Index

Note: Page numbers in *italics* refer to Figures; those in **bold** to Tables.

Abbreviated Mental Test (AMT), 383
abdominal compartment syndrome, 256–7
abdominal injuries
epidemiology, 349
perioperative considerations
abdominal trauma, 349, 350
trauma reception and resuscitation, 349
preoperative assessment
airway, 350
AMPLE history, 352
breathing, 350
circulation, 350
circulation and volume, blood loss, 352
CT scan, 351, 351
thoracolumbar spine assessment, 352
ventilation, 352
verbal handover, 351
ABG see arterial blood gas (ABG)
ACE inhibition, heart failure (HF), 190–191
acquired clotting factor deficiencies, 360
acute kidney injury (AKI)
aetiology, 94
definition, 94, 95
diagnostic challenges, 95–6
epidemiology, 94–5
blood glucose control, 257
perioperative
abdominal compartment syndrome, 256–7
management, 96–7
rhabdomyolysis, 256
risk factors, 95
toxins, 254–6
urinary tract obstruction, 256
prevention and treatment, 96
and sepsis, 257
acute lung injury (ALI)
acute respiratory distress syndrome (ARDS), 212, 213
aetiology, 212, 213
fluid management, 215
management, 212
oxygen toxicity, 214
pathophysiology, 212
protective mechanical ventilation strategies, 214–15
rescue therapies, 215–16, 216
ventilator-induced lung injury (VILI), 213–14
acute phase reactants (APRs), 440–441
acute respiratory distress syndrome (ARDS), 212, 213
addiction/substance dependence, 149
Addison’s disease (adrenal insufficiency), 277
hydrocortisone, high-dose, 145
minor procedures, 145
multi-day admissions, 145
routine medical management, 145
same-day surgery, 145
adrenal disorders
adrenocortical cancers, 280
Conn’s syndrome, 279
Cushing’s syndrome, 279–80
diagnosis, 277, 278
intraoperative management, 279
lesion, investigation, 277
phaeochromocytoma, 277–8
postoperative management, 279
preoperative blockade, 278
volume repletion, 278
adrenocortical cancers/tumours, 280
advanced trauma life support (ATLS) programme, 309, 310, 318, 349
AF see atrial fibrillation (AF)
AHA See American Heart Association (AHA)
airway assessment and planning, physical core elements, 68, 69
high-risk factors, 69
individual airway management strategies, 71, 72
investigations, 72
Mallampati scoring system, 70, 70
modified Cormack and Lehane classification, direct laryngoscopy, 69
normal and difficult airway, 71, 71
preoperative planning, 71
AKI see acute kidney injury (AKI)
ALI see acute lung injury (ALI)
allergic reactions, perioperative skin testing, 387
tryptase, 387
alpha-2 agonists, 30, 55, 167
American College of Cardiology (ACC), 61, 79, 193
The American College of Obstetricians and Gynecologists Committee Opinion on Non-obstetric Surgery During Pregnancy, 380
American College of Surgeons National Surgical Quality Improvement Program (NSQIP), 242
American Heart Association (AHA), 61, 79, 158, 193
American Society of Anesthesiologists (ASA) physical classification system, 382
AMT see Abbreviated Mental Test (AMT)
anæmia and hypothermia, 167
intraoperative management, 87
patient blood management, 85, 86
postoperative optimisation complications, transfusion, 87
NHMRC guidelines, 87, 88
sentinel randomised controlled trial, 88
preoperative optimisation, 85, 87
anaesthesia
anaesthetic agents, 29–30, 31
deﬁnition, 28
dissociative, 28
sedative agents, 30, 31
anaesthetic agents
alkylphenols, 29
barbiturates, 29
epilepsy
anticholinergics, 303
inhahalational agents, 302
intravenous hypnotic agents, 303
local anaesthetic agents, 303
neuromuscular blocking agents, 303
opioids, 302–3
imidazolines, 29
mechanism of action, 28–9
pharmacological concepts, 29
phencyclidines, 30
uses, 30, 31
anaphylaxis
investigation, 387
management
adrenaline, 386–7
antihistamines, 387
fluid resuscitation, 387
steroids, 387
perioperative antibiotics, 388
chlorhexidine, 388
colloids, 388
dyes, 389
induction agents, 389
latex, 388
local anaesthetics, 389
neuromuscular blocking drugs, 388
opioids, 389
practical management, 388
anastomotic leak, 451
antibiotic prophylaxis
antibiotic choice, 154–5
antibiotics characteristics, for surgical prophylaxis, 156
definition, 154
endocarditis see endocarditis, antibiotic prophylaxis
in high-risk surgery, 156
lower uterine segment caesarean sections, 155
maternal anaphylaxis, 156
preoperative checklists, 156
recommendations, 156
red man syndrome, 155
short-course, 154
surveillance systems, 156
ticlopidin, 155
timing and repeat dosing, 155
tourniquets use, 157
vancomycin dosing timing, 157
anticoagulants and antiplatelet agents antiplatelet therapy, 131–4
direct-acting oral anticoagulants, 130
epidural catheters management, 131
patients on warfarin, 128–9, 130
antidepressants, 47, 49, 152, 249, 509, 512
antiemetic therapy, PONV
first-line therapy, 427, 428
second-line therapy, 428–9, 429
antiepileptic drugs, 49
antihypertensive doses, hypertension, 174
antiplatelet therapy (APT)
aspirin, in perioperative period, 132–3
benefit, 132
coronary stent thrombosis (ST), 133
morbid cardiac and neurological events, 131–2
antithyroid drugs, 271
aortic stenosis (AS)
aetiology
bicuspid aortic valve disease, 195–5
calcific aortic valve disease, 195
rare causes, 195
rheumatic heart disease, 195
implications, perioperative patient, 196
measures of severity, 193
pathophysiology, 193
perioperative management, 196–7
severity classiﬁcation, 196, 196
symptoms and signs, 194, 194
treatment, 196
aortic valve area (AVA), 193, 195, 196
aortic valve replacement (AVR), 196
appendicectomy, 377
appendicitis
perioperative fetal monitoring and management, 380
with peritonitis, 379
APRs see acute phase reactants (APRs)
arhythmias
atrial ﬁbrillation (AF), 176–7
heart block, 177–8, 178, 179
Index

