NCLEX-RN EXAM PREP

COMPREHENSIVE Succeed with comprehensive learning and practice tests

- Master the NCLEX-RN® exam materials in all tested subject areas
- Prepare with four comprehensive practice tests
- Analyze your test readiness and areas for further study with topic-focused chapter tests
- CD-ROM-based practice exam includes an interactive Computer Adaptive Test (CAT) engine for a meaningful exam experience with approximately 400 questions
- Learn important test-taking strategies to maximize your score and diminish your anxiety

Wilda Rinehart, Diann Sloan, Clara Hurd

PEARSON
# Contents at a Glance

## Introduction

- **Study and Exam Preparation Tips**

## Part I  Exam Preparation

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pharmacology</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Fluid and Electrolyte and Acid/Base Balance</td>
<td>41</td>
</tr>
<tr>
<td>3</td>
<td>Care of the Client with Cardiovascular Disorders</td>
<td>67</td>
</tr>
<tr>
<td>4</td>
<td>Care of the Client with Endocrine Disorders</td>
<td>105</td>
</tr>
<tr>
<td>5</td>
<td>Care of the Client with Respiratory Disorders</td>
<td>133</td>
</tr>
<tr>
<td>6</td>
<td>Care of the Client with Genitourinary Disorders</td>
<td>171</td>
</tr>
<tr>
<td>7</td>
<td>Care of the Client with Integumentary Disorders</td>
<td>205</td>
</tr>
<tr>
<td>8</td>
<td>Care of the Client with Sensory Disorders</td>
<td>231</td>
</tr>
<tr>
<td>9</td>
<td>Care of the Client with Gastrointestinal Disorders</td>
<td>257</td>
</tr>
<tr>
<td>10</td>
<td>Care of the Client with Hematological Disorders</td>
<td>303</td>
</tr>
<tr>
<td>11</td>
<td>Care of the Client with Disorders of the Neurological System</td>
<td>325</td>
</tr>
<tr>
<td>12</td>
<td>Care of the Client with Immunological Disorders</td>
<td>379</td>
</tr>
<tr>
<td>13</td>
<td>Care of the Client with Neoplastic Disorders</td>
<td>399</td>
</tr>
<tr>
<td>14</td>
<td>Care of the Client with Musculoskeletal and Connective Tissue Disorders</td>
<td>447</td>
</tr>
<tr>
<td>15</td>
<td>Care of the Childbearing Client and the Neonatal Client</td>
<td>483</td>
</tr>
<tr>
<td>16</td>
<td>Care of the Pediatric Client</td>
<td>523</td>
</tr>
<tr>
<td>17</td>
<td>Care of the Client with Psychiatric Disorders</td>
<td>589</td>
</tr>
<tr>
<td>18</td>
<td>Emergency Care</td>
<td>623</td>
</tr>
<tr>
<td>19</td>
<td>Legal Issues in Nursing Practice</td>
<td>643</td>
</tr>
<tr>
<td>20</td>
<td>Cultural Practices Influencing Nursing Care</td>
<td>657</td>
</tr>
</tbody>
</table>

## Part II  Final Review

<table>
<thead>
<tr>
<th>Fast Facts</th>
<th>Practice Exam I</th>
<th>Practice Exam II</th>
<th>Practice Exam III</th>
<th>Practice Exam IV: Management and Alternative Item Exam Questions</th>
<th>Practice Exam I Answers</th>
<th>Practice Exam II Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>673</td>
<td>681</td>
<td>717</td>
<td>753</td>
<td>791</td>
<td>819</td>
</tr>
<tr>
<td>Appendix</td>
<td>Title</td>
<td>Page</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------</td>
<td>------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix A</td>
<td>Things You Forgot</td>
<td>899</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix B</td>
<td>Need to Know More?</td>
<td>905</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix C</td>
<td>Calculations</td>
<td>913</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix D</td>
<td>Most-Prescribed Medications in the United States</td>
<td>917</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix E</td>
<td>Alphabetical Listing of Nursing Boards in the United States and Protectorates</td>
<td>921</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index</td>
<td>935</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Table of Contents

**Introduction** ........................................................................................................... 1  
  Organization ............................................................................................................ 2  
  Instructional Features ............................................................................................... 2  
  Extensive Practice Test Options ............................................................................... 3  
  Final Review ............................................................................................................. 3  
    Other Valuable Tools ............................................................................................. 3  
**About the NCLEX Exam** .......................................................................................... 4  
  Advice for Preparing for the Exam ............................................................................. 6  
  Advice for Test Day .................................................................................................. 6  
  Hints for Using This Book ....................................................................................... 7  
  Contact the Author .................................................................................................. 7  

**Study and Exam Preparation Tips** .......................................................................... 9  
  Study Tips ................................................................................................................ 9  
  Exam Prep Tips ....................................................................................................... 10  
    Read the Question Carefully ............................................................................... 10  
    Look for Keywords .............................................................................................. 11  
    Watch for Specific Details .................................................................................. 11  
    Eliminate Options That Are Clearly Wrong or Incorrect ................................. 11  
    Look for Similar Options .................................................................................... 11  
    Look for Opposite Answers ................................................................................ 12  

**Part I: Exam Preparation**  

**Chapter 1: Pharmacology** ......................................................................................... 15  
  Three Areas of Pharmacology ............................................................................... 15  
  How Nurses Work with Pharmacology .................................................................. 16  
  Time-released Drugs .............................................................................................. 17  
  Administering Medications .................................................................................... 18  
    The Seven Rights of Administering Medication .................................................. 18  
  Understanding and Identifying the Various Drugs ............................................... 19  
    Angiotensin-Converting Enzyme Inhibitors ......................................................... 19  
    Beta Adrenergic Blockers .................................................................................... 20  
    Anti-Infectives (Aminoglycosides) ..................................................................... 21  
    Benzodiazepines (Anticonvulsants/Antianxiety) ................................................. 23  
    Phenothiazines (Antipsychotic/Antiemetic) ....................................................... 24  
    Glucocorticoids ................................................................................................... 25  
    Antivirals .............................................................................................................. 27
Cardiac Dysrhythmias .......................................................... 76
  Ventricular Tachycardia ................................................... 77
  Ventricular Fibrillation ...................................................... 78
  Internal Pacemaker/Internal Cardiac Defibrillators .................... 79
  Cardiopulmonary Resuscitation ........................................ 80
Angina Pectoris ........................................................................ 80
Myocardial Infarction .................................................................. 81
  Diagnosis of Myocardial Infarction ....................................... 82
  Management of a Client with Myocardial Infarction .................. 82
Aneurysms ................................................................................ 89
Inflammatory Diseases of the Heart ........................................... 90
  Infective Endocarditis ......................................................... 90
  Pericarditis .......................................................................... 90
  Peripheral Vascular Disease .................................................. 91
Varicose Veins/Thrombophlebitis .............................................. 92
Raynaud’s Phenomenon ........................................................... 92
Buerger’s Disease ..................................................................... 92
Key Concepts ............................................................................ 94
Key Terms ............................................................................... 94
Diagnostics .............................................................................. 95
  Pharmacological Agents Used in the Treatment of Clients with Cardiovascular Disorders .............................................................. 96
Apply Your Knowledge ............................................................. 101
  Exam Questions ...................................................................... 101
  Answers to Exam Questions ................................................ 103
Suggested Reading and Resources ............................................. 104

Chapter 4: Care of the Client with Endocrine Disorders .................. 105
  Pituitary Gland ...................................................................... 106
    Hypopituitarism ................................................................. 106
    Hyperpituitarism ............................................................... 106
    Disorders of the Posterior Pituitary Gland ......................... 107
  Thyroid Disorders ................................................................. 108
    Hypothyroidism ................................................................. 108
    Hyperthyroidism ............................................................... 110
  Parathyroid Disorders ............................................................ 112
    Hypoparathyroidism .......................................................... 112
    Hyperparathyroidism ........................................................ 113
  Diabetes Mellitus .................................................................... 114
    Hyperglycemia ................................................................. 116
    Hypoglycemia ................................................................. 117
    Managing Hyperglycemia and Hypoglycemia ...................... 117
Chapter 5:
Care of the Client with Respiratory Disorders

Noninfectious Disorders of the Lower Respiratory Tract
Chronic Bronchitis .......................... 133
Emphysema .................................. 134
Asthma ........................................ 135
Pleurisy ........................................ 137
Pulmonary Hypertension .................. 138
Interstitial Pulmonary Disease ............ 139
Sarcoidosis ................................... 139
Pulmonary Fibrosis ......................... 140
Occupational Pulmonary Disease ........ 140

Infectious Disorders of the Lower Respiratory Tract
Pneumonia .................................... 142
Tuberculosis ................................... 145
Influenza ...................................... 147

Life-Threatening Pulmonary Disorders
Acute Respiratory Distress Syndrome .... 148
Pulmonary Embolus ......................... 152
Pneumothorax ................................ 154
Hemothorax ................................... 155

Emerging Infections
SARS .......................................... 158
Legionnaires’ Disease ....................... 159

Key Concepts ................................ 161
Key Terms ..................................... 161
Diagnostic Tests ............................. 161
Pharmacological Agents Used in the Care of the Client with Disorders of the Respiratory System 162
Chapter 6:
Care of the Client with Genitourinary Disorders ........................................... 171
Renal Disorders ............................................................... 172
  Acute Glomerulonephritis ............................................ 172
  Chronic Glomerulonephritis ........................................ 173
  Goodpasture’s Syndrome ............................................ 174
  Nephrotic Syndrome ................................................ 175
  Polycystic Kidney Disease .......................................... 176
  Hydronephrosis/Hydroureteronephrosis ........................... 177
  Pyelonephritis ............................................................ 178
Acute and Chronic Renal Failure ........................................... 179
  Chronic Renal Failure ................................................ 180
  Peritoneal Dialysis .................................................... 181
  Hemodialysis ............................................................ 182
  Continuous Renal Replacement Therapy ............................. 183
  Renal Transplantation ................................................. 184
Urinary Disorders ............................................................ 185
  Cystitis .................................................................. 185
  Urinary Incontinence ................................................. 187
  Urolithiasis ............................................................... 188
Genitourinary Disorders ....................................................... 189
  Prostatitis ................................................................. 190
  Benign Prostatic Hypertrophy ....................................... 190
  Erectile Dysfunction ................................................... 191
  Epididymitis ............................................................... 193
  Priapism ................................................................ 193
Key Concepts .................................................................. 195
Key Terms ................................................................... 195
Diagnostics ..................................................................... 195
  Pharmacologic Agents for the Client with Genitourinary Disorders ........ 196
Apply Your Knowledge ..................................................... 200
  Exam Questions ........................................................ 200
  Answers to Exam Questions ......................................... 202
Suggested Reading and Resources ........................................... 203
# Chapter 7:
## Care of the Client with Integumentary Disorders

- Common Infections of the Integumentary System
  - Viral Infections
  - Fungal Infections
  - Bacterial Infections
- Psoriasis
- Pressure Ulcers
- Burns
  - Burn Classifications
  - Burn Measurement with TBSA
  - Nursing Care for Burn Victims
- Key Concepts
  - Key Terms
  - Diagnostic Tests
  - Pharmacological Agents Used in the Care of the Client with Integumentary Disorders
- Apply Your Knowledge
  - Exam Questions
  - Answers to Exam Questions
- Suggested Reading and Resources

# Chapter 8:
## Care of the Client with Sensory Disorders

- Disorders of the Eyes
  - Intraocular Disorders
  - Uveitis
  - Retinal Disorders
  - Refractive Errors
  - Traumatic Injuries
  - Ocular Melanoma
- Disorders of the Ears
  - Otitis Externa
  - Otitis Media
  - Mastoiditis
  - Ménière's Disease
  - Acoustic Neuroma
  - Otosclerosis
  - Presbycusis
  - Ear Trauma
  - Assisting Clients with Hearing Loss
Chapter 9:
Care of the Client with Gastrointestinal Disorders

Peptic Ulcer Disease ..................................................... 258
  Types of Ulcers ....................................................... 259
  Diagnosis of Ulcers ................................................. 259
  Treatment of Ulcers ............................................... 260
Inflammatory Bowel Disorders ................................. 263
  Crohn’s Disease .................................................... 263
  Ulcerative Colitis ................................................... 263
  Management of the Client with Inflammatory Bowel Disease 264
Diverticular Disease .................................................... 265
  Management of the Client with Diverticulitis .............. 265
Hemorrhoids .............................................................. 266
Appendicitis ............................................................... 266
Peritonitis ................................................................. 268
Intestinal Obstruction .................................................. 269
Esophageal Disorders ............................................... 270
  GERD ................................................................. 270
  Hiatal Hernia ....................................................... 274
Diseases Associated with the Liver ............................ 275
  Hepatitis ............................................................. 275
  Cirrhosis ............................................................. 281
Acute Pancreatitis ..................................................... 285
  Diagnosis of Pancreatitis ....................................... 286
  Treatment of Pancreatitis ...................................... 286
Cholecystitis/Cholelithiasis ......................................... 287
  Symptoms of Cholecystitis and Cholelithiasis ............ 288
  Diagnosis of Cholecystitis/Cholelithiasis ................. 288
  Treatment of Cholecystitis ..................................... 289
  Treatment of Cholelithiasis .................................... 289
Clostridium Difficile .................................................. 290
Food-Borne Illnesses ................................................ 291
Key Concepts ......................................................... 294
Key Terms .............................................................. 294
Diagnostic Tests .................................................. 295
Pharmacological Agents Used in the Care of the Client with Disorders of the Gastrointestinal System .................................................. 295
Apply Your Knowledge .......................................... 297
Exam Questions .................................................... 298
Answers to Exam Questions ...................................... 300
Suggested Reading and Resources ............................... 301

Chapter 10:
Care of the Client with Hematological Disorders ................. 303
Anemia .................................................................. 303
  Pernicious Anemia ............................................... 304
  Aplastic Anemia ................................................... 304
  Sickle Cell Anemia ................................................. 305
  Iron Deficiency Anemia ......................................... 309
Thalassemia .......................................................... 311
Polycythemia Vera .................................................. 312
Hemophilia ............................................................ 313
Transfusion Therapy ............................................... 315
  Transfusion Reactions ........................................... 317
Key Concepts ........................................................ 319
  Key Terms ......................................................... 319
  Diagnostic Tests for Review .................................... 319
  Pharmacological Agents Used in Hematological Disorders .................................................. 320
Apply Your Knowledge .......................................... 321
Exam Questions .................................................... 321
Answers to Exam Questions ...................................... 323
Suggested Reading and Resources ............................... 324

Chapter 11:
Care of the Client with Disorders of the Neurological System .... 325
Neurological Assessment .......................................... 326
  Cranial Nerve Assessment ...................................... 326
  Glasgow Coma Scale ............................................. 327
  Intracranial Pressure Monitors ................................. 328
Brain Injuries ....................................................... 329
  Epidural Hematomas ............................................. 332
  Subdural Hematoma .............................................. 332
  Intracerebral Hematomas ....................................... 332
  Treatment of Hematomas ........................................ 332
  Increased Intracranial Pressure ............................... 332
Brain Tumors .......................................................... 336
  Treatment of Brain Tumors ...................................... 337
Care of the Client with Intracranial Surgery (Craniotomy) 338
Cerebrovascular Accident/Stroke ............................. 342
  Ischemic Stroke .................................................. 342
  Hemorrhagic Stroke ........................................... 344
Seizures .................................................................. 347
  Types of Seizures ................................................ 347
  Treatment of Seizure Clients ................................. 350
Parkinson's Disease .............................................. 350
Meningitis ............................................................ 352
Autoimmune Neurological Disorders ......................... 354
  Multiple Sclerosis ............................................... 354
  Myasthenia Gravis ............................................. 355
  Guillain-Barré .................................................... 357
Degenerative Neurological Disorders ......................... 358
Cranial Nerve Disorders ......................................... 359
  Trigeminal Neuralgia .......................................... 359
  Bell's Palsy ........................................................ 359
Spinal Cord Injuries .............................................. 360
  Treatment of Spinal Cord Injuries ......................... 361
  Potential Complications with SCI Clients ............... 362
Intervertebral Disk Disease ..................................... 363
Diabetes Insipidus ................................................ 365
Key Concepts ........................................................ 367
  Key Terms ........................................................ 367
  Diagnostics ........................................................ 368
Pharmacological Agents Used in the Care of Clients with Neurological Disorders ........................................... 369
Apply Your Knowledge ........................................... 374
  Exam Questions .................................................. 374
  Answers to Exam Questions .................................. 377
Suggested Reading and Resources ............................. 378

Chapter 12:
Care of the Client with Immunologic Disorders .............. 379
  Immunodeficiency Syndrome ................................ 380
  Diagnoses ........................................................ 381
  HIV Prevention ................................................... 383
    Standard Precautions ........................................ 383
Airborne Transmission–Based Precautions (Second Tier of CDC Guidelines for Infection Control) 384
Droplet Transmission–Based Precautions (Second Tier of CDC Guidelines for Infection Control) ...................................................... 384
Contact Transmission–Based Precautions (Second Tier of CDC Guidelines for Infection Control) ...................................................... 385
Treatments After Occupational Exposure ........................................... 385
Management of the Client with HIV ................................................... 385
Key Concepts ............................................................................. 389
Key Terms .................................................................................. 389
Diagnostic Tests ........................................................................... 389
Pharmacological Agents Used in the Care of the Client with Immunologic Disorders .............................................................. 390
Apply Your Knowledge ................................................................. 393
Exam Questions ........................................................................... 394
Answers to Exam Questions ............................................................ 396
Suggested Reading and Resources .................................................... 397

