 41, 42
 shunt 482
 sickle cell disease 596
 Sickledex test 597
 sinus arrhythmia 13
 six months to four years 23
 six years to thirteen years 23
 skeletal features and Down's syndrome 537
 social circumstances 221
 sodium
 cromoglycate 72–3
 nitroprusside 337, 341, 562
 valproate 543
 somatosensory evoked potentials 276
 SonoSite 131
 spasm of transplanted vessels 319
 specific respiratory system compliance 8
 spinal cord 7, 276
 spontaneous ventilation 484
 stabilizing critically ill child in general hospital 520
 staphylococcus pneumoniae 76
 sternomastoid tumour 309
 steroids 258, 262
 asthma 72–3
 congenital heart disease 379
 craniotomy 285
 HIV/AIDS 549
 juvenile chronic arthritis 553
 myasthenia gravis 569, 570
 prematurity 586
 renal failure 593
 stimulants 75
 stoma losses 44
 Storz ventilating bronchoscope 254, 255
 strabismus 302–3
 stridor 420
 stroke volume, reduction in 488
 subarachnoid (spinal) blockade 210–11
 subpubic block 180
 sufentanil 594
 supraclavicular brachial plexus block 184
 supracondylar fracture 434
 supraventricular tachycardia 511
 sural nerve 189
 surgical airway and anaesthesia 501
 suture 7
 suxamethonium 34, 298–9, 301
 arthrogryposis multiplex congenita 527
 cerebral palsy 531
 liver failure 559
 muscular dystrophy 565
 myasthenia gravis 570
 myopathies 573, 574, 575
 myotonic syndromes 577, 578
 neonatal surgery 388, 391
 neurosurgery 459
 ophthalmic surgery 468
 osteogenesis imperfecta 585
 plastic surgery 447, 451
 renal failure 593
 SV 329, 351
 sympathetic blockade 319
 syndactyly 316–17
 syndromes and conditions with implications for anaesthesia 525–98
 arthrogryposis multiplex congenita 526
 brachial (pharyngeal) arch syndromes 528–9
 cerebral palsy 530
 diabetes mellitus 532
 Down's syndrome 536
 epidermolysis bullosa 540
 epilepsy 542
 haemophilia A 544–5
 haemophilia B (Christmas disease) 545
 HIV/AIDS 548
 juvenile chronic arthritis 552
 Klippel Feil syndrome 560
 liver failure 554
 Marfan's syndrome 562
 mucopolysaccharidoses 580
 muscular dystrophies 564
 myasthenia gravis 568
 myopathies 572
 myotonic syndromes 576
 osteogenesis imperfecta 584
 prematurity 586
 renal failure 590–1
 sickle cell disease 596
 Von Willebrand's disease 545–7
 systemic vascular resistance, reduction in 488
 systemic-pulmonary shunt 374
 systolic pressure 13
- T**
 T-piece 101
 tachyarrhythmias 510–12
 tachycardia 13
 temazepam 606
 temperature
 maintenance 392
 monitoring 106–7
 tendon repairs 442
 tetracaine 63, 604
 ophthalmic surgery 298–9, 303, 305, 307

- tetralogy of Fallot 382–3
 thermal control 20
 thermistors 106, 107
 thermocouples 106, 107
 thermoregulation 333, 337, 587–8
 thiopental 30, 607
 epilepsy 543
 liver failure 558
 neonatal surgery 388, 391
 neurosurgery 459
 ophthalmic surgery 468
 plastic surgery 447
 prematurity 587
 renal failure 594
 thiotepa 326
 Thomsen's disease 577
 thoracic paravertebral
 block 214–15
 thoracotomy and
 thoracoscopy 354–7
 throat packs 359
 thymectomy 569
 thyroglossal derivatives
 308
 tibial nerve 189
 tidal volume 8
 TIVA 359
 middle ear surgery 253
 muscular dystrophy 566
 pelvic osteotomy 270
 scoliosis 273
 tizanidine 530
 Toddler-Preschooler
 Postoperative Pain Scale
 149
 tongue 5
 tonsil, bleeding 416
 tonsillectomy 248–51
 topical cutaneous
 anaesthesia 62–3
 topiramate 543
 total plasma protein levels
 26
 toxicity 199
 trabeculectomy 306
 trabeculotomy 306
 tracheal length 6
 tracheo-oesophageal fistula
 repair 396–7
 tracheostomy 94, 424
 tramadol 75
 tranexamic acid 545, 547
 transitional circulation 11
 transposition of great
 arteries 383
 Treacher Collins syndrome
 528–9
 trephines 326–7
 triclofos 379, 608
 trimeprazine 379, 608
 triple manoeuvre 113
 trisomy 21 367
 tubocurarine 594
 tubular immaturity 16
 tumour lysis syndrome
 324
 Tuohy needle 206, 208,
 215
 Turner syndrome 367
 tympanic membrane 106
 tympanoplasty 248–51, 252
- U**
- ultrasound 131, 172, 177
 upper airway 5
- V**
- vagolytic agents 61
 vancomycin 326
 varicella (chickenpox) 76
 vasoconstrictor 126
 vasodilatation 318
 VATER association 367
 VBM model 125
 vecuronium 34, 73, 371,
 543, 559, 594
 venous access 62–3
 ventilators 100–1
- ventricular dysfunction 378
 ventricular fibrillation or
 pulseless
 ventricular tachycardia 508–9
 ventricular septal defect 382
 ventricular tachycardia 511
 ventriculo-peritoneal shunt
 280–1, 456
 vibration 522
 vigabatrin 530, 543
 viscosity 318
 vitamin K 391
 -dependent clotting factors
 15
 vocal cords 5
 volatile agents 32–3, 276,
 577, 578, 594
 volume of distribution 27–8
 volume status 390
 von Willebrand factor
 (vWF) 545–7
 von Willebrand's disease
 545–7
- W**
- wake-up test 276
 warming devices 108
 Wilms' tumour (nephro-
 blastoma) 332–5
 Wisconsin blade 89
 Wisconsin laryngoscope 120
 World Health Organization
 586
 analgesic ladder 154–5,
 155
- X**
- xylometazoline 126
- Z**
- zidovudine 550