long QT syndromes, 180
metabolic equivalents (METs), 175, 176
paroxysmal supraventricular tachycardias (SVT), 179–80
pre-existing, 175
preoperative assessment, 175
sinus bradycardia, 175, 176
sinus tachycardia, 175
ventricular rhythms, 178, 180–181
arterial blood gas (ABG), 113, 116, 289, 290, 452, 458, 463
AS see aortic stenosis (AS)
ASIA Standard Neurological Assessment, 336
asthma
diagnosis, 224
disease control, 224
high-risk patients, identification, 224, 225
perioperative complications, 223
postoperative management, exacerbation, 227–8
preoperative assessment and management, 223
asthma management, 226–7
screening, 226
stepwise approach, 224, 225
stepwise management, 227
suboptimal control, 226
triggers, 224, 225
asymptomatic hyponatraemia, 408
ATLS see advanced trauma life support (ATLS)
ATLS programme see advanced trauma life support (ATLS) programme
atrial fibrillation (AF), 176–7, 177
The Australian and New Zealand Burns Association criteria, 359
balloon valvuloplasty, 196
bare metal stent (BMS), 133
barotrauma, 214, 215, 230, 346, 393
beta-blockade, heart failure (HF), 191
beta-blockers, 167
bicuspid aortic valve disease, 194–5
biobanks, 40–41
biotrauma, 214
bipolar disorder, 376
bleeding disorders
acquired clotting factor deficiencies, 360
cogulation factor deficiencies, 360
management principles
haemophilia, 362
thrombocytopenia, 363–4
Von Willebrand disease, 362, 363
pathophysiology
cogulation, 361–2
primary haemostasis, 360, 361
perioperative, 364–5
bleeding risk, thromboprophylaxis, 123
blood-borne viruses
infection, needlestick injury
hepatitis B virus, 371
hepatitis C virus, 371
human immunodeficiency virus, 370–371
occupational exposures, 370
blood tests, postoperative investigations
arterial blood gas (ABG), 116
blood sugar level (BSL), 116
cogulation studies, 115
full blood examination (FBE), 115
liver function tests (LFTs), 116
troponin/cardiac enzymes, 116
urea, electrolytes and creatinine (U&E), 115
blood transfusion
ABO typing, 410, 411
antibody screen, 410
blood components, 411
cross-match, 411, 412, 412
indications
prothrombin complex concentrates, 413
red cells, platelets, fresh frozen plasma and cryoprecipitate, 412–13
massive transfusion, 414–15
pretransfusion testing, 410
RhD testing, 410
transfusion, complications
acute haemolytic transfusion reactions, 414
allergic reactions, 414
bacterial contamination, 414
reactions, 413, 413
transfusion-associated circulatory overload (TACO), 414
transfusion-related acute lung injury (TRALI), 414
transfusion-transmitted infection, 413
brain death, 416 see also donation after brain death (DBD)
burns
burn shock, 354
carbon monoxide poisoning, 356
cogulation, 356
evaluation and resuscitation
airway, 357
breathing, 357
circulation, 357
disability/neurological status, 357
exposure, 357–8, 359
hypermetabolism, 356
infection and sepsis, 356
inhalation injury, 355, 358
initial excision and biological closure, 358
over-resuscitation, fluid creep, 354–5
pain management, 359
pathophysiology, 354, 355
pharmacology, 356
preoperative preparation, 358
burst fractures, 329, 331
calcific aortic valve disease, 194, 195
calcium homeostasis
ionised calcium, 272–3
parathyroid hormone (PTH) and calcitriol, 272
plasma calcium, 272
calcium sensing receptor (CaSR), 273
Canadian Cardiovascular Society (CCS) angina scale, 59
Canadian CT Head Rule, 314, 317
capnography, 25–6
Caprini risk assessment model, 121, 122
carbon monoxide poisoning, 356
carcinoid crisis, 281, 285
carcinoid syndrome
  carcinoid heart disease, 282–3
cognitive impairment, 283
definition, 281
management
  carcinoid crisis, 285
  interventional radiology, 284–5
  somatostatin analogue therapy, 283–4
  staging, 284
  surgery, 284
mandatory perioperative investigations, 283
mediators, 281, 282
presentation, 282, 282
serotonin, 281–2
'cardiac' patient
  intraoperative management, 55
  perioperative approach, 51
  postoperative care, 55–6
  preoperative assessment
    clinical predictors, risk, 53
    decision making, 54
    low-risk surgical procedures, 54
    Revised Goldman Cardiac Risk Index (RCRI), 51
    risk modification strategies, 55
  surgical risk estimate, 52, 53
cardiac surgery see cardiovascular risk assessment
cardiac testing, 113 see also preoperative cardiac testing
cardiomyopathy
  classification, 208
  clinical presentation, 208
  diagnosis, 208
  features, 208, 209
  genetics, 208
  hypertrophic, 208, 210
  management, 208
cardiopulmonary exercise testing (CPET), 77
  history, 79
  physiological background, 80
  preoperative rationale, 79–80
  protocol, 80–81
  test output
    anaerobic threshold (AT), 81–3
    markers, functional reserve, 81
    oxygen pulse, 83
    peak and maximal oxygen uptake, 81, 82
    ventilatory equivalents, 83
  cardiopulmonary resuscitation (CPR), 175, 181, 183, 494
cardiorespiratory system, 383
cardiovascular disease, 109, 111, 132, 218, 260, 349, 366, 398, 467
  cardiovascular medications, 47–8
  cardiovascular risk assessment
    functional assessment, 58–9, 59
    left ventricular (LV) function, 59–60
    pulmonary hypertension, 60
    renal function, 59
    scoring systems, 57–8
  cardiovascular system
    advanced haemodynamic assessment, 24, 24
    arterial blood pressure measurement, 22, 23
    circulatory volume status, 24
    routine monitoring, 22–4
    carotid angioplasty and stenting (CAS), 295–6
    carotid endarterectomy (CEA), 295–6
    carotid surgery
      carotid angioplasty and stenting (CAS), 295–6
      carotid endarterectomy (CEA), 295–6
      clinical manifestations, 292, 293–4
      investigations, 292, 295
      multiple co-morbidities, 296, 297
      pathology, 292
      postoperative management, 297, 298–9
      preoperative management, 296
      treatment, 295–6
    'carrot-stick' fractures, 329, 334
    CARS see counterinflammatory response to surgery (CARS)
    CAS see carotid angioplasty and stenting (CAS)
    CaSR see calcium sensing receptor (CaSR)
    CEA see carotid endarterectomy (CEA)
central nervous system risk assessment
  headache, 92
  multiple sclerosis (MS), 92
  Parkinson’s disease, 90–91
cerebral metabolic rate (CMR), 63, 64, 289
cerebrovascular accident (CVA), 292
cervical spine injuries
  anatomy, 337–8
  cervical orthoses, 339, 340
  epidemiology, 337
  fracture, 339
  immobilisation, 339, 340, 340
  level 1 trauma centre, 337, 338
  pathophysiology, 338–9
  perioperative management
    haemodynamic instability, 339
    immediate postoperative period, 342
    neurogenic shock, 342
    patient positioning, 340–341, 341
    respiratory system, 342
    suitability for surgery, 340
  spinal stability, 339
CGA see Comprehensive Geriatric Assessment (CGA)
chance fractures, 329, 334
chest injuries
  airway and lungs
    intrathoracic tracheobronchial injuries, 344
    pneumonectomy, 346
    pulmonary contusion, 346
cardiac injury, 346
chest wall
  diaphragmatic injuries, 348
  flail chest, 346–7
  rib fractures, 346, 347
emergency department thoracotomy, 343
major vascular injury, 346
postoperative management, ICCs
  air leak, 344, 345
  right haemothorax, 344, 346
  underwater seal chest drain, 344, 345
trauma reception, 343, 344
chest pain, postoperative
  aetiology, 453, 454
  causes and symptoms, 453, 454
evaluation and management
  blood pressure, arms, 456
  focused examination, 457
  heart rate and rhythm, 457
  initial investigations, 457–8
  oxygenation and haemodynamic stability, 456
  respiratory rate and work of breathing, 457
  review and reassessment, 458
myocardial ischaemia and infarction, 453–5
pericardial disease, 456
pneumothorax, 456
postoperative troponin rise, 458
pulmonary embolism (PE), 456
Child Turcotte Pugh Score (CTP), 245, 246
chronic obstructive pulmonary disease (COPD)
anæsthetic management, 231
coronary revascularisation, preoperative, 167
corticosteroids, 48–9, 226, 228, 231, 233, 362, 479
counterinflammatory response to surgery (CARS), 441
'COUNTER-REGULATORY' hormones, 144
CPAP see continuous positive airway pressure (CPAP)
CPET see cardiopulmonary exercise testing (CPET)
CPR see cardiopulmonary resuscitation (CPR)
CRASH-2 trial, 313
Crohn's disease, 242, 243
cryoaablation, 284
crystalloids
  balanced salt solutions, 434
  isotonic solutions, 430
  saline, 433
crystalloids vs. colloids, 400–401, 401
CTCA see computed tomography coronary angiography (CTCA)
CTP see Child Turcotte Pugh Score (CTP)
Cushing's syndrome, 279–80
DBD see donation after brain death (DBD)
DCD see donation after circulatory death (DCD)
depression, 30, 49, 100, 153, 165, 290, 359, 374, 375, 392, 394, 457, 473
diabetes, 367
dexamethasone, 143
diabetes types, 136–7
insulin pumps, 142
management, 138
oral hypoglycaemic agents, 137, 137
perioperative hypertension, 170
perioperative management, 136
preoperative medical assessment, 393
subcutaneous injectables, pharmacokinetics, 137, 138
surgery types, 137–8
Index