Chapter 13: Care of the Client with Neoplastic Disorders .......................... 399
American Cancer Society’s Seven Warning Signs of Cancer ...................... 399
The Four Major Categories of Cancer ............................................... 400
Risk Factors for Specific Cancers .................................................. 400
Cancer Prevention ...................................................................... 402
Major Types of Cancer ................................................................ 403
Colorectal Cancer ...................................................................... 403
Lung Cancer .............................................................................. 407
Prostate Cancer ......................................................................... 409
Breast Cancer ............................................................................. 411
Other Major Cancers .................................................................. 416
General Interventions for Clients with Cancer ..................................... 421
Radiation .................................................................................... 421
Chemotherapy ............................................................................ 423
Total Parenteral Nutrition .............................................................. 424
Neoplastic-Associated Disorders and Emergencies .............................. 426
Bone Marrow and Peripheral Stem Cell Transplantation ....................... 427
Types of Transplants ................................................................... 428
Nursing Care After Transplantation .................................................. 428
Key Concepts ............................................................................. 431
Key Terms .................................................................................. 431
Diagnostic Tests ......................................................................... 432
Pharmacologic Agents Used in the Care of the Client with Specific Neoplastic Disorders .............................................................. 433
Chapter 14: Care of the Client with Musculoskeletal and Connective Tissue Disorders

Fractures ........................................................................ 448
  Major Fracture Sites ....................................................... 450
  General Treatment for Fractures ...................................... 450
  Common Complications Associated with Fractures .......... 454
Osteoporosis ..................................................................... 457
Osteoarthritis ................................................................. 458
  Diagnosis of Osteoarthritis ............................................. 459
  Treatment of the Client with Osteoarthritis .................... 459
Fibromyalgia .................................................................... 460
Ankylosing Spondylitis ..................................................... 460
Gout ................................................................................. 461
Rheumatoid Arthritis ....................................................... 462
Lupus Erythematosus ....................................................... 464
Musculoskeletal Surgical Procedures ............................... 466
  Fractured Hip and Hip Replacement ............................... 466
  Total Knee Replacement ................................................. 467
Amputations .................................................................... 468
Key Concepts .................................................................... 474
Key Terms .......................................................................... 474
Diagnostics ...................................................................... 474
Pharmacologic Agents Used in Musculoskeletal and Connective Tissue Disorders ........................................ 475
Apply Your Knowledge .................................................... 479
Exam Questions ............................................................... 479
Answers to Exam Questions ............................................. 481
Suggested Reading and Resources ................................. 482

Chapter 15: Care of the Childbearing Client and the Neonatal Client

Prenatal Care .................................................................... 483
  Signs of Pregnancy ......................................................... 483
  Prenatal Diet and Weight Maintenance ............................. 484
  Measuring Fetal Heart Tones .......................................... 486
  Measuring Fundal Height ................................................ 486
  Prelabor Testing .............................................................. 486
Intrapartal Care ........................................................................ 488
   Stages of Labor .................................................................... 489
   Important Terms You Should Know .................................... 489
Complications Associated with Pregnancy ................................. 490
   Cardiac Disease During Pregnancy ..................................... 490
   Diabetes in Pregnancy .......................................................... 493
   Preeclampsia ....................................................................... 494
   Ectopic Pregnancy ............................................................... 495
   Hydatidiform Mole ............................................................... 495
   Incompetent Cervix .............................................................. 496
   Types of Abortions .............................................................. 496
   Placenta Previa ................................................................... 497
   Abruptio Placenta ............................................................... 497
Complications Associated with Labor and Delivery .................... 498
   Fetal Malpresentation ............................................................ 499
   Post-term Labor and Birth .................................................... 499
   Precipitate Delivery ............................................................. 500
   Cord Prolapse ..................................................................... 500
   Cesarean Birth .................................................................... 500
   Assisted Birth ..................................................................... 501
   Fetal Monitoring ................................................................. 501
Pharmacologic Management of Labor ........................................ 503
Postpartum Care ...................................................................... 504
Newborn Care ......................................................................... 505
   Terms Associated with the Normal Newborn ....................... 506
   Rh Incompatibility ............................................................... 507
Women’s Health Issues ............................................................... 508
   Pelvic Inflammatory Disease ............................................... 508
   Menopause ......................................................................... 508
   Maternal Infections ............................................................. 508
   Methods of Contraception .................................................... 511
Key Concepts .......................................................................... 514
   Key Terms ......................................................................... 514
   Diagnostic Tests .................................................................. 515
   Pharmacological Agents Used in the Care of the Obstetric Client 516
Apply Your Knowledge ............................................................. 517
   Exam Questions ................................................................... 518
   Answers to Exam Questions .................................................. 520
Suggested Reading and Resources .............................................. 521
## Chapter 16:
Care of the Pediatric Client

### Growth and Development
- Infant (28 Days to 1 Year) ........................................ 523
- Toddler (1–3 Years) ................................................ 524
- Preschooler (3–5 Years) ........................................... 525
- School Age (6–12 Years) ........................................... 527
- Adolescence (12–18 Years) ....................................... 527

### Caring for the Child with Respiratory Disorders
- Upper Airway Infections ........................................ 529
- Lower Airway Infections .......................................... 533
- Long-Term Respiratory Disorders ............................. 535
- Cystic Fibrosis (Mucoviscidosis) ............................... 536

### Caring for the Child with Gastrointestinal Disorders
- Disorders of Motility ............................................. 538
- Structural Defects ................................................... 540
- Obstructive Disorders ............................................. 542
- Inflammatory and Parasitic Disorders ......................... 544
- Malabsorptive/Metabolic Syndromes ......................... 545
- Ingestion of Hazardous Substances .......................... 547

### Caring for the Child with Cardiovascular Disorders
- Congenital Heart Defects ....................................... 550
- Acquired Heart Disease ........................................... 557

### Caring for the Child with Genitourinary Disorders
- Obstructive Uropathy ............................................. 561
- External Defects (Hypospadias, Epispadias, Exstrophy of the Bladder) .................. 561
- Epispadias/Exstrophy of the Bladder ......................... 562

### Caring for the Child with Neoplastic Disorders
- Leukemia ................................................................. 563
- Wilms’ Tumor (Nephroblastoma) .............................. 563
- Retinoblastoma ....................................................... 564
- Neuroblastoma ....................................................... 564
- Osteosarcoma and Ewing’s Sarcoma ......................... 564
- Rhabdomyosarcoma ............................................... 565
- Surviving Childhood Cancer .................................. 565

### Caring for the Child with Cerebral Disorders
- Intracranial Infections (Encephalitis and Bacterial Meningitis) ...................... 566
- Reye’s Syndrome .................................................... 567

### Caring for the Child with Integumentary Disorders
- Eczema (Atopic Dermatitis) ..................................... 568
- Scabies ..................................................................... 569
- Pediculosis Capitis (Head Lice) ............................... 569
### Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyme Disease</td>
<td>570</td>
</tr>
<tr>
<td>Rocky Mountain Spotted Fever</td>
<td>570</td>
</tr>
<tr>
<td>Caring for the Child with Communicable Disease</td>
<td>571</td>
</tr>
<tr>
<td>Caring for the Child with Musculoskeletal Disorders</td>
<td>573</td>
</tr>
<tr>
<td>Congenital Clubfoot</td>
<td>573</td>
</tr>
<tr>
<td>Developmental Hip Dysplasia</td>
<td>573</td>
</tr>
<tr>
<td>Osteogenesis Imperfecta</td>
<td>574</td>
</tr>
<tr>
<td>Legg-Calvé-Perthes Disease (Coxa Plana)</td>
<td>575</td>
</tr>
<tr>
<td>Scoliosis</td>
<td>576</td>
</tr>
<tr>
<td>Juvenile Rheumatoid Arthritis (Juvenile Idiopathic Arthritis)</td>
<td>576</td>
</tr>
<tr>
<td>Caring for the Child with Neuromuscular Disorders</td>
<td>577</td>
</tr>
<tr>
<td>Cerebral Palsy</td>
<td>577</td>
</tr>
<tr>
<td>Neural Tube Defects</td>
<td>578</td>
</tr>
<tr>
<td>Spina Bifida</td>
<td>578</td>
</tr>
<tr>
<td>Muscular Dystrophies</td>
<td>579</td>
</tr>
<tr>
<td>Caring for the Abused and Neglected Child</td>
<td>580</td>
</tr>
<tr>
<td>Key Concepts</td>
<td>583</td>
</tr>
<tr>
<td>Key Terms</td>
<td>583</td>
</tr>
<tr>
<td>Diagnostics</td>
<td>584</td>
</tr>
<tr>
<td>Pharmacological Agents Used in the Care of Pediatric Clients</td>
<td>584</td>
</tr>
<tr>
<td>Apply Your Knowledge</td>
<td>584</td>
</tr>
<tr>
<td>Exam Questions</td>
<td>585</td>
</tr>
<tr>
<td>Answers to Exam Questions</td>
<td>587</td>
</tr>
<tr>
<td>Suggested Reading and Resources</td>
<td>588</td>
</tr>
</tbody>
</table>

**Chapter 17:**

**Care of the Client with Psychiatric Disorders**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety-related Disorders</td>
<td>589</td>
</tr>
<tr>
<td>Generalized Anxiety Disorder</td>
<td>590</td>
</tr>
<tr>
<td>Post-traumatic Stress Disorder</td>
<td>590</td>
</tr>
<tr>
<td>Dissociative Identity Disorder</td>
<td>591</td>
</tr>
<tr>
<td>Somatoform Disorder</td>
<td>591</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>591</td>
</tr>
<tr>
<td>Phobic Disorders</td>
<td>592</td>
</tr>
<tr>
<td>Obsessive-compulsive Disorder</td>
<td>592</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>593</td>
</tr>
<tr>
<td>Cluster A</td>
<td>593</td>
</tr>
<tr>
<td>Cluster B</td>
<td>594</td>
</tr>
<tr>
<td>Cluster C</td>
<td>595</td>
</tr>
<tr>
<td>Managing Clients with Personality Disorders</td>
<td>596</td>
</tr>
<tr>
<td>Psychotic Disorders</td>
<td>597</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>597</td>
</tr>
<tr>
<td>Bipolar Disorders</td>
<td>599</td>
</tr>
</tbody>
</table>
### Chapter 19: Legal Issues in Nursing Practice

- **Apply Your Knowledge** .......................................................... 638
- **Exam Questions** ..................................................................... 638
- **Answers to Exam Questions** .................................................. 640
- **Suggested Reading and Resources** .......................................... 641

#### Types of Laws
- Statutory Laws/Regulatory Laws ............................................. 644
- Civil Laws ................................................................................. 644
- Criminal Laws ......................................................................... 644
- Common Law ............................................................................. 644

#### Code of Ethical Behavior in Nursing Practice .......................... 645

#### Legal Theories That Affect Nursing Practice .......................... 646
- Negligence ............................................................................... 647
- Malpractice ............................................................................... 647
- Witnessing Consent for Care ..................................................... 647
- Tort ......................................................................................... 647
- Assault and Battery ................................................................... 648
- Fraud ......................................................................................... 648

#### Managing Client Care ............................................................. 648

#### Key Terms ............................................................................. 652

### Chapter 20: Cultural Practices Influencing Nursing Care

- **Apply Your Knowledge** .......................................................... 652
- **Exam Questions** ..................................................................... 653
- **Answers to Exam Questions** .................................................. 655
- **Suggested Reading and Resources** .......................................... 656

#### Cultural Assessment ............................................................... 657
- Understanding Client Beliefs ..................................................... 657
- Working with Clients Who Speak Different Languages ............ 658

#### Healthcare of Hispanics/Latinos ............................................ 659
- Time Considerations ................................................................ 660
- Use of Nonverbal/Verbal Communication ................................ 660
- Childbirth and Pain Response .................................................. 661

#### Healthcare of Native Americans and Alaskan Natives ............ 661
- Time Considerations ................................................................ 661
- Use of Nonverbal/Verbal Communication ................................ 662
- Childbirth and Pain Response .................................................. 662

#### Healthcare of Asian-Americans ............................................ 662
- Time Considerations ................................................................ 663
- Use of Nonverbal/Verbal Communication ................................ 663
- Childbirth and Pain Response .................................................. 664
Healthcare of Arab-Americans .................................................. 664
Time Considerations ............................................................... 665
Use of Nonverbal/Verbal Communication ............................... 665
Childbirth and Pain Response .................................................. 665
Nursing Plan Dietary Considerations Across Cultures ............... 665
Religious Beliefs and Refusal of Care Considerations ............... 667
Key Terms .................................................................................. 669
Apply Your Knowledge ............................................................. 669
Exam Questions ....................................................................... 669
Answers to Exam Questions ...................................................... 671
Suggested Reading and Resources .............................................. 672

Part II: Final Review

Fast Facts
The NCLEX RN Exam Prep .......................................................... 673

Practice Exam I ....................................................................... 681
Fluid and Electrolytes and Acid/Base Balance ......................... 682
Care of the Client with Cardiovascular Disorders ................. 686
Care of the Client with Endocrine Disorders ......................... 693
Care of the Client with Immunological Disorders ................. 700
Care of the Childbearing Client and the Neonatal Client ......... 705

Practice Exam II .................................................................... 717
Care of the Client with Respiratory Disorders ....................... 718
Care of the Client with Genitourinary Disorders .................... 723
Care of the Client with Integumentary Disorders .................... 728
Care of the Client with Sensory Disorders ............................. 731
Care of the Pediatric Client ...................................................... 736
Care of the Client with Psychiatric Disorders ......................... 744
Emergency Care ...................................................................... 749

Practice Exam III .................................................................... 753
Care of the Client with Musculoskeletal and Connective Tissue Disorders ........................................................................ 754
Care of the Client with Gastrointestinal Disorders .................. 760
Care of the Client with Neoplastic Disorders .......................... 767
Care of the Client with Neurological Disorders ....................... 777
Care of the Client with Hematological Disorders .................... 786

Practice Exam IV
Management and Alternative Item Exam Questions ............... 791
Management Questions .............................................................. 792
Alternative Items ..................................................................... 808
Answers to Practice Exam I .......................................................... 819
  Answers at a Glance to Practice Exam I ........................................ 819
  Answers with Explanations ...................................................... 821
    Fluid and Electrolytes and Acid/Base Balance .......................... 821
    Care of the Client with Cardiovascular Disorders ...................... 823
    Care of the Client with Endocrine Disorders .............................. 828
    Care of the Client with Immunologic Disorders ......................... 832
    Care of the Childbearing Client and the Neonatal Client ............... 835
Answers to Practice Exam II ....................................................... 843
  Answers at a Glance to Practice Exam II .................................... 843
  Answers with Explanations ...................................................... 845
    Care of the Client with Respiratory Disorders ......................... 845
    Care of the Client with Genitourinary Disorders ....................... 848
    Care of the Client with Integumentary Disorders ....................... 851
    Care of the Client with Sensory Disorders ................................ 853
    Care of the Pediatric Client ............................................... 855
    Care of the Client with Psychiatric Disorders ............................ 859
    Emergency Care .................................................................... 862
Answers to Practice Exam III .................................................... 865
  Answers at a Glance to Practice Exam III .................................... 865
  Answers with Explanations ...................................................... 867
    Care of the Client with Musculoskeletal and Connective Tissue Disorders ........................................... 867
    Care of the Client with Gastrointestinal Disorders ...................... 870
    Care of the Client with Neoplastic Disorders .............................. 873
    Care of the Client with Neurological Disorders ............................. 878
    Care of the Client with Hematological Disorders ....................... 883
Answers to Practice Exam IV: Management and Alternative Item Exam Questions ..................................................... 885
  Answers to Management Questions ............................................. 885
  Alternative Item Answers ........................................................ 894
Part III: Appendixes
Appendix A: Things You Forgot .................................................. 899
  Therapeutic Drug Levels ......................................................... 899
  Vital Signs ........................................................................... 899
  Anticoagulant Therapy ............................................................. 899
  Intrapartal Normal Values ......................................................... 900
Standard Precautions ........................................................................................................... 900
Airborne Precautions ......................................................................................................... 901
Droplet Precautions ........................................................................................................... 901
Contact Precautions ......................................................................................................... 901
Revised Life Support Guidelines (American Heart Association) ......................................... 902
Defense Mechanisms ........................................................................................................ 902
Nutrition Notes .................................................................................................................. 902
Immunization Schedule ...................................................................................................... 903

Appendix B: Need to Know More? ....................................................................................... 905
Pharmacology .................................................................................................................... 905
Care of the Client with Respiratory Disorders ................................................................ 905
Care of the Client with Genitourinary Disorders ............................................................. 906
Care of the Client with Hematological Disorders ............................................................. 906
Fluid and Electrolytes and Acid/Base Balance .................................................................. 906
Care of the Client with Burns ............................................................................................ 907
Care of the Client with Sensory Disorders ...................................................................... 907
Care of the Client with Neoplastic Disorders ................................................................... 907
Care of the Client with Gastrointestinal Disorders .......................................................... 908
Care of the Client with Musculoskeletal and Connective Tissue Disorder ...................... 908
Care of the Client with Endocrine Disorders .................................................................... 909
Care of the Client with Cardiac Disorders ....................................................................... 909
Care of the Client with Neurological Disorders ............................................................... 909
Care of the Client with Psychiatric Disorders ................................................................. 910
Maternal-Newborn Care .................................................................................................... 910
Care of the Pediatric Client ............................................................................................... 910
Cultural Practices Influencing Nursing Care ..................................................................... 911
Legal Issues in Nursing Practice ....................................................................................... 911

Appendix C: Calculations .................................................................................................... 913
The Apothecary System of Measurement .......................................................................... 913
The Household System of Measurement ......................................................................... 913
Metric Measurements ....................................................................................................... 914
Test Your Math Skills ........................................................................................................ 914
Answers .............................................................................................................................. 915

Appendix D: Most-Prescribed Medications in the United States ........................................ 917

Appendix E: Alphabetical Listing of Nursing Boards in the United States and Protectorates .................................................................................................................. 921

Index .................................................................................................................................. 935
Introduction

Since the first day of your nursing program, you have accumulated stacks of notes and materials that you were asked to learn. There is no way that you can study all of those materials. For this reason, we have developed a concise text that will help you organize your knowledge. This book will help you to prepare for the NCLEX RN using tried-and-true techniques used by the experts. This Introduction discusses the changes that have occurred in the NCLEX exam. You will learn about the future of the exam and how you can be a successful candidate. Whether you are taking the exam for the first time or have taken the exam several times, this book is designed for you.