diabetes (cont’d)
  type 1 diabetes
    afternoon procedure, 142
    morning procedure, 141
    perioperative management, 139–40
    postoperative care, 142
  type 2 diabetes
    major surgery, 141
    minor surgery, 140–141
    perioperative management, 139–40
  types, 137, 137, 138
U&E testing, 110
diabetes insipidus (DI), 290, 407, 418
diabetes mellitus
  diagnosis, 264
  incidence, 264
  known diabetes, 264
  perioperative management
    optimal blood sugar range, 266
    plan, 266
    postoperative, 266
  treatment, 264–5
diaphragmatic injuries, 348
DiGeorge syndrome, 273
direct-acting oral anticoagulants (DOAC), 130, 134
dissociative anaesthesia, 28, 30
diuretics, heart failure (HF), 191
DOAC see direct-acting oral anticoagulants (DOAC)
donation after brain death (DBD)
  clinical testing, 417
  brainstem reflexes, 417, 417
  preconditions, 417
  seizures, 418
  potential donors
    Cushing’s response, 418
    diabetes insipidus, 418
  management goals, 419
  radiological testing, 418, 418
donation after circulatory death (DCD)
  organ retrieval, 420
  potential donors, 420
DR ABCE approach
  airway, assessment and management, 309, 310, 318
  breathing and ventilation, 310, 318
  circulation, 309, 310, 318
  dangers, awareness, 309
  disability and exposure, 320
  exposure of patient, 313
  response, 309
  drug-eluting stent (DES), 133
dyspnoea/breathlessness see shortness of breath, postoperative
eyearly postoperative round
  communication, staff, 17
  deterioration, detecting, 17
  examining patient, 16
  history, 16
  pain management, 17

rapport, establishing, 15
record, scanning, 15–16
troubleshoot, basics, 16
elderly patient
  assessment, 382–3
  functional impairment and social history, 384
  impact, surgical condition, 383
  medication review, 383–4
  patient expectations and goals of care, 384
  screening systems
    cardiorespiratory system, 383
    ‘geriatric giants’, 383
    surgical outcomes, 382
electrolyte(s), 402, 402
electrolyte abnormalities
  potassium derangements
    aetiology, 404, 405
    consequences, 404, 405
    management, 404
  sodium derangements
    aetiology, 406–7
    hyponatraemia and hypernatraemia
      prevention, 408
      treatment, 408
emergency management of severe trauma (EMST), 309, 318
emergency management, unknown device, 185–6, 186, 186
EMST see emergency management of severe trauma (EMST)
EN see enteral nutrition (EN)
endocarditis
  antibiotic prophylaxis, 206
    antibiotic regimen scenarios, 161
    BSAC definition, 159
    cardiac conditions, 159–61, 160
    high-risk procedures, 160, 160
    pathogenesis, 158
    perioperative, prevention strategies, 159
    recommendations, 158
  clinical presentation, 203, 204
  diagnosis, 205
  epidemiology, 203
  infective endocarditis (IE), 203, 204
  management, 206
  pathophysiology, 203
  vegetations, 203
  end-of-life care see also medical futility
    definition, 98
    misconceptions, 100–101
  enteral nutrition (EN), 115, 116, 446
  enzyme replacement therapy, 306
  epidural catheters management, 131
  epigenomics, 40
epilepsy
  anaesthetic agents
    anticholinergics, 303
    inhalational agents, 302
    intravenous hypnotic agents, 303
    local anaesthetic agents, 303
neuromuscular blocking agents, 303
opioids, 302–3
drug interactions, 302
electrolyte disturbances, 302
seizures, risk, 301
well-controlled, 301–2
European System for Cardiac Operative Risk Evaluation (EuroSCORE), 57
euvolaemia, 249, 250