The Exam Prep books help you to understand and appreciate the subject material that you need to know to pass nursing school and the exam. This book includes an in-depth discussion of all topics covered on the NCLEX. We take you on a self-guided tour of all of the areas covered on the NCLEX test plan and give you tips for passing. This book also contains practical tips for your nursing practice. You will find a user-friendly “Fast Facts” quick reference sheet containing lab values, normal fetal heart tones, and much more. Study tips, exam prep tips, case studies, math review, and test banks will help you practice those difficult pharmacology questions and help you manage the questions and alternative items that you will encounter on the exam. This book also includes chapters on the cultural aspects of nursing care and legalities. Each chapter concludes with a series of practice questions to help reinforce your understanding of the topics within the chapter and to help you prepare for the exam.

The nurse is a valued member of the healthcare team. The National Council of State Boards of Nursing (NCSBN) is responsible for allocating the number and type of questions that the nurse must take as well as the percentage of questions in each category. The differences between the test questions for a PN and RN are often subtle. Some examples of these differences are

- **Client care responsibility:** Because the RN is ultimately responsible for the coordination and management of client care as well as delegation of duties, RN candidates will get more questions on these topics whereas PN candidates will be tested on their knowledge and application of how to care for clients.

- **Intravenous therapy and medication:** The RN is responsible for initiating IVs and giving medication, but the PN is expected to be able to monitor IV lines and medication and know how to recognize problems and the steps to take to correct them.
Blood administration: The RN is primarily responsible for initiating a blood transfusion, but the PN is expected to know the signs of a transfusion reaction and the action to be taken if such a reaction occurs.

Central line care: The RN is primarily responsible for central line care, but the PN is expected to know how to care for the central line site and be aware of signs of an air emboli.

Each chapter in the Exam Prep is extremely useful to the nurse seeking licensure as a practical nurse or registered nurse.

Organization
This book is organized by body systems. This method uses a format that most students find helpful for learning material quickly and easily.

- Each chapter begins with an outline of topics—this is a list of subtopics covered in the chapter.
- Each chapter has helpful notes, tips, and cautions that will help you study for the exam.
- Each chapter includes an in-depth discussion of the topics in that unit.
- Each chapter includes pharmacological agents used in the care of the client.
- Each chapter includes diagnostic studies used to determine client needs.
- Each chapter ends with a case study. This allows the student to use critical-thinking skills in the treatment of the client.

Instructional Features
This book provides multiple ways to learn and reinforce the exam material. Following are some of the helpful methods:

- Study strategies: Study strategies are discussed in a chapter called “Study and Exam Preparation Tips.”
- Key terms: A list of key terms that the student must know appears as a glossary.
- Notes, tips, and cautions: Notes, tips, and cautions contain various kinds of useful or practical information such as tips on nursing practice.
- Apply Your Knowledge: Questions covering the material in that particular chapter are included at the end of each chapter. There are three test banks of 166 items and an additional test bank of management and pharmacology questions. You will also find a CD of test questions to help you practice the NCLEX format. These help you to determine what you need to study further and what you already know.
Suggested Readings and Resources: At the end of each chapter, this section directs you to additional resources for study. This book is also designed to be a tool used by nursing students and nurses in practice.

Extensive Practice Test Options

This book provides you with many opportunities to assess your knowledge and practice for the exam. The test options are as follows:

- **Exam questions:** Each chapter ends with a series of questions relevant to the chapter material.
- **Case studies:** Each chapter includes a case study in which you can practice applying all the information to a real-life scenario.
- **Practice exams:** This book includes three complete practice exams that reflect the type of questions you will see on the NCLEX exam. Use them to practice and to help you determine your strengths and weaknesses so that you can return to your weakest areas for further study.
- **CD exam:** The exam engine included on the CD includes questions from the book as well as additional questions for your review. Be sure to use the study mode first and then try the exam mode. The CD allows you to repeat the exam as often as you need, so don’t hesitate to try again and again if you need to.

Final Review

The final review section of the book provides you with two valuable tools for preparing for the exam:

- **Fast Facts:** This is a condensed version of the information contained in the book and is an extremely useful tool for last-minute review.
- **Exam questions:** Three complete practice exams are included in this book plus more on the CD-ROM. All questions are written in the style and format used on the actual exam. Use these exams to prepare for the real exam until you are comfortable with your level of knowledge.

Other Valuable Tools

This book also includes several other valuable tools for preparing for the NCLEX exam:

- Appendix A, “Things You Forgot,” contains a list of information commonly used by nurses.
- Appendix B, “Need to Know More?” includes a list of websites and organizations that are helpful resources for the nurse in practice.
Appendix C, “Calculations,” provides you with a quick-and-easy guide to medication administration.

Appendix D, “Most-Prescribed Medications in the United States,” is a list of commonly prescribed drugs with the generic and brand names and common nursing implications for use.

Appendix E, “Alphabetical Listing of Nursing Boards in the United States and Protectorates,” is a useful list for nurses.

An index provides a complete source of the location of specific information.

About the NCLEX Exam

The Computer Adaptive Test (CAT) provides a means for individualized testing of each candidate seeking licensure as a professional nurse. Selecting from a large test bank, the computer chooses questions based on the candidate’s ability and competence as demonstrated on the prior question.

For the RN exam, the minimum number of questions is 75 with a maximum of 265. The average candidate’s exam comprises 160 items. You must answer the question that appears on the screen before another question is given, and you cannot skip questions or return to a previous question. It is imperative that you read each question carefully before you select a response. We suggest that you cover the answers with your nondominant hand and read the stem before looking at the answers. RN candidates are allowed six hours to take the exam.

The NCLEX consists of questions from the cognitive levels of knowledge, comprehension, application, and analysis. The majority of questions are written at the application and analysis levels. Questions incorporate the five stages of the nursing process:

- Assessment
- Analysis
- Planning
- Implementation
- Evaluation

There are also questions from the four categories of client needs (noted in bold in Table I.1). Client needs are divided into subcategories (noted in italics in Table I.1) that define the content within each of the four major categories tested on the NCLEX. Table I.1 outlines the categories and subcategories of client needs.
TABLE I.1 NCLEX RN Exam Categories and Subcategories

<table>
<thead>
<tr>
<th>Client Needs</th>
<th>Percentage of Items from Each Category/Subcategory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe, Effective Care Environment</td>
<td></td>
</tr>
<tr>
<td>Management of Care</td>
<td>16%–22%</td>
</tr>
<tr>
<td>Safety and Infection Control</td>
<td>8%–14%</td>
</tr>
<tr>
<td>Health Promotion and Maintenance</td>
<td>6%–12%</td>
</tr>
<tr>
<td>Psychosocial Integrity</td>
<td>6%–12%</td>
</tr>
<tr>
<td>Physiological Integrity</td>
<td></td>
</tr>
<tr>
<td>Basic Care and Comfort</td>
<td>6%–12%</td>
</tr>
<tr>
<td>Pharmacological and Parenteral Therapies</td>
<td>13%–19%</td>
</tr>
<tr>
<td>Reduction of Risk Potential</td>
<td>10%–16%</td>
</tr>
<tr>
<td>Physiological Adaptation</td>
<td>11%–17%</td>
</tr>
</tbody>
</table>

The percentage of questions allotted to each category is determined by the National Council and depends on the results of a survey the council sends out every three years to new graduates. Based on the activity statements, the percentages change accordingly. It is safe to say that as the patient population changes, these categories will also change. This book reflects those changes particularly as they relate to the need for nurses in management roles, cultural diversity, and client criticality.

Computerized adaptive testing offers the candidate several advantages over the former paper-and-pencil exam. The test questions are stored in a large test bank and classified by test plan areas and level of difficulty. Depending on the answer given by the candidate, the computer presents another question that is either more difficult or less difficult. This allows the computer to determine the candidate's knowledge of the subject matter more precisely.

The pass/fail decision is not based on how many questions the candidate answers correctly, but on the difficulty of the questions answered correctly. Even though candidates might answer different questions and different numbers of questions, the test plan remains the same. All NCLEX examinations conform to this test plan. Each time you answer a question correctly, the next question gets harder until you miss a question; then an easier question is given until you answer correctly. This way the computer concludes whether a candidate has met the passing standard. If you are clearly above the passing standard at the minimum number of questions, the computer stops asking questions. If you are clearly below the passing standard, the computer stops asking questions. If your ability estimate is close to the passing standard, the computer continues to ask questions until either the maximum number of questions is asked or time expires. Should time expire, the last 60 questions are reviewed. To pass, the candidate must remain above the passing standard on the last 60 items.

The CAT exam offers another advantage. The candidate can schedule the exam at a time that is convenient and usually receives test results in 7 days or sooner. The candidate can retake the exam after 45 days in most states. We suggest that you review this text and others, and, if needed, take a review seminar prior to taking the NCLEX. Allow at least one week to study and prepare for the exam. Remember: You want to take the
exam only one time. You should visit the National Council’s website at www.ncsbn.org for information regarding how to schedule your test. We suggest that you read the application process thoroughly to learn how you can register to take the exam.

Advice for Preparing for the Exam

Judicious use of this book, either alone or with a review seminar such as the one provided by Rinehart and Associates, will help you achieve your goal of becoming licensed to practice nursing. We suggest that you find a location where you can concentrate on the material each day. A minimum of two hours per day for at least two weeks is suggested. This book provides you with tips, notes, and sample questions. These questions will acquaint you with the types of questions you will see during the exam. The mock exam is formulated with those difficult management and delegation questions that you can score to determine your readiness to test. Pay particular attention to the notes, tips, and warnings throughout the book as well as the “Fast Facts” chapter. Using these elements will help you gain knowledge and reduce your stress as you prepare to take the test.

Advice for Test Day

From our years of experience in nursing and teaching, we have this advice for you:

► **Remember to know where you are going:** Be sure that you know the exact location of the exam. It is easy to get caught in traffic, and if you are late, you forfeit the exam time and your money. You will have to reschedule your exam and pay again.

► **Have your authorization number and forms of ID with you:** If you forget to take your identification, you will have to reschedule and will forfeit your testing time. Remember you will be photographed and fingerprinted prior to entering the testing site, so do not let this upset you.

► **Eat a high-protein meal prior to the exam:** You want good food for thought prior to taking the exam. Studies have shown that a meal high in vitamins such as B9 help us think more clearly during stressful times.

► **Take your time during the test:** Remember, you do not have to complete all the questions.

► **If you need to take a break, get up and walk around:** The clock will continue to tick, so don’t take too much time.

► **Dress in layers:** The testing site might be cold or warm.
Hints for Using This Book

Each *Exam Prep* book follows a regular structure, along with cues about important or useful information. Here’s the structure of a typical chapter:

- **Outline of topics**: Lists the topic headings within the chapter.
- **Headings and subheadings**: These are the main chapter topics and ancillary subtopics, designating the core content for study within the chapter.
- **Case studies**: This allows the student to use critical thinking skills in a specific client situation. The answers and complete explanations for the case study are included.
- **Key Concepts**: This section of the chapter includes the following three components for you to review and study to ensure your understanding of the chapter topics:
  - **Key Terms**: A list of the key terms from the chapter that you should be able to define.
  - **Diagnostics**: When appropriate, this section lists diagnostics used in the care of the client with a condition covered within the chapter.
  - **Pharmacological agents used in the care of the client with disorders found in the chapter**: This information is found in a table form and includes the generic name and brand name of the drug by category, the action of the drug, the potential side effects, and the nursing implications and care of the client taking that category of drugs.
- **Apply Your Knowledge**: Exam questions about the chapter content with answers and explanations are included in each chapter.
- **Suggested Reading and Resources**: Each chapter concludes with a supplementary resource list (including books, websites, and journals) relevant to the chapter content.

We suggest that you study from the front of the book and proceed in a logical sequence. When you have completed the case study and questions at the end of each chapter, you might feel the need to research using the resource list.

Contact the Author

We are interested in your study and success, and want you to pass on the first attempt. If after reviewing with this text, you would like to contact us, you can do so at Rinehart and Associates, PO Box 124, Booneville, MS 38829 or visit our website at www.nclexreview.net. You can contact us by phone at (662) 728-4622.

Remember, knowing the material is important, but being able to apply that knowledge is a must. When you understand the material, passing the NCLEX exam will be easy.

Good luck!
CHAPTER FIVE

Care of the Client with Respiratory Disorders

According to the American Lung Association (2006), lung disease is the fourth leading cause of death in the United States. More than 35 million Americans live with chronic lung disease. Some of these diseases, such as asbestosis, are the result of occupational exposure and carry associated risks of lung cancer. Respiratory infections, particularly nosocomial pneumonia, are responsible for 11% of all hospital-acquired infections. This chapter covers common noninfectious disorders that contribute to chronic lung disease, occupational lung disorders, infectious diseases of the lower respiratory tract, acute respiratory disorders that threaten the client’s life, and emerging pulmonary infections.

Noninfectious Disorders of the Lower Respiratory Tract

Noninfectious disorders of the lower respiratory tract affect the exchange of oxygen and carbon dioxide. The chronic and progressive nature of many of these disorders, such as emphysema, result in major changes in the person’s lifestyle. Others, such as asbestosis and berylliosis, result from occupational exposure and increase the risk of lung cancer and premature death. Although many noninfectious disorders of the lower respiratory tract are preventable, other disorders—such as sarcoidosis—are not. This section reviews the chronic obstructive disorders, pulmonary hypertension, interstitial pulmonary disease, and occupational pulmonary disease.

Chronic Bronchitis

Chronic bronchitis refers to an inflammation of the bronchi and bronchioles. It is caused by a continuous exposure to infections or noninfectious irritants, such as tobacco smoke. Unlike emphysema, bronchitis is confined to the small and large airways rather than the alveoli. Thickening of the bronchial wall and the production of thick mucus blocks the smaller airways and narrows the larger ones. Chronic bronchitis can often be reversed with the removal of irritants; however, it is complicated by respiratory infections and can progress to right-sided heart failure, pulmonary hypertension, and in some instances to acute respiratory failure. Chronic bronchitis is most common in those age 40–55 years.
Symptoms associated with chronic bronchitis include the following:

- Shortness of breath
- Cough (which might be more common in the winter months)
- Increased sputum production
- Difficulty in eating (due to shortness of breath)
- Decreased weight
- Sleep difficulty (need to sleep sitting up to facilitate breathing)
- Auscultation of fine or coarse crackles and wheezes
- Prolonged expiration time

Treatment of chronic bronchitis includes the use of bronchodilators, steroids, antacids, and expectorants. Antibiotics are usually ordered if the client has an acute respiratory infection. Attention is given to correcting acid-base imbalances, meeting nutritional needs, providing frequent oral care, and providing oxygen at low settings (2–3 liters per minute).

**Emphysema**

*Emphysema* is a condition in which there is an irreversible overdistention of the alveoli that eventually results in destruction of the alveolar wall. Clients with emphysema are sometimes described using the terms *pink puffers* or *blue bloaters.* *Pink puffers* (those with involvement of the bronchiole, alveolar duct, alveoli) experience exertional dyspnea yet remain pink. *Blue bloaters* (those with involvement of the secondary lobule resulting in changes in O$_2$ perfusion) have problems with chronic hypoxia, cyanosis, pulmonary edema, and sometimes respiratory failure. The blue bloater, who is cyanotic even at rest, experiences increasing dyspnea and deepening cyanosis with exertion. Polycythemia predisposes the client with emphysema to the development of clots.

Physical assessment of the client with advanced emphysema reveals the following:

- Presence of a barrel chest
- Digital clubbing
- Rapid shallow respirations
- Prolonged expiratory phase with grunting respirations
- Muscle wasting
- Weight loss
- Peripheral cyanosis
- Violent coughing productive of thick sputum
Chest x-ray reveals flattening of the diaphragm. Arterial blood gases typically reveal increased CO₂ levels and decreased O₂ levels. Pulmonary studies reveal increased residual volume and decreased vital capacity. Serum α₁-antitrypsin levels are used to screen for deficiency of the enzyme, particularly in clients with a positive family history of obstructive airway disease, in those with early onset, women, and smokers who develop symptoms of COPD in their 40s. Normal adult serum α₁,AT levels range from 80 to 260mg/dL.

Many of the symptoms for the client with chronic bronchitis and emphysema are the same; therefore, the treatment of both conditions includes the use of bronchodilators, steroids, antacids, and expectorants. Antibiotics are usually ordered if the client has an acute respiratory infection. Prophylactic antibiotics might be prescribed for clients who experience four or more respiratory infections per year. Immunization against pneumococcal pneumonia and yearly influenza vaccination are recommended to reduce the risk of respiratory infections. Attention is given to correcting acid-base imbalances, meeting nutritional needs, providing frequent oral care, and providing oxygen at low settings (2–3 liters per minute). α₁-antitrypsin replacement therapy can be administered weekly by intravenous infusion for clients with emphysema due to genetic deficiency of the enzyme. Although expensive, the medication has been shown to reduce mortality rates.

**Asthma**

Asthma is the most common respiratory condition of childhood. Intrinsic (nonallergenic) asthma is precipitated by exposure to cold temperatures or infection. Extrinsic (allergenic or atopic) asthma is often associated with childhood eczema. Both asthma and eczema are triggered by allergies to certain foods or food additives. Introducing new foods to the infant one at a time helps decrease the development of these allergic responses. Easily digested, hypoallergenic foods and juices should be introduced first. These include rice cereal and apple juice.

Although asthma is the most common chronic disease of childhood, it can occur at any age. Many adults with asthma report having the disease in childhood.

Symptoms of asthma include expiratory wheeze; shortness of breath; and a dry, hacking cough, which eventually produces thick, white, tenacious sputum. In some instances, an attack might progress to status asthmaticus, leading to respiratory collapse and death.

Management of the client with asthma includes maintenance therapy with mast cell stabilizers and leukotriene modifiers. Treatment of acute asthmatic attacks includes the administration of oral or inhaled short-term and long-term B2 agonists and anti-inflammatory drugs as well as supplemental oxygen. The nurse should instruct the client in the proper use of the inhaler (metered-dose and dry-powder) as detailed in the sidebar that follows. Methylxanthines, such as aminophylline, are rarely used for the treatment of asthma. These drugs, which can cause tachycardia and dysrhythmias, are administered as a last resort. Antibiotics are frequently ordered when a respiratory infection is present.
Client Teaching: Use of Metered-Dose and Dry-Powder Inhaler:

1. Insert the metered-dose inhaler canister into the mouthpiece or spacer.
2. Remove the mouthpiece cap and shake the canister 3–5 seconds.
3. Exhale slowly and deeply.
4. Hold the canister upside down two fingers away from the mouth or use a spacer.
5. Inhale deeply for 3–5 seconds while pressing down on the canister.
6. Hold breath for 10 seconds, release pressure on the canister, remove mouthpiece from the mouth, and then exhale slowly.
7. Wait 60 seconds before repeating the procedure.
8. Rinse the mouth with water; rinse the inhaler mouthpiece and spacer and store them in a clean area.

Dry-Powder Inhaler:

1. Store the inhaler and medication in a dry area.
2. Remove the cap and hold the inhaler upright.
3. Load the inhaler according to the directions for use.
4. Hold the inhaler level with the mouthpiece end facing down.
5. Tilt your head back slightly; then breathe deeply and slowly.
6. Place the mouthpiece into your mouth; with the teeth over the mouth piece form a seal with the lips. Do not block the inhaler with your tongue.
7. Inhale rapidly and deeply for 2–3 seconds.
8. Remove the inhaler from your mouth and hold your breath for 10 seconds.
9. Exhale slowly through pursed lips. Do not exhale into the inhaler mouthpiece.
10. Rinse mouth with water and brush teeth after using the inhaler.
11. Store the inhaler in a clean, sealed plastic bag. Do not wash the inhaler unless directed by the manufacturer.
12. Clean the mouthpiece weekly using a dry cloth.
13. Notify the physician of the presence of a sore throat or sore mouth.

NOTE

For more detailed information on asthma, see the “Childhood Asthma” section in Chapter 16, “Care of the Pediatric Client.”
Pleurisy

Pleurisy, (pleuritis) an inflammation of the pleural sac, can be associated with upper respiratory infection, pulmonary embolus, thoracotomy, chest trauma, or cancer. Symptoms include

- Sharp pain on inspiration
- Chills
- Fever
- Cough
- Dyspnea

Chest x-ray reveals the presence of air or fluid in the pleural sac. Management of the client with pleurisy includes the administration of analgesics, antitussives, antibiotics, and oxygen therapy. A thoracentesis is often necessary if there is pleural effusion. It is the nurse’s responsibility to prepare the client for the procedure including positioning. The client can be positioned in one of the following ways:

- Sitting on the edge of the bed with her feet supported and with her head and arms resting on a padded over the bed table (see Figure 5.1)
- Sitting astride a chair with her arms and head resting on the back of the chair
- Lying on her unaffected side with her head of the bed elevated 30°–45° (for clients unable to sit upright)

Following the thoracentesis, the nurse should assess the client for complications, including bleeding, hypotension, and pneumothorax.
Pulmonary Hypertension

Pulmonary hypertension results when constriction of blood vessels increases vascular resistance in the lungs. Pulmonary hypertension is diagnosed by systolic pressures greater than 30 mm Hg in the pulmonary artery. In some instances, the condition occurs as a complication of other lung disorders. In the case of primary pulmonary hypertension (PPH), there is no lung disorder and the cause remains unknown. Pulmonary hypertension seems to occur in families and is more common in women 20–40 years of age.

The most common symptoms associated with pulmonary hypertension are chest pain, dyspnea and fatigue in an otherwise healthy adult. Eventually, the right side of the heart fails.

The diagnosis of pulmonary hypertension is made by a right-sided heart catheterization that reveals increased pressure in the pulmonary artery. Pulmonary function tests show decreased pulmonary volumes and decreased diffusion capacity. Abnormal ventilation perfusion scan and abnormal spiral CT help to confirm the diagnosis.

Medical treatment of pulmonary hypertension includes the use of anticoagulants, vasodilators, cardiotonics, calcium channel blockers, bronchodilators and diuretics. Daily doses of Coumadin (warfarin) are given to achieve an international normalized ratio.
(INR) of 1.5–2.0. This elevated INR can prevent the common occurrence of thrombosis in situ. Cardizem (diltiazem) or other calcium channel blockers such as Procardia (nifedipine) are given to dilate blood vessels. Short-acting direct vasodilators can be used for clients who do not respond to calcium channel blockers. These short-acting direct vasodilators include intravenous Flolan (epoprostenol), intravenous Remodulin (treprostinil), and oral Tracleer (bosentan). The use of vasodilators is limited in the client with pulmonary hypertension because the medication can produce systemic hypotension. Instead, infusion of Adenocard (adenosine) into the pulmonary artery is recommended because it has a vasodilating effect that is specific to pulmonary circulation. Viagra (sildenafil) has been shown to cause preferential pulmonary vasodilation and is sometimes used to manage clients with primary and secondary pulmonary hypertension.

The cardiotonic drug Lanoxin (digoxin) and diuretics are indicated for the client with cardiac hypertrophy and cardiac failure. Bronchodilators improve hypoxemia and reduce pulmonary vascular resistance. Surgical management of pulmonary hypertension relies on whole lung transplant.

### Interstitial Pulmonary Disease

Interstitial pulmonary disease, sometimes referred to as *fibrotic lung disease*, encompasses several lung disorders that share common characteristics. These characteristics include the following:

- Pathologic changes in the alveoli, blood vessels, and surrounding support tissue of the lungs instead of the airway
- Restriction in expansion and recoil rather than obstructive disease
- Thickening of lung tissue so that the lung becomes “stiff” or noncompliant with respirations

Sarcoidosis and idiopathic pulmonary fibrosis are two examples of interstitial pulmonary disease.

### Sarcoidosis

*Sarcoidosis* is a multisystem disorder that is capable of producing granulomatous lesions in almost any organ or tissue. The disorder is believed to be a hypersensitive response to one or more agents such as bacteria, fungi, viruses, or chemicals.

Sites most commonly affected are the lungs, lymph nodes, spleen, liver, central nervous system, skin, eyes, and parotid glands. According to the American Lung Association (2006) more than 90% of clients with sarcoidosis have pulmonary involvement. In the lungs, granulomatous infiltration and fibrosis results in low lung compliance, impaired diffusing capacity, and decrease lung volume.
The disease is not gender specific; however, African Americans are affected 10 times more often than Caucasians with the onset occurring in the third and fourth decades of life.

The symptoms of sarcoidosis vary according to the system involved. Pulmonary symptoms include dyspnea, cough, hemoptysis, and congestion. Other symptoms include anorexia, fatigue, weight loss, and fever.

The diagnosis of sarcoidosis is made by chest x-ray and CT scan, which reveal disseminated miliary and nodular lesions in the lungs. Mediastinoscopy or transbronchial biopsy are performed to confirm the diagnosis. The presence of noncaseating granulomas is consistent with a diagnosis of sarcoidosis.

Some clients with sarcoidosis undergo remission without specific treatment. Others are treated with cytotoxic or immunosuppressive drugs. Commonly used medications include corticosteroids (prednisone), Plaquenil (chloroquine), Indocin (indomethacin), Imuran (azathioprine), and Rheumatrex (methotrexate).

**Pulmonary Fibrosis**

Pulmonary fibrosis or restrictive lung disease is most common in the older adult with a history of cigarette smoking or chronic exposure to respiratory irritants such as metal particles, wood fires, or organic chemicals. When the lungs are injured, an inflammatory process continues beyond the time of normal healing. Extensive fibrosis and scarring occur, leaving the alveoli damaged. Most persons with pulmonary fibrosis have progressive symptoms with few remissions. Even with proper treatment, most clients die within five years of diagnosis.

Early symptoms of pulmonary fibrosis include mild exertional dyspnea. As the disease progresses dyspnea and hypoxemia become more severe. Eventually the client continues to have hypoxemia even when high levels of oxygen are administered. The goal of treatment is to slow the disease process and to manage the client’s dyspnea. Immunosuppressive drugs such as Cytoxan (cyclophosphamide) and Imuran (azathioprine) are used to reduce inflammation. Side effects of these drugs include immunosuppression, nausea, and hepatic damage. Lung transplantation is a curative therapy for pulmonary fibrosis.

**Occupational Pulmonary Disease**

Occupational pulmonary disease results when workers are exposed to organic and inorganic dusts or noxious fumes or aerosols. Factors affecting the development of occupational lung disease include the composition and concentration of the agent, the duration of exposure, and the individual’s susceptibility to the irritant. Coexisting pulmonary irritants such as cigarette smoke increase the risk of certain types of lung cancer. Occupational pulmonary diseases include silicosis, pneumoconiosis (black lung), asbestosis, talcosis, and berylliosis.
The prevention of occupational pulmonary disease includes proper ventilation of the work environment and the use of protective gear, including face masks, hoods, and industrial respirators. Educational programs for smoking cessation improve overall health and help decrease the risk of occupational pulmonary disease. Workers exposed to asbestos and toxic dusts should be educated regarding health hazards to others from clothing and shoes. A copy of “right to know laws” should be available to all workers exposed to hazardous or toxic materials. Workers should be educated about hazardous or toxic substances they work with, effects of these substances on their health, and measures to protect themselves.

**Silicosis**

Silicosis is caused by the inhalation of silica dust, which produces nodular lesions throughout the lungs. These nodules eventually enlarge and coalesce, causing dense masses in the upper portions of the lungs. The lungs become unable to fully expand and secondary emphysema produces obstructive lung disease.

Silicosis affects 1–3 million workers in the United States. Persons employed as foundry workers and those employed in glass manufacturing, stone-cutting, and manufacturing of abrasives and pottery are at risk for silicosis. Finely ground silica found in soaps and polishes is particularly dangerous.

The client with acute silicosis complains of dyspnea, fever, cough, and weight loss. Those with chronic silicosis have symptoms of hypoxemia, restricted air flow, and right-sided heart failure.

There is no specific treatment for silicosis. Management usually includes the provision of supplemental oxygen as needed, bronchodilators, and diuretics for symptoms of right-sided heart failure.

**Pneumoconiosis**

Pneumoconiosis (*black lung, coal miner’s lung*) results from inhalation of dusts that are a mixture of coal, kaolin, mica, and silica. When these particles are deposited in the alveoli and bronchioles, they are surrounded by macrophages that transport them to the terminal bronchioles. For a while, these deposits are removed by mucociliary action. However, in time, the clearance mechanism cannot remove the excessive dust load and macrophages and fibroblasts clog the bronchioles and alveoli, creating blackened dots on the lung. These blackened dots, known as *coal macules*, are the primary lesions of the disease. Enlarged and dilated bronchioles eventually produce localized emphysema.

Pneumoconiosis begins in the upper lobes of the lungs and with repeated exposure progresses to the lower lobes. Symptoms begin with a chronic productive cough similar to the cough of bronchitis. As the disease progresses, the client complains of shortness of breath and a cough productive of a black fluid. Later symptoms include those of right-sided heart failure.
**Asbestosis**

Asbestosis, the result of inhaling asbestos dust or fibers, produces diffuse pulmonary fibrosis that obliterates the alveoli. Federal laws restricting or eliminating the use of asbestos were passed when it was learned that asbestos posed a health hazard. Persons employed in asbestos mining and manufacturing, shipbuilding, and construction and demolition of buildings containing asbestos materials are at greatest risk. Examples of asbestos-containing materials include shingles, cement, vinyl asbestos tile, fireproof paints, filters, and brake linings.

Symptoms associated with asbestosis include progressive dyspnea, persistent dry cough, mild to moderate chest pain, anorexia, and weight loss. Pleural thickening and plaque formation reduce lung volume and oxygen and carbon dioxide exchange. The development of cor pulmonale and respiratory failure is common. Additional related diseases include asbestosis pleural effusion and malignant mesothelioma—a rare but fatal cancer of the pleura, peritoneum, or pericardium. The period of time between asbestos exposure and development of mesothelioma is long, ranging from 20 to 30 years. Depending on the person’s health and time of diagnosis, the average survival time is 4–12 months.

**Talcosis**

Talcosis occurs after exposure to talc dust. Persons employed in the manufacture of paint, ceramics, cosmetics, roofing materials, and rubber goods are at greatest risk for the development of talcosis. The disease results in diffuse interstitial fibrosis that eventually results in restrictive lung disease. The symptoms are the same as those with other forms of restrictive lung disease.

**Berylliosis**

Berylliosis is more common in workers in industries in which metal is heated (steel mills or welding) or where metal is machined in such a way that a dust is created. There is a genetic component in some individuals that seems to increase susceptibility to the disease after exposure. Like talcosis, berylliosis produces interstitial fibrosis that results in restrictive lung disease.

**Infectious Disorders of the Lower Respiratory Tract**

*Infectious disorders of the lower respiratory tract* refers to diseases affecting the lungs. Pneumonia and pulmonary tuberculosis represent two major infectious disorders of the lower respiratory tract.

**Pneumonia**

Pneumonia is an inflammation of the parenchyma of the lungs caused by any number of organisms that include bacteria, viruses, and fungi. Community-acquired pneumonias include streptococcal pneumonia, *Haemophilus influenza*, Legionnaires’ disease,
Mycoplasma pneumoniae, viral pneumonia, and chlamydial pneumonia. Hospital-acquired pneumonias include Pseudomonas pneumonia, staphylococcal pneumonia, Klebsiella pneumonia, Pneumocystis carinii pneumonia (PCP), and fungal pneumonia.

Presenting symptoms depend on the causative organism. The client with viral pneumonia tends to have milder symptoms, whereas the client with bacterial pneumonia might have chills and fever as high as 103°. Clients with cytomegalovirus, Pneumocystis carinii, or aspergillus will be acutely ill. General symptoms of pneumonia include

- Hypoxia
- Tachypnea
- Tachycardia
- Chest pain
- Malaise
- Fever
- Confusion (particularly in the elderly)

Care of the client with pneumonia depends on the causative organism. The management of bacterial pneumonias includes antibiotics, antitussives, antipyretics, and oxygen. Antibiotics that might be ordered include penicillin G, tetracycline, gentamicin, and erythromycin. Viral pneumonias do not respond to antimicrobial therapy but are treated with antiviral therapy. Fungal pneumonias are treated with antifungal therapy. Tables 5.2 and 5.3 at the end of the chapter provide examples of community- and hospital-acquired pneumonias as well as drugs used to treat them.

**CAUTION**

Some medications used in the treatment of pneumonia require special attention:

- Tetracycline should not be given to women who are pregnant or to small children because of the damage it can cause to developing teeth and bones.
- Garamycin (gentamicin), an aminoglycoside, is both ototoxic and nephrotoxic. It is important to monitor the client for signs of toxicity. Serum peak and trough levels are obtained according to hospital protocol. Peak levels for Garamycin are drawn 30 minutes after the third or fourth IV or IM dose. Trough levels for Garamycin are drawn 30 minutes before the third or fourth IV or IM dose. The therapeutic range for Garamycin is 4–10 mcg/mL.

Additional therapies for the client with pneumonia include providing for fluid and nutritional needs, obtaining frequent vital signs, and providing oral hygiene. Supplemental oxygen and chest percussion and drainage should be performed as ordered by the physician.
Oxygen Therapy

The goal of oxygen therapy is to provide adequate levels of oxygen to blood while decreasing the workload of the heart and lungs. As with other medications, a physician’s order is required when administering oxygen, except in emergency situations when failure to do so would result in injury or death of the client.

Oxygen delivery systems are classified as low flow or high flow. Low-flow systems provide supplemental oxygen while the client continues to breathe some room air. Examples of low-flow systems are nasal cannula, simple mask, and rebreather masks. Nasal cannulas are capable of providing 1–6 liters of oxygen per minute. Masks are capable of providing 6–12 liters of oxygen per minute. Venturi and aerosol masks are examples of high-flow systems, which are capable of delivering 4–10 liters of oxygen per minute. Oxygen flow rates are prescribed by the physician according to the client’s condition and oxygen requirements. Figure 5.2 illustrates a Venturi mask as well as nasal cannula.