FAST see focused assessment with sonography in trauma (FAST)
FBE see full blood examination (FBE)
first-degree heart block, 177, 178
fluid(s)
crystalloids vs. colloids, 400–401, 401
limits, 401–2
management, acute lung injury (ALI), 215
outcome, 401
rate, 401
fluid creep, 354–5
fluid resuscitation
blunt trauma, 312
CRASH-2 trial, 313
truncal trauma, 312
fluid therapy, postoperative
fluid composition
balanced salt solutions, 430
colloids, 430, 432
components and pH, intravenous fluids, 430, 431
crystalloids, 430
fluid selection
colloids, 434
crystalloids, 433–4
indications
bolus fluids, 432–3, 433
maintenance fluids, 432, 432
focused assessment with sonography in trauma (FAST)
bladder and pelvis, examination, 311, 312
blood volume, assessment, 311
heart, examination, 311, 311
liver, kidney and spleen, identification, 311, 312
Folstein's Mini-Mental State Examination (MMSE), 375, 383
fracture dislocations, 329, 331, 333
gastrointestinal disease
definition and pathophysiology, 242
epidemiology, 242
perioperative management, IBD, 243–4
preoperative assessment, 242–3
thromboembolic events, risk and prevention, 244
GDT see goal-directed therapy (GDT)
genome-wide association studies (GWAS), 38
'geriatric giants', 383
Glasgow Coma Scale (GCS) score, 286, 314, 317 see also traumatic brain injury (TBI)
goal-directed therapy (GDT)
advanced haemodynamic monitoring, 396
clinical applications
emergency department, 399
operating theatre, 398
surgical ward, 398–9
definition, 395
Frank-Starling curve, 397, 397
oesophageal Doppler velocity profile, 397, 397
oxygen delivery, 395
perioperative factors, reduce oxygen delivery, 396
risk-benefit balance, 398
routine management, 395–6
goitre, 269
GWAS see genome-wide association studies (GWAS)
haemophilia, 360, 362
haemorrhage, 55, 132, 144, 171, 203, 279, 289, 309, 310, 312, 315, 322, 325, 343, 349, 357, 401, 452, 488, 502
haemothorax/haemopneumothorax, 335
HbA1C, 112–13
heart block
first-degree, 177, 178
second-degree
Mobitz type I, 177, 178
Mobitz type II, 178, 178
third-degree/complete, 178, 179
heart failure (HF)
clinical evaluation, 189, 189
diagnosis, 188
epidemiology, 188–9, 189
preoperative investigations in patients, 189, 190
risk assessment, 189, 190
treatment and perioperative care, 189
ACE inhibition, 190–191
beta-blockade, 191
diuretics, 191
hepatic disease
acute hepatitis, 248
assessment
Child Turcotte Pugh Score (CTP), 245, 246
Model for End-Stage Liver Disease (MELD) score, 245, 246
perioperative risk, 246
cirrhosis, 245
epidemiology, 245
management
intraoperative phase, 247
postoperative phase, 247
preoperative phase, 247
pathophysiology, 245
hepatitis B
management, 372
virus (HBV), 371
hepatitis C
management, 373
virus (HCV), 371
herbal medications, 49
HFOV see high-frequency oscillatory ventilation (HFOV)
high-frequency oscillatory ventilation (HFOV), 438
high-throughput DNA sequencing technologies, 40
HIV see human immunodeficiency virus (HIV)
Holter monitor, 177
human immunodeficiency virus (HIV), 370–371
management, 372
perioperative management
antiretrovirals, 368, 368
online resources, ARTs, 369
preoperative assessment
cardiovascular disease, 366
chronic pulmonary disease, 367
diabetes, 367
liver disease, 367
neutropenia, 367
renal dysfunction, 367
thrombocytopenia, 367
human leucocyte antigen (HLA) matching, 260
hungry bones see hypocalcaemia
hypercalcaemia, 273, 274
hyperglycaemia, 48, 136, 143, 265, 266, 279, 393, 402
hyperkalaemia, 304, 404, 491
causes, 405
drug treatment, 407
management, 406
prevention, 406
hypertension
aetiology, 170–171
definition, 170
epidemiology, 170
management
intraoperative phase, 173
postoperative phase, 173
preoperative phase, 171
pathophysiology, 170
patient assessment, 173
perioperative complications, 170–171
treatment, 171, 172
postoperative, 173
postoperative treatment, 173–4
hyperparathyroidism, perioperative management, 271
hypertension
aetiology, 170–171
definition, 170
epidemiology, 170
management
intraoperative phase, 173
postoperative phase, 173
preoperative phase, 171
pathophysiology, 170
patient assessment, 173
perioperative complications, 170–171
treatment, 171, 172
postoperative, 173
postoperative treatment, 173–4
hyperparathyroidism, perioperative management, 271
hypoalbuminaemia, 111, 377, 441
hypocalcaemia, 274, 302, 402
hypoglycaemia, 142, 176, 265, 266, 279, 289, 290, 408
hypokalaemia
management, 404, 406, 406
prevention, 406
hyponatraemia
management, 408
hyperparathyroidism, 273–4
hypopituitarism, 146, 146
hypothyroidism, perioperative management, 271
hypovolaemia, 24, 96, 249, 252, 279, 311, 318, 333, 350, 397, 398, 418, 432, 452
IBD see inflammatory bowel disease (IBD)
ICDs see implanted cardioverter-defibrillators (ICDs)
idopathic thrombocytopenic purpura (ITP), 363, 367
implanted cardioverter-defibrillators (ICDs), 184, 185, 186
individual patient risk, thromboprophylaxis
bleeding risk, 123
Caprini risk assessment model, 121, 122
intermittent pneumatic compression device (IPCD), 122
recommendations, 121, 123
thromboembolic risk, 121
inflammatory bowel disease (IBD)
perioperative management
aminosalicylates, 243
anti-tumour necrosis factor (ant-TNF) agents, 243
glucocorticoids, 243
thiopurines, 243
insulin pumps, 142
intercostal catheters (ICCs), 344
intermittent pneumatic compression device (IPCD), 122, 124
intracranial surgery
intracranial pressure–volume curve, 286, 288
intraoperative management
anaesthetic agents, 290
fluid management, 290
intraoperative monitoring, 289
neuroanaesthesia, 289
patient positioning, 290