![Venturi mask and Nasal cannula]

Figure 5.2 Examples of oxygen delivery systems.

The nurse should observe the client’s response to oxygen therapy as well as watching for signs of oxygen toxicity. Signs of oxygen toxicity include substernal discomfort, paresthesias, dyspnea, restlessness, fatigue, malaise, and progressive respiratory difficulty.

Chest Physiotherapy

Chest physiotherapy that includes percussion, vibration, and postural drainage is used to remove bronchial secretions and improve oxygenation. The nurse should assess the client for any conditions, such as recent thoracic surgery, that would contraindicate the use of chest physiotherapy.

Auscultation of the chest before and after the procedure is carried out to determine the effectiveness of treatment. A towel placed over the client’s chest will make the client more comfortable during percussion. Using cupped hands, the nurse strikes the client’s chest in a rhythmical fashion for 3–5 minutes for each lung segment. As the client
exhales, manual vibration or tremor might be used to help loosen secretions. Figure 5.3 illustrates chest percussion and drainage.

**Tuberculosis**

*Tuberculosis (TB)* is a highly contagious respiratory infection caused by the *mycobacterium tuberculosis*. The organism is transmitted by droplets from the respiratory tract. The incidence of TB has been steadily increasing in the United States and worldwide for the past twenty years. Risk factors include living in overcrowded conditions, being immune compromised, and age. Duration of exposure affects transmission.
Symptoms of TB are varied. Some clients might have no symptoms; others might complain of fever (particularly in the afternoon), weight loss, anorexia, indigestion, cough that becomes productive, night sweats, shortness of breath, and changes in lung sounds. Sites most commonly affected by TB include the lungs, cervical lymph nodes, kidney, and spine.

Methods used for tuberculosis testing include the intradermal PPD (Mantoux) test and the multiple puncture (tine) test. The multiple puncture test is less accurate than the PPD test; therefore, it is used less often. The PPD (Mantoux) is performed by injecting 0.1 mL of PPD intradermally in the inner aspect of the forearm. The test is read within 48–72 hours with notation of induration, not redness. Indurations of 0 mm–4 mm are generally considered negative, whereas indurations of 5 mm–9 mm indicate questionable exposure. Indurations of 5 mm–9 mm are considered positive for those in close contact with a client with TB, those with HIV or who are immunocompromised, and in those who have an abnormal chest x-ray. Indurations of 10 mm–15 mm are considered positive for those born in a country where TB is prevalent; those who are intravenous drug users; residents of long-term care facilities, homeless shelters, or correctional facilities; and those with medical conditions such as malnutrition and diabetes.

Indurations greater than 15 mm are considered to be positive for all. Positive test results indicate exposure and infection, but not necessarily active disease. An induration of 5 mm is the cut-off for organ transplant recipients and other immunosuppressed clients treated with prednisone or TNF antagonists. (CDC, 2005) Persons who have had a positive skin test will always have a positive skin test, therefore they should be screened with a chest x-ray as needed to detect clinically active TB.

Positive skin tests can be measured accurately for up to seven days. Negative reactions can be measured accurately for only 72 hours. Factors that can cause false positive TB skin test include nontuberculous mycobacterium and inoculation with BCG vaccine. Factors that can cause false negative TB skin test include anergy (weakened immune system), recent TB infection, age, vaccination with live viruses, overwhelming TB, and poor testing technique.

TB is confirmed by positive sputum test. Automated radiometric culture systems (Bactec) yield results in one to three weeks. Blood tests that measure and compare the amount of interferon-gamma released by blood cells in response to antigens include the Quantiferon TB test and Quantiferon Gold. Two-step testing is used to establish a baseline skin test and for adults tested periodically such as healthcare workers:

- If the first TB skin test is read as positive, the client is considered infected.
- If the first TB skin test is read as negative, give second TB skin test one to three weeks later. If the second TB skin test is read as positive, the client is considered infected.
- If the second TB skin test is read as negative, the client is considered uninfected at the baseline.
Care of the client with TB includes the use of antimycobacterial drugs INH (isoniazid), Myambutol (ethambutol), Rifadin (rifampin), and streptomycin. Multiple drug therapy destroys organisms quickly and decreases the chance of developing drug-resistant organisms. Clients newly diagnosed with TB are typically treated with a regimen of four antituberulars: Rifadin (rifampin) and INH (isoniazid) are given throughout the course of treatment, and Tebrazid (pyrazinamide and Myambutol (ethambutol) are added for the first 2 months. The combination of medications reduces the treatment time to 6 months for most clients; however, clients with HIV infection are typically treated for 9 months.

Airborne precautions, which are used in the hospital setting, are not used if the client is convalescing home, however all household members need to be checked for infection. Sputum specimens are collected every 2–4 weeks. The client can return to work when he/she has three negative sputum specimens. Household contacts are generally treated with prophylactically with INH (isoniazid). Table 5.4, presented in the Key Concepts section later in the chapter, lists details about antitubercular drugs. Because of the length and intensity of treatment, the client should have the following lab studies performed before beginning therapy and on a regularly scheduled basis:

- Alanine transaminase (ALT)
- Aspartate transaminase (AST)
- Bilirubin
- Platelet count
- Serum creatinine

Adverse effects of ethambutol include changes in visual acuity and color vision; therefore, clients should have an eye exam before beginning therapy to detect any existing problems and should report visual changes to their physician. Adverse effects of streptomycin include ototoxicity, so audiometric testing should be performed before streptomycin therapy is begun to detect problems with hearing. Changes in hearing should also be reported to the physician.

**Influenza**

_Influenza_ is an acute highly contagious viral infection that affects primarily the upper respiratory tract and is sometimes complicated by the development of pneumonia. Influenza is caused by one of three types of _Myxovirus influenzae_. Infection with one strain produces immunity to only that strain; therefore, annual immunization is needed to protect against the strain projected to be prevalent that year.

Symptoms of influenza include chills, laryngitis, sore throat, runny nose, muscle aches, headache, and fever greater than 102°. Complications associated with influenza include pneumonia, exacerbations of COPD (chronic obstructive pulmonary disease), and myositis. More serious complications include pericarditis and encephalitis. The elderly, children, and those with chronic illness are more likely to develop severe complications; therefore, it is recommended that these clients receive annual influenza immunization.
The vaccine is given in the fall, prior to the onset of annual outbreaks that occur in the winter months. The vaccine is produced in eggs, so it should not be given to anyone who is allergic to egg protein.

Treatment of influenza is aimed at controlling symptoms and preventing complications. Bed rest and increased fluid intake are important interventions during the acute phase. Decongestant nasal sprays, antitussives with codeine, and antipyretics help make the client more comfortable. Antibiotics are indicated if the client develops bacterial pneumonia. Clients with influenza as well as nonimmunized persons who have been exposed to influenza might receive chemoprophylaxis if an outbreak occurs. Antiviral medication such as Relenza (zanamivir) and Tamiflu (oseltamivir) are used in both the prevention and treatment of influenza A and B and can be used to reduce the duration and severity of symptoms.

Symmetrel (amantadine) or Flumadine (rimantadine) are also used to prevent or decrease symptoms of the flu.

Life-Threatening Pulmonary Disorders

Acute and chronic respiratory conditions can rapidly deteriorate into situations that require immediate intervention to save the client’s life. Some of these conditions, such as flail chest, are related to traumatic injury of the chest. Others, such as pulmonary embolus and acute respiratory distress syndrome, are related to a variety of causes including fractures. In this section, we will discuss the most common life-threatening pulmonary disorders and the nursing care related to those clients.

Acute Respiratory Distress Syndrome

Acute respiratory distress syndrome, commonly known as ARDS or noncardiogenic pulmonary edema, occurs mostly in otherwise healthy persons. ARDS can be the result of intrinsic factors (such as anaphylaxis, sepsis, or pulmonary emboli) or extrinsic factors (such as aspiration or inhalation injury). ARDS can also occur as a complication from abdominal or thoracic surgery. The client with ARDS develops increased extravascular lung fluid that contains a high concentration of protein although the interstitial tissue remains relatively dry. ARDS can be diagnosed by a chest x-ray that reveals emphysematous changes and infiltrates that give the lungs a characteristic appearance described as ground glass. Assessment of the client with ARDS reveals:

- Hypoxia (decreased tissue oxygenation)
- Suprasternal and intercostal retractions
- Presence of crackles (rales) or rhonchi
- Diminished breath sounds
- Refractory hypoxemia (low levels of oxygen in the blood despite supplemental oxygen delivered at high concentrations)
Nursing care of the client with ARDS involves the following:

- Maintaining endotrachial intubation and mechanical ventilation with positive end expiratory pressure (PEEP) or continuous positive airway pressure (CPAP). The goal of ventilation is to maintain a PaO$_2$ greater than 60 mm Hg or O$_2$ saturation level greater than 90% at the lowest possible FiO$_2$ setting.

- Monitoring of arterial blood gases.

- Providing for nutritional needs either by tube feeding or hyperalimentation (clients with ARDS require 35–45 kcal/kg per day).

- Maintaining fluid volume to maintain adequate cardiac output and tissue perfusion.

- Monitoring of pulmonary artery wedge pressure (assesses fluid status and monitors for the development of pulmonary hypertension).

- Frequent change in position: placement in high Fowler’s position, or use of specialized beds to minimize consolidation of infiltrates in large airways. Research has indicated that some clients with ARDS benefit from being placed in a prone position, however the nurse should carefully assess the client’s respiratory effort before putting the client flat or in a head-down position.

- Preventing sepsis, pneumonia, and multisystem organ dysfunction.

- Use of low-molecular-weight heparin to prevent thrombophlebitis and possible pulmonary embolus or disseminated intravascular coagulation.

- Investigational therapies include the use of mediators (vitamins C and E, aspirin, interleukin, prostacyclin), nitric oxide, and surfactant replacement.

Nursing Care of the Client Requiring Mechanical Ventilation

The client with ARDS has severe problems with maintaining adequate gas exchange, therefore mechanical ventilation is usually required. Nursing care of the client requiring mechanical ventilation includes a general understanding of the type of ventilator and modes of control being used as well as interventions to support the client’s physical and psychological well-being. This section begins with a review of mechanical ventilation followed by nursing interventions for the client who is ventilator dependent.

Indications for mechanical ventilation are as follows:

- PaO$_2$ < 50 mm Hg with FiO$_2$ > 0.60
- PaO$_2$ > 50 mm Hg but a pH < 7.25
- Respiratory rate > 35 breaths per minute
- Vital capacity < 2 times tidal volume
There are two basic types of ventilators:

- **Negative-pressure ventilators**: Work by changing pressures in the chest cavity rather than by forcing air directly into the lungs. Negative pressure ventilators such as the poncho or body wrap are used for clients with neuromuscular disease and chronic obstructive pulmonary disease. An artificial airway is not needed.

- **Positive-pressure ventilators**: Inflate the lungs by exerting positive pressure on the airway, which forces the alveoli to expand during inspiration. In most instances an endotracheal tube or tracheostomy is needed. Positive-pressure ventilators are classified according to the mechanism that ends inspiration and begins expiration. Positive-pressure ventilators are classified as pressure-cycled, time-cycled, flow-cycled, or volume-cycled. Key features of these as follows:
  - Pressure-cycled ventilators push air into the lungs until a preset airway pressure is obtained. Pressure-cycled ventilators are sometimes used for respiratory therapy or for the client just after surgery.
  - Volume-cycled ventilators push air into the lungs until a preset volume has been delivered. Tidal volume remains constant. Set pressure limits prevent excessive pressure from being exerted on the lungs.
  - Time-cycled ventilators push air into the lungs until a preset time has been reached. Tidal volume and pressure vary according to the client’s needs.
  - Flow-cycled ventilators push air into the lungs until a preset flow rate is achieved during inspiration.

The controlling modes of ventilators are as follows:

- **Controlled**: The machine ventilates according to set tidal volume and respiratory rate. The client’s spontaneous respiratory effort is blocked.

- **Assist controlled**: A preset volume of oxygen is delivered at a preset rate, but the client can trigger ventilations with negative inspiratory effort.

- **Synchronized intermittent mandatory**: A preset minimum number of respirations are delivered to the client, but the client can also take spontaneous breaths.

General guidelines for initial ventilator settings are as follows:

- Set the tidal volume required (10–15 mL/Kg).
- Adjust to the lowest concentration of O₂ to maintain a PaO₂ of 80–100 mm Hg.
- Set the mode according to doctor’s order.
- For assist controlled mode, adjust sensitivity so that the client can trigger the ventilator with minimal effort.
- Record minute volume; measure PaO₂, PaCO₂, and pH every 20 minutes of continuous mechanical ventilation.
Adjust settings according to the results of arterial blood gases to maintain normal levels or levels prescribed by doctor.

If the client becomes confused or “fights” the ventilator unexpectedly, assess for hypoxemia and manually ventilate with resuscitation device and 100% oxygen.

**Nursing Care of the Client Who Is Ventilator Dependent**

Nursing interventions for the client who is ventilator dependent are as follows:

- Explain the purpose of the ventilator. Clients in ICU may become confused and need repeated explanations and reassurance.
- Assess vital signs and breath sounds every 30–60 minutes.
- Assess breathing pattern in relation to ventilation cycle to determine if the client is tolerating the ventilator.
- If an endotracheal tube is used, make sure that it is taped securely in place.
- Monitor pulse oximetry and arterial blood gases.
- Suction when needed, and observe the color and amount of respiratory secretions. Guidelines for performing endotracheal suctioning are given in the sidebar that follows.
- Provide the client with a means of communication such as Magic Slate or writing paper.
- Keep the call light within reach of the client.

### Guidelines for Performing Endotracheal Suctioning:

1. Collect needed supplies (suction unit; size 12–16 Fr sterile suction catheter; sterile normal saline; personal protective gear—goggles, mask, gown).
2. Explain procedure to client; provide a means of communication.
3. Set suction to setting of 80–120 mmHg.
4. Open sterile saline, leaving cap loosely in place.

**In-Line Catheter:**

1. Wearing exam glove, and attach the catheter to suction tubing.
2. Administer oxygen at 100% for three to four breaths.
3. Maintain sterility; insert the catheter through the plastic shield until resistance is met. Do not apply suction upon insertion of the catheter. Using a twirling motion, and apply suction while the catheter is being withdrawn.
4. Limit suctioning to no more than 10 seconds; provide supplemental oxygen and allow the client to rest 3–5 breaths; repeat the procedure if needed, but no more than 3 times.
5. Disconnect suction tubing from catheter; clean the tubing; turn off suction.
6. Remove and discard glove.
**Catheter and Glove Kit:**

1. Open kit containing suction catheter and glove. Remove saline cup and fill with sterile saline.

2. Don sterile gloves and attach the catheter to the suction tubing. Keeping the dominant hand sterile, and lubricate the catheter tip with the sterile saline.

3. With the nondominant hand, adjust the oxygen to 100% and administer 3 breaths.

4. With the nondominant hand, disconnect the ventilator tubing from the endotracheal tube. With the dominant hand (sterile), insert the suction catheter until resistance is felt. With the nondominant hand (nonsterile) applying suction, the dominant hand uses a twisting motion as catheter as the catheter is being withdrawn.

5. Limit suctioning to no more than 10 seconds; reconnect the ventilator and allow the client to rest 3–5 breaths; clear the suction catheter with sterile saline.

6. Repeat the procedure if needed, but no more than 3 times.

7. Reconnect the ventilator tubing to the endotracheal tube.

8. Clear the suction tubing; turn off suction; disconnect the catheter and discard with glove.

9. Observe the color, quantity, and consistency of sputum.

10. Assess the lung sounds and the client's tolerance of procedure.

11. Wash hands.

---

**Pulmonary Embolus**

*Pulmonary embolus (PE)* refers to the obstruction of the pulmonary artery or one of its branches by a clot, fat, or gaseous substance. Clots can originate anywhere in the body, but are most likely to migrate from a vein deep in the legs, pelvis, kidney, or arms. Fat embolus is associated with fractures of the long bones, particularly the femur. Air embolus, which is less common, can occur during the insertion or use of central lines. Amniotic embolus can be a complication of amniocentesis or abortion and is associated with a very high mortality rate. Septic embolus can result from pelvic abscesses, damaged heart valves, osteomyelitis, infected intravenous catheters, or nonsterile injections of illegal drugs.

Pulmonary embolus affects approximately 500,000 people in the United States annually; therefore, prevention of PE should be a major concern for nurses. The following steps can significantly reduce the incidence of pulmonary embolus:

- Ambulate postoperative clients as soon as possible.
- Apply antiembolism and pneumatic compression stockings.
- Avoid pressure beneath the popliteal space.
- Check the status of peripheral circulation (do not perform Homans’ sign because doing so might dislodge any clots that are present).
- Change the client’s position every two hours.
Check IV sites for signs of heat, redness, and swelling as well as blood return.

Avoid massaging or compressing leg muscles.

Teach client not to cross the legs.

Encourage smoking cessation.

Common risk factors for the development of pulmonary embolus include immobilization, fractures, trauma, and history of clot formation. Situations, such as air travel that require prolonged sitting can also contribute to clot formation, particularly in those who are elderly or debilitated. Conditions associated with identified risk factors are smoking, pregnancy, estrogen therapy, use of oral contraceptives, cancer of the lung or prostate, obesity, thrombocytopenia, advanced age, atrial fibrillation, presence of artificial heart valves, sepsis, and congestive heart failure.

**TIP**

Remember the three Fs of fat emboli:

- Fat
- Femur
- Football player

Most fat emboli come from fractured femurs; most fractured femurs occur in young men 18–25, the age of most football players.