I8 Index
postoperative care
  complications, 290
  external ventricular drain, 290, 291
  intracranial pressure monitoring, 291
preoperative assessment
  blood loss, 288
  intraoperative positioning, 288
  neurosurgical lesion, 286–7, 287
  postoperative critical care, 289
  premedication, 289
  preoperative investigations, 288–9
intraoperative and postoperative monitoring
  cardiovascular system, 22–4
  cerebral monitoring, 26–7
  gastric pH monitoring, 27
  regimens, 23
  renal dysfunction, 27
  respiratory system, 25–6
intrathoracic tracheobronchial injuries, 344
intravascular hypovolaemia, 352
IPCD see intermittent pneumatic compression device (IPCD)
ISOBAR, safe patient handover, 35
ITP see idiopathic thrombocytopenic purpura (ITP)
laboratory tests, preoperative investigations
  coagulation testing, 111–12
  full blood examination (FBE), 110, 112
  liver function test (LFT), 111
  urea, electrolytes and creatinine (U&E), 110–111
  urinalysis, 110
Le Fort fractures, 323, 323, 324
  left ventricular (LV) function, 59–60
  LFT see liver function test (LFT)
  ligamentous injury, 329, 335
  liver disease, 110, 111, 116, 231, 245, 246, 247, 363, 367
  liver function test (LFT), 111
  long QT syndromes, 180
  lung function tests, 76–7
Mallampati scoring system, airway assessment, 70, 70
mandibular fractures, 324, 325
maternal anaphylaxis, 156
maxillofacial injuries
  assessment
    airway, 325
    bleeding, 325
    clinical symptoms and signs, 325
    management, 325, 327
    mechanism of injury, 325
  classification
    Le Fort I fracture, 323, 323
    Le Fort II fracture, 323, 324
    Le Fort III fracture, 323, 324
    lower third fractures, 322
    mandibular fractures, 324, 325
    middle third fractures, 322
epidemiology, 322
postoperative management, 328
preoperative management, 327
mechanical insufflator-exsufflator device (MI-E), 306, 307
medical futility
  definition, 98
  information, patient, 99
  obligations, treating doctor, 101
  patients risk, 98, 99
  treatment option, 99, 100
medication management
  antidepressants, 49
  antiepileptics, 49
  antiParkinson medications, 49
  aspirin, 48
  cardiovascular, 47–8
  chronic opioid therapy, 49
  corticosteroids, 48–9
  herbal medications, 49
  recommendations, 45, 46–7
  warfarin, 48
MELD score see Model for End-Stage Liver Disease (MELD) score
metabolic equivalents (METs), 175, 176
migraine, 92
6-minute walking test (6MWT), 77
Model for End-Stage Liver Disease (MELD) score, 245, 246
MODS see multiple organ dysfunction syndrome (MODS)
MPS see myocardial perfusion scintigraphy (MPS)
MS see multiple sclerosis (MS)
multiple organ dysfunction syndrome (MODS), 442
multiple sclerosis (MS), 92
6MWT see 6-minute walking test (6MWT)
myocardial ischaemia/infarction
  categories, 453, 455
  coronary stents requiring non-cardiac surgery, 167, 168
  diagnosis and management, 166
  features, 165–6
  perioperative, 165
  prevention
    alpha-2 agonists, 167
    anaemia and hypothermia, 167
    beta-blockers, 167
    preoperative coronary revascularisation, 167
    statins, 167
myocardial perfusion scintigraphy (MPS), 63, 64, 65
myocarditis
  aetiology, 206, 207
  clinical presentation, 206
  definition, 206
  diagnosis, 207
  management, 207
  pathophysiology, 206
National Health and Medical Research Council (NHMRC), 85, 87, 88

needlestick injury
- hepatitits B virus, 371
- hepatitits C virus, 371
- human immunodeficiency virus, 370–371
management
evaluation of exposure, 371–2
first aid, 371
and follow-up, 372, 372–3

neuroendocrine tumour (NETs), 281

neuromuscular disease (NMDs)
classification, 304, 305
intraoperative period
- anaesthetic agents, complications, 306
dysautonomic reactions, 307
hyper- and hypothermia, 307
hyperkalaemia, 307
malignant hyperthermia, 306
neuromuscular junction disorders, 307
postoperative period
- medications, 307–8
opioids, 307
preoperative assessment
diagnosis, 304
non-invasive ventilation, 306
steroid therapy and enzyme replacement therapy, 306
neuromuscular junction (NMJ), 304

neutropenia, 367

New York Heart Association (NYHA)
classification, 58

NHMRC see National Health and Medical Research Council (NHMRC)

NIBP monitoring see non-invasive blood pressure (NIBP) monitoring

NMDs see neuromuscular disease (NMDs)
non-alcoholic steatohepatitis (NASH), 392
non-invasive blood pressure (NIBP) monitoring, 34
non-small cell lung cancer (NSCLC)
postoperative care and complications, 240
postoperative lung function, 238, 239, 240
pulmonary function and postoperative compromise, 238
stage-dependent treatment, 236
suitability and fitness, surgery
CT-postiton emission tomography (PET) scanning, 236
thoracic Revised Cardiological Risk Score (tRCRI), 236
Thoracoscore, 237, 237

surgical treatment
lobectomy, 235
predictors, postoperative respiratory compromise, 236
systematic mediastinal lymph node dissection, 235
video-assisted thoracic surgery (VATS) approach, 235

non-thyroidal illness, 270
NSCLC see non-small cell lung cancer (NSCLC)
nutritional support
modes
- enteral nutrition (EN), 446
- oral feeding, 446
- parenteral nutrition (PN), 447
postoperative management, 447–8
preoperative assessment, 445
preoperative nutrition, 445–6

obesity
adults classification, BMI, 391
co-morbidities, 391
definitions, 390
epidemiology, 390–391
intraoperative management
- airway issues, 393
- anaesthesia, 393
- blood pressure measurement, 393
pharmacology, 393
pathophysiological changes
cardiovascular system, 392
gastrointestinal, 392
metabolic, 392
respiratory physiology, 392
postoperative management
- multimodal analgesia, 394
- respiratory complications, 394
preoperative management
- organisational, 392
- preoperative medical assessment, 392–3