Symptoms of a pulmonary embolus depend on the size and location of the clot or undissolved matter. Symptoms generally include the following:

- Pleuritic chest pain
- Low-grade fever
- Tachypnea
- Dyspnea
- Hypoxemia
- Syncope
- Hemoptysis (due to pulmonary infarction)
- Tachycardia
- Transient changes in T wave and S-T segments
- Hypotension
- Sense of apprehension
- Petechiae over the chest and axilla (associated with development of DIC [disseminated intravascular coagulation])
- Distended neck veins (indicates right ventricular failure)
Diagnostic tests to confirm the presence of pulmonary embolus include chest x-ray, pulmonary angiography, ventilation-perfusion lung scan, and ECG to rule out myocardial infarction. Chest x-ray findings are often normal or can reveal pulmonary infiltration at the site of the embolus. Negative lung scan rules out the presence of pulmonary embolus. Pulmonary angiography, the most specific diagnostic test for ruling out pulmonary embolus, is used when results of the lung scan are inconclusive.

Management of the client with a pulmonary embolus includes

- Placing the client in an upright sitting position (high Fowler's position)
- Administering oxygen via mask
- Giving medication for chest pain
- Using thrombolytics (streptokinase, urokinase, tPA / anticoagulants [heparin, warfarin sodium])

Antibiotics are indicated for those with septic emboli. Surgical management using umbrella-type filters is indicated for those who cannot take anticoagulants as well as for client who have recurrent emboli while taking anticoagulants. Clients receiving anticoagulant therapy should be observed for signs of bleeding. The protime (PT), International normalized ratio (INR), and partial thromboplastin time (PTT) are three tests used to track the client’s clotting time.

**CAUTION**

Streptokinase is made from beta strep; therefore, clients with a history of strep infections might respond poorly to anticoagulant therapy with streptokinase because they might have formed antibodies. Streptokinase is not clot specific; therefore, the client might develop a tendency to bleed from incision or injection sites.

### Pneumothorax

Pneumothorax occurs when the pleural space is exposed to positive atmospheric pressure. Normally the pressure in the pleural cavity is negative or subamospheric. It is this negative pressure that keeps the lungs inflated. When either the parietal or visceral pleura is breached, air enters the pleural cavity and increases the intrathoracic pressure. This results in a collapse of a portion of the lung.

There are three classifications of pneumothorax:

- **Spontaneous pneumothorax:** A non–life-threatening condition that can result from the rupture of a bleb, or blister, on the surface of the visceral pleura or from chronic obstructive pulmonary disease. Blunt chest trauma and penetrating chest wounds are the main causes of traumatic and tension pneumothorax.

- **Traumatic pneumothorax:** Usually results from blunt trauma to the chest and is classified as either an open pneumothorax (outside air enters the pleural space) or a closed pneumothorax (air from the lung enters the pleural space). Both closed trau-
matic pneumothorax and tension pneumothorax are life-threatening emergencies that require early detection and treatment.

- **Tension pneumothorax**: Results from an air leak in the lung or chest wall that leads to collapse of the lung. Air enters the pleural space with each inspiration and does not exit during expiration. Air accumulation in the pleural space compresses blood vessels and decreases venous return. The result is reduced cardiac filling and decreased cardiac output. In addition to blunt chest trauma, tension pneumothorax can result from complications of mechanical ventilation with positive end expiratory pressure (PEEP) and insertion of central venous catheters.

Assessment of the client with a pneumothorax can reveal

- Reduced breath sounds on the affected side
- Hyperresonance on percussion of the chest
- Prominence of the affected side of the chest
- Tracheal deviation away from (closed pneumothorax) or toward (open pneumothorax) the affected side
- Tachypnea, respiratory distress, or cyanosis
- Pleuritic pain
- Subcutaneous emphysema in some cases
- Distended neck veins in some cases

Chest tubes are inserted after confirming the condition by chest x-ray. The initial treatment of tension pneumothorax is the insertion of a large bore needle at the second intercostal space, mid-clavicular line on the affected side followed by insertion of chest tubes connected to a water-sealed chest drainage system.

**Hemothorax**

Hemothorax, an accumulation of blood in the pleural space, can be caused by a number of conditions including blunt trauma, penetrating injury, thoracic surgery, and dissecting thoracic aneurysms. In the case of blunt trauma or penetrating injury pneumothorax may accompany hemothorax. The accumulation of blood in the pleural space exerts pressure on pulmonary structures. This causes the alveoli to collapse and decreases the surface area for gas exchange. Hypovolemia occurs as bleeding decreases the vascular volume. The severity of a hemothorax depends on the amount of blood loss. Massive hemothorax—blood loss greater than 1500 mL—can occur from trauma to the heart, great vessels, or intercostal arteries.
Assessment findings are dependent on the amount of blood loss. The client with a small hemothorax can be asymptomatic. Findings associated with a large hemothorax include:

- Respiratory distress
- Diminished breath sounds
- Dull sound when the affected side is percussed
- Blood in the pleural space

Anterior and posterior chest tubes are inserted to remove blood. The physician may perform an open thoracotomy when the blood loss is excessive (from 1500 mL to 2000 mL) or persistent (200 mL per hour over a three hour period).

A key role of the nurse in caring for the client with a pneumothorax or hemothorax is assessing the chest drainage system and intervening appropriately if problems arise. Chest tubes are inserted for one of two reasons: to drain the chest cavity or to reinflate the lung. Chest drainage systems can be one-bottle, two-bottle, or three-bottle setups. Chest drainage systems using glass bottles have largely been replaced by lightweight disposable systems that use chambers rather than bottles as illustrated in Figure 5.4.

One-chamber set-ups do not allow for suction control and cannot handle large amounts of drainage. Two-chamber setups allow for suction and are capable of collecting large amounts of drainage. In the two-chamber setup, the first chamber collects the drainage, and the second chamber controls the amount of suction. In the traditional water seal or three-chamber setup, the first chamber collects the drainage, the second chamber acts as
a water seal, and the third chamber controls the amount of suction. Refer to Figure 4.5 and the Points to Remember list that follows to help you review the management of a three-chamber water seal chest drainage system.

**FIGURE 5.5 Three-Chamber chest drainage system.**

The collection chamber acts as a reservoir for fluid that drains from the chest tube. A one-way valve in the water seal chamber prevents air from moving back into the chest when the client inhales. *Tidaling*, or an increase in water level, occurs with inspiration and returns to baseline with expiration. The suction control chamber regulates the amount of negative pressure applied to the chest cavity. The amount of suction applied is determined by the amount of water in the suction chamber. The amount of suction is generally set at 20 cm of water.

Points to remember for management of a three-chamber water seal chest drainage system include:

- Monitor the color, amount, and consistency of the drainage.
- Note fluctuations in the water seal chamber. Fluctuations stop when the tubing is obstructed, when there is a dependent loop, or when the suction is not working properly.
- Assess the suction control chamber for bubbling. Constant bubbling in the water seal chamber can indicate an air leak. Assess the chest tube system for external air leaks. The physician should be notified at once if there is constant bubbling in the water seal chamber that is not related to an external air leak.
Ensure that the drainage tube does not interfere with the client’s movement. If the chest tube should become disconnected from the client, the nurse should cover the insertion site immediately with a petroleum gauze. (Petroleum gauze, sterile dressings, and tape should be kept at the client’s bedside.) The client should be monitored for developing pneumothorax. The physician should be notified and equipment gathered in anticipation of reinsertion of the chest tube.

When transporting the client, the chest drainage system should remain below chest level. If the tubing becomes disconnected from the collection device, cut off the contaminated tips of the tubing, insert a sterile connector, and reattach the tube to the chest drainage system. Do not clamp the chest tube during transport.

When assisting with chest tube removal, instruct the client to perform a Valsalva maneuver. The tube is clamped and quickly removed by the physician. The nurse should simultaneously apply a small petroleum gauze covered by a 4”x4” gauze pad that is completely covered and sealed with nonporous tape. Following the removal of the chest tube the nurse should monitor the client for signs of recurring pneumothorax.

**Emerging Infections**

Emerging infections includes identified diseases that have increased in incidence within the past 20 years as well as diseases that are expected to increase in prevalence in the near future. Examples of emerging infections are West Nile virus, Legionnaires’ disease, Lyme disease, hantavirus pulmonary syndrome, Ebola and Marburg viruses, and severe acute respiratory syndrome (SARS). Two emerging infections—SARS and Legionnaires’ disease—will be covered in this section.

**SARS**

*Severe acute respiratory syndrome* is a pneumonia caused by a newly recognized coronavirus (CoV). The first human coronavirus, isolated in 1965, is responsible for about one-third of all colds. The virus is spread by droplets as well as contact with surface objects contaminated by droplets. Most cases of SARS have been in China, Taiwan, Singapore, Hong Kong, and Vietnam; however, limited cases have been identified in other areas. Symptoms include cough, shortness of breath or increased shortness of breath, and fever. Chest x-ray reveals the presence of pneumonia, which can develop into acute respiratory distress. Lab studies include immunofluorescent antibody testing (IgM and IgG), and reverse transcriptase polymerase chain reaction to detect RNA on the SARS CoV. Care of the client with SARS includes isolation and quarantine. The client should be placed in a negative-pressure isolation room and caregivers should use airborne and contact precautions, including N95 masks and eye shields. Antibiotics and antiviral medications are ordered. The client is closely monitored for signs of acute respiratory distress. Figure 5.6 illustrates the symptoms indicative of SARS.
Legionnaires’ Disease

Legionnaires’ disease is caused by Legionella pneumophila, a gram negative bacteria found in both natural and man-made water sources. The organism grows best in water temperatures between 77° F and 107° F and is enhanced by water storage. Risk factors include immunosuppression, advanced age, alcoholism, and pulmonary disease. Legionnaires’ primarily affects the lungs and other organs and produces symptoms that include malaise, myalgia, headache, dry cough, chest pain, fever, diarrhea, and gastrointestinal complaints. Legionnaires’ is diagnosed by routine culture, antibody titer, and urinary antigen for Legionella pneumophila serotype I. Management of the client with Legionnaires’ disease is the same as those used for clients with pneumonia. No special isolation technique is used because there is no evidence of transmission between humans. Antibiotic therapy includes the use of Zithromax (azithromycin), Biaxin (clarithromycin), Ilotycin (erythromycin), and Levaquin (levofoxacin). Zithromax (azithromycin) is considered to be the drug of choice for the client with Legionnaires’ disease.
Case Study

Mr. Adams, a 65-year-old male, is admitted with a diagnosis of emphysema. The physician’s orders include the following: oxygen 3 liters/min.; dextrose 5% in normal saline 1000 mL to infuse over eight hours; chest x-ray, routine CBC, and urinalysis; Claforan (cefotaxime) 750 mg IV every eight hours; Tussin (chlorpheniramine, hydrocodone, pseudoephedrine) 400 mg every four hours; aspirin grains ten every four hours as needed for temperature over 101°.

1. Which type of oxygen delivery system should be used to supply Mr. Adams’s oxygen needs?
2. What physical changes would the nurse expect to find in the client with emphysema?
3. Discuss nutritional interventions needed for the client with chronic obstructive pulmonary disease.
4. Nursing care of Mr. Adams includes prevention of oxygen toxicity. List symptoms associated with oxygen toxicity.
5. The physician’s order reads dextrose 5% in normal saline 1000 mL to infuse over eight hours. The IV setup delivers 12 drops per mL. The nurse should set the IV infusion rate at how many drops per minute?

Answers to Case Study

1. The oxygen delivery system best suited to the needs of the client with emphysema is the nasal cannula.
2. Physical changes in the client with emphysema include barrel chest, digital clubbing, prolonged respiratory phase and respiratory grunt, muscle wasting, weight loss, peripheral cyanosis, violent productive cough.
3. The client with chronic obstructive pulmonary disease should be provided with small, more frequent meals. The diet should be increased in calories with a greater percentage of the diet coming from fat calories because metabolism of fat produces less carbon dioxide than carbohydrates. Dry foods should be avoided because they increase coughing. Milk products should be avoided because they increase the thickness of secretions.
4. Symptoms of oxygen toxicity include substernal discomfort, paresthesias, dyspnea, restlessness, fatigue, malaise, and progressive respiratory distress.
5. The infusion should be set at 25 drops per minute.
**Key Concepts**

This chapter includes much needed information to help the nurse apply a knowledge of respiratory disorders to the NCLEX exam. The nurse preparing for the licensure exam should review normal laboratory values, common treatment modalities and pharmacological agents used in the care of the client with respiratory disorders.

**Key Terms**

- Acute respiratory failure
- Apnea
- Asthma
- Bronchitis
- Continuous positive airway pressure (CPAP)
- Cor pulmonale
- Cyanosis
- Dyspnea
- Emphysema
- Hemoptysis
- Hypoxemia
- Hypoxia
- Pleural effusion
- Pleurisy
- Pneumonia
- Pulmonary embolus
- Tachypnea

**Diagnostic Tests**

Many diagnostic exams are used to assess respiratory disorders. These clients would receive the usual routine exams: CBC, urinalysis, chest x-ray. The exam reviewer should be knowledgeable of the preparation and care of clients receiving pulmonary exams. While reviewing these diagnostic exams, the exam reviewer should be alert for information that would be an important part of nursing care for these clients:

- CBC
- Chest x-ray
Pharmacological Agents Used in the Care of the Client with Disorders of the Respiratory System

An integral part of care to clients with respiratory disorders is pharmacological intervention. These medications provide an improvement or cure of the client’s respiratory problems. The nursing exam reviewer needs to focus on the drugs in Table 5.1 through Table 5.4. Included in these tables is information about the most common side and adverse effects as well as pertinent nursing care associated with these medications. These medications are not inclusive of all the agents used to treat respiratory disorders; therefore, you will want to keep a current pharmacology text handy for reference.

<table>
<thead>
<tr>
<th>TABLE 5.1 Pharmacological Agents for Respiratory Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Bronchodilators</td>
</tr>
<tr>
<td>Methylxanthine</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Cholinergic antagonists</td>
</tr>
<tr>
<td>Adrenergics</td>
</tr>
<tr>
<td>Beta 2 agonists</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Corticosteroids</td>
</tr>
<tr>
<td>Inhaled</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Injectable/Oral</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Mast cell stabilizers</td>
</tr>
<tr>
<td>Leukotriene modifiers</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Antitussives</td>
</tr>
<tr>
<td>Expectorants</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**TABLE 5.2** Pharmacological Agents Used in the Treatment of Community Acquired Pneumonia

<table>
<thead>
<tr>
<th>Organism Responsible</th>
<th>Recommended Treatment</th>
<th>Action</th>
<th>Side Effects (Adverse Effects)</th>
<th>Nursing Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streptococcus pneumoniae</td>
<td>Penicillin, Claforan (cefotaxime), Rocephin (ceftriaxone), Levaquin (levofloxacin)</td>
<td>Bacteriakalic, effective against gram positive and gram negative organisms</td>
<td>Nausea; diarrhea; urticaria (pseudomembranous colitis; superimposed infections)</td>
<td>Assess for fluid imbalances. Diarrheal stools should be checked for the presence of blood, mucus, and white blood cells, which can indicate pseudomembranous colitis.</td>
</tr>
<tr>
<td>Haemophilus influenza</td>
<td>Omnipen (ampicillin), Zithromax (azithromycin), Biacin (clarithromycin)</td>
<td>Bacteriostatic, effective against gram positive and gram negative organisms</td>
<td>Dizziness; headache; nausea; diarrheaa; abdominal pain (superimposed infections)</td>
<td>Assess for signs of “ampicillin rash”—dull red nonallergic maculopapular rash and pruritis. Assess for signs laryngeal edema, which indicates anaphylactic reaction.</td>
</tr>
<tr>
<td>Legionella pneumophilia</td>
<td>Erythrocin (erythromycin), Levaquin (levofloxacin)</td>
<td>Bacteriakalic, effective against gram positive and gram negative organisms</td>
<td>Abdominal cramps; diarrhea; nausea; (pseudomembranous colitis; superimposed infections)</td>
<td>Assess for fluid imbalances. Diarrheal stools should be checked for the presence of blood, mucus, and white blood cells, which can indicate pseudomembranous colitis.</td>
</tr>
<tr>
<td>Mycoplasma pneumoniae</td>
<td>Erythrocin (erythromycin), Acromycin (tetracycline) may be used with Rifadin (rifampin)</td>
<td>Bacteriakalic, effective against gram positive and gram negative organisms</td>
<td>Abdominal cramps; diarrheaa; nausea; (pseudomembranous colitis; superimposed infections)</td>
<td>Same as above.</td>
</tr>
</tbody>
</table>

(continues)
TABLE 5.2  
Continued

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Action</th>
<th>Side Effects</th>
<th>Nursing Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viruses (influenza A&amp;B, CMV, and coronavirus)</td>
<td>Symmetrel (amantadine), Virazole (ribavirin aerosol)</td>
<td>Antivirals inhibit viral replication</td>
<td>Ataxia; drowsiness; blurred vision; dry mouth</td>
<td>Protect from falls. Offer fluids to prevent dry mouth.</td>
</tr>
<tr>
<td>C. pneumoniae (TWAR agent)</td>
<td>Acromycin, Erythrocin (erythromycin), Levaquin (levofloxacin)</td>
<td>Bactericidal, effective against gram positive and gram negative organisms</td>
<td>Abdominal cramps; diarrhea; nausea; (pseudo membranous colitis; superimposed infection)</td>
<td>Assess for fluid imbalances. Diarrheal stools should be checked for the presence of blood, mucus, and white blood cells which, can indicate pseudomembranous colitis.</td>
</tr>
</tbody>
</table>

TABLE 5.3  Pharmacological Agents Used in the Treatment of Hospital-Acquired Pneumonia

<table>
<thead>
<tr>
<th>Organism Responsible</th>
<th>Recommended Treatment</th>
<th>Action</th>
<th>Side Effects (Adverse Effects)</th>
<th>Nursing Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>Amikin (amikacin), Kantrex (kanamycin), Garamycin (gentamicin), Geopen (carbenicillin)</td>
<td>Bactericidal; effective against gram-positive and gram-negative organisms</td>
<td>Abdominal cramps; diarrhea; nausea; (pseudo membranous colitis; superimposed infection)</td>
<td>Assess for fluid imbalances. Diarrheal stools should be checked for the presence of blood, mucus, and white blood cells; assess for signs of ototoxicity and nephrotoxicity.</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>Unipen (nafcillin), Garamycin (gentamicin)</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above.</td>
</tr>
<tr>
<td>Klebsiella pneumoniae</td>
<td>Clatoran (cefotaxime), Rocephin (ceftaxoxime), Garamycin (gentamicin), Geopen (carbenicillin)</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Same as above.</td>
</tr>
<tr>
<td>Pneumocystis carinii</td>
<td>Bactrim (trimethoprim/sulfa methoxazole), Pentam (pentamidine)</td>
<td>Bactericidal; effective against gram-positive and gram-negative organisms</td>
<td>Fatigue; headache; insomnia; vomiting; diarrhea; (anemia; nephrotoxicity; thrombocytopenia)</td>
<td>Pentamidine should be infused over 1–2 hours to decrease hypotension. Client should be observed for signs of renal impairment and hypoglycemia.</td>
</tr>
<tr>
<td>Aspergillus fumigatus</td>
<td>Fungizone (amphotericin B), Fungizone Nizoral (ketoconazole)</td>
<td>Kill or stop the growth of susceptible fungi by affecting cell membrane or interfere with protein synthesis within the cell</td>
<td>Headache; dizziness; nausea; diarrhea; myalgia; peripheral neuropathy (hepatotoxicity; nephrotoxicity)</td>
<td>Drug-to-drug interactions. Use caution when administering. Check vital signs frequently.</td>
</tr>
</tbody>
</table>
### TABLE 5.4 Pharmacological Agents Used in the Treatment of Tuberculosis

<table>
<thead>
<tr>
<th>Name</th>
<th>Action</th>
<th>Side Effects</th>
<th>Nursing Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid (INH) (first-line drug)</td>
<td>Interferes with cell wall</td>
<td>Deficiency of B6; peripheral neuritis; liver dysfunction</td>
<td>Observe for jaundice. Frequent hearing tests.</td>
</tr>
<tr>
<td>Ethambutol HCl (myambutol) (first-line drug)</td>
<td>Suppresses growth of mycobacterium</td>
<td>Optic neuritis; decreased acuity and color vision</td>
<td>Frequent visual tests.</td>
</tr>
<tr>
<td>Rifampin (first-line drug)</td>
<td>Same as above</td>
<td>N &amp; V; HA; hepatitis; red discolorations of body fluids</td>
<td>Teach client to avoid alcohol. Teratogenic.</td>
</tr>
<tr>
<td>Fluoroquinolones (levofloxacin, monofloxacin, gatifloxacin)</td>
<td>For strains resistant to RIF, INH, and EMB</td>
<td>N &amp; V; drowsiness; photosensitivity; tenosynovitis; and tendon rupture</td>
<td>Teach client to avoid prolonged sun exposure, to increase fluid intake, and to report unexplained muscle tenderness</td>
</tr>
<tr>
<td>Streptomycin (second-line drug)</td>
<td>Inhibits protein synthesis and suppresses growth of mycobacterium</td>
<td>VIII cranial nerve damage; paresthesia of face, tongue, and hands; renal damage</td>
<td>Ask client to sit quietly 15–30 minutes after injection.</td>
</tr>
<tr>
<td>Kanamycin (second-line drug)</td>
<td>Same as above</td>
<td>Same as above</td>
<td>Observe for hematuria. Frequent hearing tests.</td>
</tr>
<tr>
<td>Pyrazinamide (first-line drug)</td>
<td>Unknown</td>
<td>Liver damage; gout</td>
<td>Teach client to increase fluid intake. Observe for jaundice.</td>
</tr>
</tbody>
</table>

### NOTE

New drugs used in the treatment of tuberculosis are
- **Rifabutin**: Used for clients with HIV/AIDS
- **Rifapentin**: Used once weekly for HIV-negative adults with drug-susceptible noncavitary TB

---

### Apply Your Knowledge

The study of respiratory disorders can often be difficult for the nurse to understand because of the complexity of many of the conditions. This chapter provided a review of common infections that affect the upper and lower respiratory tract as well as information on life-threatening conditions such as ARDS. Information was also provided regarding occupational lung disease. The following questions test your knowledge regarding the safe, effective care and management of the client with various respiratory disorders.
Exam Questions

1. The nurse is assessing a client admitted with injuries sustained in a motor vehicle accident. Which of the following injuries poses the greatest risk to the client?
   A. Fractures of the ribs
   B. Contusions of the lower legs
   C. Fractures of the humerus
   D. Lacerations of the face

2. Which one of the following findings is characteristic of a tension pneumothorax?
   A. Tracheal deviation toward the affected side
   B. Symmetry of the thorax and equal breath sounds
   C. Tracheal deviation toward the unaffected side
   D. Decreased heart rate and decreased respirations

3. The nurse is caring for a client with a closed chest drainage system. If the tubing becomes disconnected from the system, the nurse should:
   A. Instruct the client to perform the Valsalva maneuver
   B. Elevate the tubing above the client's chest level
   C. Decrease the amount of suction being applied
   D. Form a water seal and obtain a new connector

4. The physician has ordered Theo-Dur (theophylline) for a client with emphysema. An expected side effect associated with the medication is:
   A. Dry mouth
   B. Palpitations
   C. Hyperglycemia
   D. Anemia

5. Which condition would contraindicate the use of chest physiotherapy for a client with pneumonia?
   A. Recent abdominal cholecystectomy
   B. Diabetes mellitus
   C. Rheumatoid arthritis
   D. Emphysema
6. The nurse is interpreting the result of a client’s TB skin test. Which one of the following factors is responsible for a false positive TB skin test?
   A. Vaccination with a live virus
   B. Weakened immune system
   C. Inoculation with BCG vaccine
   D. Poor testing technique

7. The physician has ordered Cytoxan (cyclophosphamide) for a client with pulmonary fibrosis. The nurse should instruct the client to:
   A. Walk 20 minutes a day to maintain muscle strength
   B. Expect a reddish discoloration of her urine
   C. Notify the doctor of a sore throat or fever
   D. Eat smaller, more frequent meals

8. The physician has received a limited supply of influenza vaccine. Which one of the following clients should receive priority in receiving the influenza immunization?
   A. An elementary school teacher
   B. A resident in a nursing home
   C. An office worker
   D. A local firefighter

9. The physician has ordered pyrazinamide for a client with tuberculosis. The nurse should tell the client to:
   A. Schedule frequent eye exams
   B. Expect red discoloration of his urine
   C. Increase his fluid intake
   D. Expect dizziness and ringing in his ears

10. The nurse is caring for a client with Legionnaires’ disease. Which one of the following types of isolation should the nurse use when caring for the client?
    A. Droplet precautions
    B. Airborne precautions
    C. Contact precautions
    D. No isolation precautions are needed
Answers to Exam Questions

1. Answer A is correct. Fractures of the ribs can result in a closed pneumothorax, a life-threatening emergency, that requires early detection and treatment. Answers B, C, and D are incorrect because they do not pose a risk to the life of the client.

2. Answer C is correct. Assessment of the client with a tension pneumothorax reveals tracheal deviations towards the unaffected side. Answer A is incorrect because the deviation is toward the unaffected, not the affected side. Answer B is incorrect because the thorax is asymmetrical and breath sounds are absent on the affected side. Answer D is incorrect because the heart rate and respiratory rate are not decreased.

3. Answer D is correct. The nurse should form a water seal, remove the contaminated end, and insert a new sterile connector. The Valsalva maneuver is used when the chest tube is being removed therefore Answer A is incorrect. Answer B is incorrect because the chest drainage system is maintained below the client’s chest level. Answer C is incorrect because the nurse cannot alter the amount of suction being applied without a doctor’s order.

4. Answer B is correct. Side effects from bronchodilators such as theophylline include tremulousness, palpitations, and restlessness. Answers A, C, and D are incorrect because they are not expected side effects of bronchodilators.

5. Answer A is correct. Recent abdominal or thoracic surgery are contraindications for chest physiotherapy. Chest physiotherapy is not contraindicated for the client with diabetes mellitus, rheumatoid arthritis, or emphysema therefore answers B, C, and D are incorrect.

6. Answer C is correct. Inoculation with BCG vaccine will produce a false positive TB skin test. Vaccination with a live virus, weakened immune system, and poor testing technique are factors that can produce a false negative TB skin test, therefore Answers A, B, and D are incorrect.

7. Answer C is correct. Cytoxan is an immunosuppressive drug; therefore, the client should notify the doctor of symptoms associated with infection. Answers A and D are not associated with the use of Cytoxan; therefore, they are incorrect. The client taking Cytoxan can experience hemorrhagic cystitis due to inadequate fluid intake, but it is not an expected finding; therefore, answer B is incorrect.

8. Answer B is correct. Clients over age 65 and those with chronic conditions should receive priority in receiving influenza vaccine when supplies are limited. Answers A, C, and D are incorrect because they do not receive priority in receiving the immunization.

9. Answer C is correct. The use of pyrazinamide can result in gout-like symptoms; therefore, the client should increase his fluid intake. Answer A, B, and D are incorrect because they are associated with other antitubercular medications.

10. Answer D is correct. No isolation precautions are needed because there is no evidence of human to human transmission. Answers A, B, and C are incorrect because they are not indicated in the care of the client with Legionnaires’ disease.
Suggested Reading and Resources


- Centers for Disease Control and Prevention: www.cdc.gov.


Index

NUMBERS
24-hour urine sampling, 172-173
90:90 traction, 451

A
ABCD assessment (emergency care), 624
  airway, 624-625
  breathing, 625
  circulation, 625-626
  deficits, 626-627
abdominal aortic aneurysms, 89
abdominal cholecystectomy, 290
abdominal injuries, 628-629
abdominoperineal resection, 404
abducens nerve, 326
abortions, 496-497
abruptio placenta, 497-498
absence seizures, 349
abstinence, 511
abuse of children, 580-581
Accutane, 485
ACE (angiotensin-converting enzyme) inhibitors, 19, 71
acetaminophen overdose, 547
acid/base balance, 52-53
  case study, 58-59
  diagnostics, 60
  key terms, 60
  management of imbalances
    metabolic acidosis, 53-55
    metabolic alkalosis, 56-57
    respiratory acidosis, 55-56
    respiratory alkalosis, 57-58
  pharmacology, 60-61
  resources, 906
  sample exam questions, 62-65
acidosis, 43
  metabolic, 41, 53-55
  respiratory, 55-56
acids, 42
acoustic neuromas, 245, 337
acquired heart disease, pediatrics, 557
  bacterial endocarditis, 558-559
  Kawasaki’s disease, 559-560
  rheumatic fever, 557-558
acquired immune deficiency syndrome (AIDS), 380, 385-387, 510
acrocyanosis, 506
acromegaly, 106
ACTH (adrenocorticotropic hormone), 106, 118
activated charcoal, 547
active transport, 41-42
Activity, Pulse, Grimace, Appearance, Respiration (APGAR) score, 505-506
acute disorders
  acute glomerulonephritis (AGN), 172-173
  acute otitis media (AOM), 531
  acute radiation syndrome (ARS), 635
  acute renal failure (ARF), 179-180
  acute respiratory distress syndrome (ARDS), 148-154
epiglottitis, 532
graft rejection, 185
glaucoma, 234
subdural hematomas, 332
acyclovir (Zovirax), 206
adalimumab (Humira), 264
Addison's position, 576
addiction (substance abuse), 602
  alcoholism, 602-604
  chemical dependence, 604-606
Addiction Research Foundation Chemical Institute Withdrawal Assessment-Alcohol (CIWA-Ar), 603
Addison's Disease (adrenocortical insufficiency), 119-120
ADDM (adult-onset diabetes mellitus), 114
adenocarcinomas, 409
adenohypophysis, 106
adenoidectomy, 529
ADH (antidiuretic hormone), 106-108, 365
ADHD (attention deficit hyperactive disorder), 608
administration
  iron, 310-311
  medications, 18, 649
adolescence
  emotional/behavioral disorders, 606
    ADHD (attention deficit hyperactive disorder), 608
    autism, 607
    conduct disorder, 607
    eating disorders, 608-609
    oppositional defiant disorder, 608
growth and development, 527-528
immunization schedule, 903
signs of depression, 602
adrenal gland, 118-119
  Addison's Disease, 119-120
  Conn's Syndrome, 119
  Cushing's Disease, 120-121
adrenal medulla, 118
adrenocortical hypersecretion (Cushing’s Disease), 120-121
adrenocortical insufficiency (Addison's Disease), 119-120
adrenocorticotropic hormone (ACTH), 106, 118
adult-onset diabetes mellitus (ADDM), 114
adverse effects
  angiotensin-converting enzyme inhibitors, 20
  angiotension receptor blockers, 30
  anti-infectives, 22
  anticoagulants, 32
  antivirals, 27
  benzodiazepines, 23
  beta adrenergic blockers, 21
  cholesterol-lowering agents, 29
  glucocorticoids, 26
  histamine 2 antagonists, 31
  phenothiazines, 25
  proton pump inhibitors, 32
advocacy, 650
AFP (Alpha-fetoprotein) testing, 486
afterload, 86
age related macular degeneration, 237
AGN (acute glomerulonephritis), 172-173
agoraphobia, 591-592
AHA (American Heart Association), life support guidelines, 902
AIDS (acquired immune deficiency syndrome), 380, 385-387, 510
airborne precautions, 901
  HIV prevention, 384
  TB (tuberculosis), 147
airway assessment, emergency care, 624-625
akathisia, 599
akinesia, 599
akinetic seizures, 349
Alaskan natives, 661-662
albumin levels, 116
alcohol, as teratogenic agent, 485
alcoholism, 602-604
Aldactone (Spironolactone), 119, 121
aldosterone, 118
aldosteronism, 119-120
alkalosis, 43
  metabolic, 41, 56-57
  respiratory, 57-58
alkylating agents, 423, 434
all trans-retinoic acid (ATRA), 439
allergic asthma, 135
allergic reactions, 24, 379
Allis’ sign, 574
alloimmunization, 428
allografts, 220
Allopurinol (Zyloprim), 462
alpha adrenergic receptor blockers, 71
alpha interferon injections, 277
alpha-adrenergic receptor agonists, 71
Alpha-fetoprotein (AFP) testing, 486
alpha-glucosidase inhibitors, 116
alpha-receptor blockers, 98
ALS (Amyotrophic Lateral Sclerosis), 358
Alzheimer’s disease, 358
American Association of Poison Control Centers, 630
American Heart Association (AHA), life support guidelines, 902
American Hospital Association, 648
amino acids, 70
aminoglycosides, 21-22
aminophylline, 137
amniocentesis, 487
amniotic fluid tests, 485
amputations, 468
assistive devices for ambulation, 470-472
post-surgery interventions, 469-470
amulets, 660-661
Amyotrophic Lateral Sclerosis (ALS), 358
analgesics, 17
anatomy
ear, 242
eye, 231
genitourinary system, 171
GI system, 257-258
heart, 67-68, 72
skeletal bones, 447
androgens, 118
anemia, 303
aplastic, 304-305
iron deficiency, 309-311
pernicious, 304
sickle cell, 305-309
anesthesia, labor management, 504
aneurysms, 89
angina pectoris, 80-81
angioedema, 71
angiomas, 336
angiotensin II receptor antagonists, 71
angiotensin-converting enzyme (ACE) inhibitors, 19-20, 71, 97
angiotension receptor blockers, 29-30, 99
anions, 42
anti-anxiety medications, 23-24
ankylosing spondylitis, 460-461
anorectal manometry, 539
anorexia nervosa, 608-609
ANP (atrial natriuretic peptide), 87
Antabuse (disulfiram), 604
antacids, 16
antepartum care, 491-492
anterior lobe, pituitary gland, 106
anterior uveitis, 236
Anthrax, 633
anti-impotence drugs, 192
anti-infectives, 16, 21-22
anti-tumor antibiotics, 435
antianemics, 17
antibiotics, 531
anticholinergics, 17
anticoagulants, 17, 32-33, 83, 100, 899-900
anticonvulsants, 16-17, 23-24
antidiarrheals, 16
antidiuretic hormone (ADH), 106-108, 365
antidotes, 899-900
antidysrhythmics, 99
antiemetics, 24-25
antihistamines, 16, 379
antihypertensives, 16
antimetabolites, 423, 434
antimitotics, 423, 436
antipsychotics, 24-25, 598
antipyretics, 16
antisocial personality disorder, 595
Antistreptolysin-O titers, 172
antithrombotic stockings, 92
antituberculars, 16
antitumor antibiotics, 423
antivenin, 631
antivirals, 27-28
anxiety-related disorders, 589
anti-anxiety medications, 23-24
DID (dissociative identity disorder), 591
GAD (generalized anxiety disorder), 590
OCO (obsessive-compulsive disorder), 592-593
panic disorder, 591-592
phobic disorders, 592
PTSD (post-traumatic stress disorder), 590
somatoform disorder, 591
AOM (acute otitis media), 531
APGAR (Activity, Pulse, Grimace, Appearance, Respiration) score, 505-506
aplastic anemia, 304-305, 308
apothecary system of measurement, 913
appendicitis, 266-268
AquaMEPHYTON (Vitamin K), 506
Arab-Americans, 664-665
ARDS (acute respiratory distress syndrome), 148-149
mechanical ventilation care, 149-151
vent-dependent clients, 151-152
ARF (acute renal failure), 179-180
argon laser trabeculoplasty, 235
arm circle exercises, 415
ARS (acute radiation syndrome), 635
arteries, 67
aneurysms, 89
coronary, 71
arteriosclerosis, 71-72
artificial skin, 221
asbestosis, 142
ascites, 281
ASD (atrial septal defects), 553
aseptic meningitis, 352
Asian-Americans, 662-664
Asperger’s syndrome, 607
aspiration pneumonia, 542
assault, 648
assessment
abdominal injuries, 628-629
cranial nerves, 327
cultural practices, 657
Arab-Americans, 664-665
Asian-Americans, 662-664
case study, 668
dietary considerations, 665-666
Hispanic/Latino population, 659-661
key terms, 669
language differences, 658
Native Americans/Alaskan natives, 661-662
religious beliefs, 667
sample exam questions, 669-672
understanding client beliefs, 657
erectile dysfunction, 192
neurological, 326
cranial nerves, 326-327
Glasgow coma scale, 327-328
intracranial pressure monitors, 328-329
skin, Braden scale, 209-210
assist controlled ventilators, 150
assisted births, 501
assistive devices, 470-472
asthma, 135-137, 535-536
astigmatism, 239
atherosclerosis, 71-72
Ativan (lorazepam), 350
atopic asthma, 135
atopic dermatitis (eczema), 568-569
ATRA (all trans-retinoic acid), 439
atrial dysrhythmias, 76-77
atrial fibrillation, 77
atrial flutter, 77
atrial natriuretic peptide (ANP), 87
atrial septal defects (ASD), 553
atrioventricular (AV) node, 72
Atromid-S (clofibrate), 108
atrophic age-related macular degeneration, 237
attention deficit hyperactive disorder (ADHD), 608
atypical antipsychotics, 598
audiometric testing, 246
autism, 607
autografts, 221
autoimmune disorders, neurological, 354
Guillain-Barré, 357
MS (multiple sclerosis), 354-355
myasthenia gravis, 355-357
autologous transplants, 428
automaticisms, 349
autonomic hyperreflexia, 362
AV (atrioventricular) node, 72
aversion therapy (alcoholism), 604
avoidant personality disorder, 595
AZT (zidovudine), 385
B
B. cepacia, 537
B2 agonists, 135
background diabetic retinopathy, 236
bacterial endocarditis, 90, 558-559
bacterial infections, 208, 386
bacterial meningitis, 352, 566-567
bacterial prostatitis, 190
behavioral disorders, children/adolescence, 606
ADHD (attention deficit hyperactive disorder), 608
autism, 607
behavioral disorders, children/adolescence, 606
ADHD (attention deficit hyperactive disorder), 608
autism, 607
behind-ear style hearing aids, 247
behavioral disorders, children/adolescence, 606
ADHD (attention deficit hyperactive disorder), 608
autism, 607
beneficial beliefs, 567
benign prostatic hypertrophy (BPH), 190-191
benzodiazepines, 23-24
benztrapine mesylate (Congentin), 24
berylliosis, 142
beta-adrenergic blockers, 20-21, 70, 97
betamethasone (Decadron), 499
bigeminy, 76
biliary atresia, 543
bilis, 660
Bill of Rights (patients), 18
biologic dressings (burns), 220
biological agents (bioterrorism), 632-634
biological response modifiers, 423, 437
biophysical profiles, 487
biopsies
  liver, 284
  renal, 174
bioterrorism, 632
  chemical/biological agents, 632-634
  nuclear warfare, 634-635
bipolar disorders, 599
  acute mania, 600
  major depression, 600-602
birth. See labor (pregnancy)
birth canal, 488
birth control, 511-512
bites (poisons), 631
bivalve treatment (compartment syndrome), 455
black lung, 141
bladder cancer, 400, 417
bladder compression, 188
Blalock-Taussig procedure, 556
bleeding
  clotting, 83
  external, 625
  GI, 260
  varices, 282
blood disorders. See hematologic system disorders
blood pressure, 68-71, 699
blood tests
  fluid and electrolyte evaluation, 44
  glucose, 115
  Guthrie, 546
  peak and trough levels, 22
blood transfusions, 315-317
BNP (brain natriuretic peptide), 87
boards, United States nursing boards, 921-933
body fluids, 383
body style hearing aids, 247
bone marrow transplantation, 427-429
bone stimulators, 456
bones (skeletal), 447
borderline personality disorder, 595
botulism, 292, 633
Bouchard’s nodes, 459
bovine valve, 90
bowel obstruction, 269-270
BPH (benign prostatic hypertrophy), 190-191
brachytherapy, 422
Braden scale, 209-210
bradycardia, 486, 502
bradydysrhythmias, 76
bradykinesia, 599
brain injuries, 329-332
  epidural hematomas, 332
  increased intracranial pressure, 334-336
  intracerebral hematomas, 332
  subdural hematomas, 332
  treatment for hematomas, 332
brain natriuretic peptide (BNP), 87
brain stimulators, 351
brain tumors, 336
  classifications, 336-337
  signs and symptoms, 337
  treatment, 337-342
Brazelton Scale, 506
breast cancer, 411-414
  arm circle exercises, 415
  hand wall-climbing exercises, 415
  pulley exercises, 414
  risk factors, 400
  surgery complications, 416
breast feeding, 505
breathing assessment, emergency care, 625
breech presentation (fetus), 499
Brethine (terbutaline), 498
bromocriptine (Parlodel), 599
bromocriptine mesylate (Parlodel), 106
bronchiolitis, 534
bronchitis, 133-134, 534
bronchodilators, 16
brow presentation (fetus), 499
Buddhism, 663, 667
Buerger’s disease, 92
bulimia nervosa, 609
burns, 212
  classifications, 212-213
  measurement, 214-215
  nursing care, 215
  dressings, 220-221
  emergent phase, 216-219
  intermediate phase, 219-220
  psychological care, 215
  rehabilitative phase, 221
  resources, 907
Butoxanol (Stadol), 503
Byetta, 116