obstetric patients
adverse fetal outcomes, 379–80
anaesthetic medications, 379
appendicectomy, 377
management goals, 377, 378
pharmacological considerations, 377, 379
physiological considerations, 377, 378
obstructive sleep apnoea (OSA), 393
continuous positive airway pressure (CPAP), 220–221, 221
definitions, 217
elective surgery, 219–20
emergency surgery, 220
epidemiology, 217
pathophysiology, 218
perioperative complications, 218
postoperative management, 220–221
preoperative management, 219
severity, 217, 218
STOP-Bang questionnaire, 219
octreotide therapy, 285
oedematous lung regions collapse, 213
oliguria
ADH secretion, 249
causes, 250
definition, 249
euvolaemia, 249, 250
excessive IV fluid therapy, 252
hypovolaemia, 252
kidneys, 249
non-steroidal anti-inflammatory and
cyclo-oxygenase inhibitor drugs, 251
postoperative management, 251
syndrome of inappropriate ADH secretion
(SIADH), 249–50
opioid(s), 149, 302–3
analgesics, perioperative management
intraoperatively, 151
postoperatively, 151–2
preoperatively, 151
buprenorphine, patients on, 153
discharge planning, 153
non-opioid analgesics, perioperative
management, 152
opioid-addicted patients, perioperative
issues, 150
preoperative assessment, 148
withdrawal, 149
opioid-induced hyperalgesia, 149
opioid-induced tolerance, 149
organ donation
donation after brain death (DBD), 416–19
donation after circulatory death (DCD),
419–20
OSA see obstructive sleep apnoea (OSA)
oxygen pulse, 83
oxygen toxicity, ALI, 214
PAC see preadmission clinic (PAC)
pacemakers
dysfunction, 185
generic, 183, 184
and implantable defibrillators, 183
and implanted cardioverter-defibrillator
(ICD) codes, 183, 184
intraoperative EMI, 183
operative considerations, 184
preoperative assessment, 182
suppression, 183, 184
PAH see pulmonary arterial hypertension
(PAH)
pain and postoperative nausea and vomiting
(PONV), 36
parathyroid disorders
calcium homeostasis, 272–3
hyperparathyroidism, 273
hypoparathyroidism, 273–4
perioperative management
aetiology and biochemical changes,
274, 275
hypercalcaemia, 274
hypocalcaemia, 274
parenteral nutrition (PN), 447
Parkinson’s disease
apomorphine, 90
parenteral doses of drugs, estimation,
91, 97
parenteral management, 90
Rotigotine, 91
Parkland Formula, 354, 356
paroxysmal supraventricular tachycardias
(SVT), 179–80
PE see pulmonary embolism (PE)
PEEP see positive end expiratory pressure
(PEEP)
pericardial disease, 456
perioperative genomics
biobanks, 40–41
definition, 38
epigenomics and chronic pain, 40
investigations
epigenetic mechanisms, 39, 40
geno-wide association studies
(GWAS), 38
polymerase chain reaction (PCR), 38, 39
pharmacogenomics and altered drug
response, 39–40
perioperative medicine
clinical data
national audit data, 4
systematic audit and quality
improvement, 4–5
decision making, 4
patient–physician interaction, 4
physician, role of
anaesthesia, 3
ortho-geriatrician, 3
short-term mortality, 3
postoperative intensive care, 4
preoperative risk evaluation, 4
perioperative renal dysfunction see acute
kidney injury (AKI)
persistent postsurgical pain (PPSP), 39
persistent pulmonary hypertension of the
newborn (PPHN), 199
PH see pulmonary hypertension (PH)
phaeochromocytoma, 277–8
pharmacogenomics, 39–40
plasma biomarkers, 4
PN see parenteral nutrition (PN)
pneumothorax, 456
polymerase chain reaction (PCR), 38, 39
polytrauma, 335
PONV see postoperative nausea and
vomiting (PONV)
positive end expiratory pressure (PEEP), 215
postanaesthesia care unit (PACU) see
recovery room
postoperative fluid therapy see fluid therapy,
postoperative
postoperative hypotension see hypotension,
postoperative
postoperative investigations
bedside tests
chest X-ray (CXR), 115
electrocardiogram (ECG), 114–15
blood tests
arterial blood gas (ABG), 116
blood sugar level (BSL), 116
coaulation studies, 115
full blood examination (FBE), 115
liver function tests (LFTs), 116
postoperative investigations (cont’d)
- troponin/cardiac enzymes, 116
- urea, electrolytes and creatinine (U&E), 115
- computed tomography (CT scan), 117
- transthoracic echocardiogram (TTE), 116
- postoperative nausea and vomiting (PONV), 38
- antiemetic therapy, adults
  - first-line therapy, 427, 428
  - second-line therapy, 428–9, 429
- epidemiology and risk factors, 423, 424
- management, 426, 427
- pathophysiology and mechanism of action
  - antiemetics, 424, 425, 425
  - chemoreceptor trigger zone (CRTZ), 423
  - nucleus tractus solitarius (NTS), 423–4
- prophylaxis, 424, 426
- scoring systems, 424
  - adult, 426
  - paediatric, 426
- postoperative pulmonary complications (PPC)
  - clinical features, 74
  - patient-related factors, 74–7
  - scoring systems, prediction, 77
  - surgery-related factors, 77
- postoperative surgical complications
  - anastomotic leak, 451
  - bleeding, 452
  - deep surgical site infection, 451
- wound complications
  - incisional hernia, 449
  - patient factors, 449, 450
  - prophylactic antibiotics, 451
  - surgical site infection (SSI), 449
  - technical aspects, 449, 450
  - wound dehiscence, 449
- PPC see postoperative pulmonary complications (PPC)
- PPHN see persistent pulmonary hypertension of the newborn (PPHN)
- PPSP see persistent postsurgical pain (PPSP)
- preadmission clinic (PAC)
  - hospital efficiency, improvement, 9
  - patient assessment
    - anaesthetist, 7
    - information collation, 6
    - investigations, 7
    - multidisciplinary team assessment, 8
  - and patient optimisation, 8
  - patient support, education and awareness, 9
  - protocols, preoperative patient optimisation, 8
  - record keeping and research, 9
  - risk assessment, 8
  - role of, 7
  - safety and quality of patient care, improvement, 8
  - variables, prognostic information, 8
- preoperative cardiac testing
  - algorithm, 61, 62
  - cardiac MRI (CMR), 63
  - coronary artery disease and myocardial ischaemia
    - computed tomography coronary angiography (CTCA), 67
    - exercise stress testing, 64
    - myocardial perfusion scintigraphy (MPS), 64, 65
    - stress echocardiography, 64–7
    - echocardiography, 63
  - functional capacity, 61
  - gated cardiac CT, 63
  - high risk patients, 61
  - myocardial perfusion scintigraphy (MPS), 63
- procedural sedation, 25, 28
- psychological illness
  - bipolar disorder, 376
  - delirium, 375
  - depression, 375
  - drug and alcohol problems, 376
  - medications, 375
  - perioperative period, 374
  - schizophrenia, 376
  - self-harm, 376
- psychological stresses, 144
- pulmonary arterial hypertension (PAH), 198
- pulmonary embolism (PE), 456
- pulmonary function tests, 113
- pulmonary hypertension (PH), 60 see also hypertension
  - aetiology, 198
  - analgesia planning, 202
  - calcium channel blockers (CCB), 200
  - clinical conditions, 198
  - definition, 198
  - diagnosis, 198–200
  - management algorithm, 198, 199, 201
  - perioperative management, 202
  - pharmacological management, 200–201
- pulmonary risk assessment
  - clinical features, PPC, 74
  - patient-related factors
    - ARISCAT study, 74
    - asthmatics, 75
    - non-thoracic surgery, 76–7
    - risk factors, 74, 75
  - scoring systems, PPC, 77
  - surgery-related factors, 77
- pulse oximetry, 25
- quality improvement and patient safety
  - individual and system, 19
  - individual factors, 20
  - organisational and regulatory factors, 20
  - perioperative patient, 19
  - ‘Plan, Do, Study, Act’, 19
  - six ‘dimensions’ of quality care, 18
  - team training, 20
radiofrequency ablation (RFA), 284
RCRI see Revised Goldman Cardiac Risk Index (RCRI)
recovery room
airway devices, 36
definition, 33
design requirements, 33
discharge of patients, 35–6
location, 33, 34
management of patients, 35
monitoring, equipment and drugs, 34
pain and postoperative nausea and vomiting (PONV), 36
patient handover, 35
regional anaesthesia, 36
staff, 34, 35
red man syndrome, 155
renal dysfunction, 27, 367
renal transplantation
combined organ, 259
deceased donor, 259
human leucocyte antigen (HLA) matching, 260
immunosuppression, 260–261, 261
live donor, 259
postoperative care, 262
post-renal transplantation early, 262
late, 262
pre-emptive, 259
preoperative, 260
surgery, 261
respiratory system
capnography, 25–6
pulse oximetry, 25
Revised Goldman Cardiac Risk Index (RCRI), 51
RFA see radiofrequency ablation (RFA)
rhabdomyolysis, 256
rheumatic heart disease, 195
rib fractures, 346, 347, 352
Safe Surgery Saves Lives’ campaign, 103
schizophrenia, 374, 376
SCI see spinal cord injury (SCI)
second-degree heart block
Mobitz type I, 177, 178
Mobitz type II, 178, 178
sedative agents
alpha-2 agonists, 30
benzodiazepines, 30
mechanism of action, 28–9
opioids, 30
pharmacological concepts, 29
sepsis and inflammatory response
clinical and laboratory findings, 441, 443
multiple organ dysfunction syndrome (MODS), 442
pathophysiology, 440
septic shock, 441
severe sepsis, 441, 444
surgical stress response
acute phase response, 440–441
counterinflammatory response to surgery (CARS), 441
systemic inflammatory response syndrome (SIRS), 441–3
treatment, 443–4
serotonin see also carcinoid syndrome
5-HT secreting NETs, definition, 281
production, metabolism and action, 281–2
shortness of breath, postoperative definition, 459
differential diagnoses, 460–463
investigations
blood tests, 463
chest x-ray (CXR), 464
ECG, 464, 465
lung ultrasound, 464, 465
patient examination, 463
treatment, 464–6
SIADH see syndrome of inappropriate ADH secretion (SIADH)
sick euthyroidism, 270
SIMV see synchronised intermittent mandatory ventilation (SIMV)
sinus bradycardia, 175, 176
sinus tachycardia, 175
SIRS see systemic inflammatory response syndrome (SIRS)
SLIC see Subaxial Cervical Spine Injury Classification System (SLIC)
somatostatin analogue therapy
clinical use, 284, 284
hormones, endocrine and exocrine secretion, 283
serotonin secreting NETs, 283–4
d side effects, 284, 284
spinal cord injury (SCI)
ASIA Standard Neurological Assessment, 336
haemothorax/haemopneumothorax, 335
spinal shock, 333, 335
spinal injuries
ASIA chart, documentation, 336, 336
fixation, surgical indications
bony stability, 330
for burst fractures, 331
decompression (and stabilisation), 330
fracture dislocations, 331
patterns of injuries
anterior column injury, 329, 331
burst fractures, 329, 331
‘carrot-stick’ fractures, 329, 334
chance fractures, 329, 334
fracture-dislocations, 329, 333
ligamentous injury, 329, 335
surgical decision making, 329, 332
thoracolumbar spinal injuries, 329, 332
TLICS scoring tables, 329, 333
vertebral body columns, 329, 330
physiological response
patients with multiple co-morbidities, 335
polytrauma, 335
spinal cord injury (SCI), 333–5
spinal injuries (cont’d)
surgery, 335–6
thoracolumbar spine anatomy, 329
SPV see systolic pressure variation (SPV)
SSI see surgical site infection (SSI)
statins, 47, 55, 167, 195, 295, 474
steroid medication
hypopituitarism, 146, 146
long-term steroids, 146
management, 145
normal stress response, 144
perioperative cortisol responses
  glucocorticoid activity, 144–5
  prednisolone and dexamethasone, 144
steroid therapy, 306
STOP-Bang questionnaire, 219
Subaxial Cervical Spine Injury Classification System (SLIC), 339, 341
supraventricular tachycardias (SVT), 179–80
surgical safety checklist
development, 102–3
inadequate communication, 102
interest, 103
WHO checklist, 102–5
surgical site infection (SSI), 449, 451
surveillance systems, antibiotic prophylaxis, 156
SVR see systemic vascular resistance (SVR)
synchronised intermittent mandatory ventilation (SIMV), 437
syndrome of inappropriate ADH secretion (SIADH), 249–50
systemic inflammatory response syndrome (SIRS)
  causes, 442
  definition, 441
  diagnosis, 441
  fluid therapy, 444
  and sepsis distinction, 443
  systemic vascular resistance (SVR), 24
  systolic pressure variation (SPV), 24
TACE see transarterial chemoembolisation (TACE)
TACO see transfusion-associated circulatory overload (TACO)
TAVI see transcatheter aortic valve implantation (TAVI)
TBI see traumatic brain injury (TBI)
teicoplanin, antibiotic prophylaxis, 155
TFTs see thyroid function tests (TFTs)
  third-degree complete heart block, 178, 179
thoracic Revised Cardiological Risk Score (TCRCS), 236
Thoracolumbar Injury Classification and Severity Score (TLICS), 329, 333
thoracolumbar spine assessment, 352
thoracotomy, 40, 235, 240, 343, 346, 513, 514
thrombocytopenia, 363–4, 367
thromboprophylaxis
  bleeding risk, 125
  bridging therapy, 125–6
  chemical, 123
  individual patient risk, 121–3
  mechanical
    elastic stockings, 124, 124
    inferior vena cava (IVC) filter
    insertion, 125
    intermittent pneumatic compression device (IPCD), 124, 124
  patients on novel oral anticoagulants, 127
  surgery in, 125
thyroid disorders
  antibodies prevalence, 269
  hyperthyroidism, 268
  hypothyroidism, 268
  iodine and amiodarone, 269–70
  nodules and goitre, 269
  non-thyroidal illness, 270
  perioperative management, 270–271
  prevalence, 269
  subclinical, 268
thyroid function tests (TFTs), 112
TLICS see Thoracolumbar Injury Classification and Severity Score (TLICS)
total parenteral nutrition (TPN), 447, 448
tourniquets, antibiotic prophylaxis, 157
TPN see total parenteral nutrition (TPN)
TRALI see transfusion-related acute lung injury (TRALI)
transarterial chemoembolisation (TACE), 284
transcatheter aortic valve implantation (TAVI), 196
transfusion-associated circulatory overload (TACO), 414
transfusion-related acute lung injury (TRALI), 414
transient ischaemic attack (TIA), 292
transeosophageal echocardiography (TOE), 177
transsthoracic echocardiography (TTE), 113
trauma, pretheatre management
  advanced trauma life support (ATLS), 309, 310
  CRASH-2 trial, 313
  DR ABCE approach, 309–10, 313
  emergency management of severe trauma (EMST), 309
  fluid resuscitation, 312–13
  focused assessment with sonography in trauma (FAST), 311–12
  initial management, 309–10
  management, 313
  tranexamic acid, 313
traumatic brain injury (TBI)
  management, 320–321
  mild head injury (GCS score 13–15)
    Canadian CT Head Rule, 314, 317
    guidelines, 319
  mild head injury (GCS score 13–15), 314
moderate head injury (GCS score 9–12), 318, 320
morbidity and mortality, 314
primary
acute subdural haematoma, 314, 315
extradural haematoma, 314, 315
intracerebral bleeding, 314, 315
principles of management, 314, 316
secondary
causes, 314, 316
Glasgow Coma Scale (GCS) score, 314, 317
seizures
pharmacological management, 320
prophylaxis medication, 320
severe head injury (GCS score ≤ 8), 318
tRCRI see thoracic Revised Cardiological Risk Score (tRCRI)
Treatment and Care Towards the End of Life: Good Practice in Decision Making, 101
TTE see transthoracic echocardiography (TTE)
urea, electrolytes and creatinine (U&E), 110–111
urinalysis, 110
US Institute for Health Improvement, 20
vancomycin dosing timing, antibiotic prophylaxis, 157
VATS approach see video-assisted thoracic surgery (VATS) approach
venous thromboembolism (VTE)
in IBD patients, 244 see also thromboprophylaxis perioperatively, 121
ventilation
high-frequency oscillatory ventilation (HFOV), 438
mechanical airway pressure release ventilation (APRV), 437
assist control (AC) modes, 437, 438
neurally adjusted ventilatory assist (NAVA), 437
pressure regulated volume control (PRVC), 437
pressure support mode (PS), 437
proportional-assist ventilation (PAV+), 437
synchronised intermittent mandatory ventilation (SIMV), 437, 438
and oxygenation
carbon dioxide elimination, 436–7
prone ventilation, 439
recruitment, 438
physiology and physics, 435–6
setting ventilator, 436
ventilator-induced lung injury (VILI), 213–14
ventilator pressures, ALI, 215
ventilatory equivalents, 83
ventricular rhythms, 180, 180–181
video-assisted thoracic surgery (VATS) approach, lobectomy, 235
VILI see ventilator-induced lung injury (VILI)
Von Willebrand disease (vWD), 362, 363
VTE see venous thromboembolism (VTE)
warfarin
anticoagulant therapy management, 128–9
bridging therapy, 129, 131, 132
prothrombin concentrates, 128, 129
WHO checklist
clinical practices, 102
surgery and anaesthesia, 105
surgical safety checklist (SSC), 102, 103
teamwork and communication in operating theatre, 102, 105
Wolff–Parkinson–White syndrome (WPW), 177, 179