C

C cells (thyroid gland), 108
C-reactive protein (CRP), 82
cabergoline (Dostinex), 106
CABG (coronary artery bypass graft), 85-86
CAD (Coronary Artery Disease), 71-72
calcitonin, 48, 108
calcium, 48-50
calcium acetate (Phoslo), 113
calcium channel blockers, 70, 97
calcium gluconate, 495
calcium phosphate stones, 189
calculations
  sample test questions, 913-914
  total body water, 41-43
Cambodians practices, 663
cancer, 399, 416
  associated disorders and emergencies, 426-427
  bladder, 417
  bone marrow transplantation, 427-429
  breast, 411-414
    arm circle exercises, 415
    hand wall-climbing exercises, 415
    pulley exercises, 414
    risk factors, 400
  surgery complications, 416
  case study, 429-430
  categories, 400
  cervical, 418
  colorectal, 403-407
  diagnostics, 432-433
  ear (acoustic neuroma), 245
  esophageal, 417
  general interventions, 421
    chemotherapy, 423-424
    radiation therapy, 421-423
    TPN (total parenteral nutrition), 424-426
Hodgkin's lymphoma, 420
  key terms, 431-432
  leukemia, 419
  lung, 407-409
  multiple myeloma, 419
Non-Hodgkin's lymphoma, 420
  ocular melanoma, 240-241
ovarian, 418
pancreatic, 418
pediatrics, 563
  leukemia, 563
  neuroblastoma, 564
  retinoblastoma, 564
  rhabdomyosarcoma, 565
  sarcomas, 564-565
  survival, 565
  Wilms' tumor, 563
pharmacological agents, 433-439
  prevention, 402
prevention, 402
prostate, 409-411
renal, 417
resources, 907
risk factors for specific cancers, 400-402
sample exam questions, 440-445
skin, 417
stomach, 418
warning signs, 399

Candida albicans, 208
Candidiasis infections, 208, 380
canes, 471
cannabis (substance abuse), 606
caput succedaneum, 501, 507
carbon monoxide, 217
carboxyhemoglobin, 217
carcinomas, 400
cardiac catheterization, 84
cardiac monitoring, 74-76
cardiac output, 86
cardiac rehabilitation, 86
cardiogenic shock, 81, 88
Cardiolite scan, 84
cardiopulmonary bypass machine, 85
cardiopulmonary resuscitation (CPR), 79-80
cardiopulmonary system disorders, 909
cardiovascular disorders, 67
  aneurysms, 89
  angina pectoris, 80-81
  Buerger's disease, 92
  CAD (Coronary Artery Disease), 71-72
  heart catheterization, 74-76
  cardiopulmonary resuscitation, 80
  case study, 93
  conduction system, 72-74
  diagnostics, 94
  dysrhythmias, 76
    atrial, 76-77
    internal pacemakers/defibrillators, 79-80
    ventricular, 77-78
    ventricular fibrillation, 78-79
  hypertension, 68-71
  inflammatory diseases, 90
    bacterial endocarditis, 90
    pericarditis, 90-91
    PVD (peripheral vascular disease), 91-92
  key terms, 94-95
  MI (myocardial infarction), 81
    CABG (coronary artery bypass graft), 85-86
    cardiac catheterization, 84
    cardiogenic shock, 88
    congestive heart failure, 86-88
    diagnosis, 82
    electrocardiography, 84
    exercise electrocardiography, 83-84
    management, 82-83
    PTCA (percutaneous transluminal coronary angioplasty), 85
pediatrics, 549
  acquired heart disease, 557-560
  congenital heart defects, 550-556
pharmacological agents, 96-100
pregnancy, 490
  antepartum precautions, 491-492
  intrapartum precautions, 492
  postpartum precautions, 492-493
Christians, 667
Christmas disease, 313
chronic bronchitis, 133-134
chronic glomerulonephritis (CGN), 173-174
chronic graft rejection, 185
chronic nephritic syndrome, 173-174
chronic pyelonephritis, 178
chronic renal failure (CRF), 180-181
chronic subdural hematomas, 332
Church of Jesus Christ of Latter-day Saints, 667
Chvostek’s sign, 49, 112
circulation assessment, emergency care, 625-626
cirrhosis, 281-285
civil laws, 644
CIWA-Ar (Addiction Research Foundation Chemical Institute Withdrawal Assessment-Alcohol), 603
CKMB (creatine kinase), 82
Claritin (Loratidine), 379
Classic hemophilia, 313
classifications
  brain tumors, 336-337
  burns, 212-213
  congenital heart defects, 550
  cystitis, 185
  eye disorders, 232
  glaucoma, 234
  HIV, 382
  incontinence, 187
  lung cancer, 407
medications, 16-17
  angiotensin-converting enzyme inhibitors, 19-20
  angiotensin receptor blockers, 29-30
  anti-infectives, 21-22
  anticoagulants, 32-33
  antivirals, 27-28
  benzodiazepines, 23-24
  beta adrenergic blockers, 20-21
  cholesterol-lowering agents, 28-29
  glucocorticoids, 25-27
  histamine 2 antagonists, 30-31
  identification helpers, 33
  phenothiazines, 24-25
  proton pump inhibitors, 31-32
  psoriasis, 208
  schizophrenia, 597
clavicle fractures, 450
cleft lips/palates, 540-541
client beliefs, assessment, 657
clinical manifestations. See symptoms
cloacal extrophy, 562
clofibrate (Atromid-S), 108
clonidine (Catapres), 119
closed fractures, 448
closed head injuries, 331-332, 627
Clostridium difficile, 290-291
clothing, anticoagulants, 83
clofibrate (Atromid-S), 108
Colchicine (Colsalide), 462
cold/hot imbalance, 659
collection of specimens
  24-hour urine sampling, 173
delegation of tasks, 649
Colles’s fractures, 450
colloid solutions, 44
colon cancer, 401
colonoscopy, 265
colonization factors, 423, 438
color-coding system (NATO), 635
colorectal cancer, 403-407
colostomy, 405
colostrum, 505
Colsalide (Colchicine), 462
coma, Glasgow coma scale, 327-328
commingled fractures, 449
common law, 644-645
communicable diseases, 571
communication (cultural considerations)
  Arab-Americans, 665
  Asian-Americans, 663
  Hispanic/Latino population, 660
  Native Americans/Alaskan natives, 662
compartment syndrome, 454-455
Compazine (prochlorperazine), 24
compensation (defense mechanism), 902
complete abortions, 497
complete breech presentation (fetus), 499
complete heart block, 73
complete molar pregnancy, 495
complex spinal cord injuries, 360
complex partial seizures, 349-350
complications
  AOM (acute otitis media), 531
  bacterial meningitis, 567
  brain surgery, 339-341
  celiac, 545
  congenital heart defects, 550
  CRF (chronic renal failure), 180
  fractures, 454-456
  galactosemia, 546
continuous arteriovenous hemofiltration (CAVH), 183
continuous arteriovenous hemodialysis (CAVHD), 183
continuous release (CR) drugs, 17
continuous renal replacement therapy (CRRT), 183-184
continuous venovenous hemodialysis (CVVHD), 183
contraception methods, 511-512
contraction stress test, 488
contractions (labor), 501, 900
contractures, 469
contrast media, 186
contrecoup head injuries, 331, 628
coronal arteries, 71
coronary artery bypass graft (CABG), 85-86
Coronary Artery Disease (CAD), 71-72
coronavirus (CoV), 158
corrosive ingestion, 548-549
cortisol, 118
Cotazyme, 537
cotton wool spots, 236
coup head injuries, 331, 628
CoV (coronavirus), 158
Coxa Plana (Legg-Calvé-Perthes disease), 575
CP (cerebral palsy), 577-578
CPP (cerebral perfusion pressure), 329
CPR (cardiopulmonary resuscitation), 79-80
CR (continuous release) drugs, 17
cranial nerve disorders, 359-360
cranial nerves, 326-327
craniotomy care, 338-342
creatine kinase (CKMB), 82
creatinine levels, 485
Crede’s method, 188
cremlinism, 108, 110
CRF (chronic renal failure), 180-181
criminal laws, 644
Crohn’s disease, 263
croup syndromes, 531-533
acutec epiglottitis, 532
acute spasmodic laryngitis, 533
bacterial tracheitis, 533
laryngotracheobronchitis (LTB), 532-533
CRP (C-reactive protein), 82
CRRT (continuous renal replacement therapy), 183-184
crutches, 470
Crutchfield tong traction, 451
cryotherapy, 408
Cryptosporidiosis, 381
Cryptococcoses, 381
CT (computer tomography) scans, 69
cuff size (blood pressure readings), 69
Cullen’s sign, 629
cultural considerations, 657
  Arab-Americans, 664-665
  Asian-Americans, 662-664
  assessment, 657-658
  case study, 668
  dietary considerations, 665-666
  grafts, 220
  Hispanic/Latino population, 659-661
  key terms, 669
  Native Americans/Alaskan natives, 661-662
  religious beliefs, 667
  resources, 911
  sample exam questions, 669-672
Cushing’s Disease (adrenocortical hypersecretion), 26, 120-121
CVA (cerebrovascular accident), 313
  hemorrhagic stroke, 344-346
  ischemic stroke, 342-344
  risk factors, 342
CVP (central venous pressure), 87, 219, 649
CVS (chorionic villus) sampling, 487
CVVHD (continuous venovenous hemodialysis), 183
cyanides, 632
cystic fibrosis (mucoviscidosis), 536-537
Cystic Fibrosis Foundation, 537
cystitis, 185-187
cystoscopy, 186
cystourethrograms, 186
Cytomegalovirus, 381, 485
cytoprotectants, 423, 436
Cushing’s Disease (adrenocortical hypersecretion), 26, 120-121
CVA (cerebrovascular accident), 313
  hemorrhagic stroke, 344-346
  ischemic stroke, 342-344
  risk factors, 342
CVP (central venous pressure), 87, 219, 649
CVS (chorionic villus) sampling, 487
CVVHD (continuous venovenous hemodialysis), 183
cyanides, 632
cystic fibrosis (mucoviscidosis), 536-537
Cystic Fibrosis Foundation, 537
cystitis, 185-187
cystoscopy, 186
cystourethrograms, 186
Cytomegalovirus, 381, 485
cytoprotectants, 423, 436
D

D-phenylalanine derivatives, 116
DAI (diffuse axonal injuries), 331
Dantrium (dantrolene), 599
DCAP—BTLS mnemonic, trauma assessment, 627
deficiency, 247
debridement, 220
Decadron (betamethasone), 499
Decadron (dexamethasone), 120
decelerations (fetal heart tones), 502-503
decibels, 246
Declomycin (demeclocycline), 108
decontamination, radiation disasters, 634
depth partial thickness burns, 213
depth tendon reflexes (DTRs), 494
depression, 600-602
dermatophytes, 207
Desferal (deferoxamine), 309
developmental hip dysplasia (DHD), 573-574
dexamethasone (Decadron), 120
dextrostix, 115
DHD (developmental hip dysplasia), 573-574
diabetes insipidus, 107-108, 365
diabetes mellitus, 114
diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), 589
diagnostics. See also tests
  abruptio placenta, 497
  acid/base imbalance, 60
  acute renal failure, 179
  Addison’s disease, 120
  AGN (acute glomerulonephritis), 172
  appendicitis, 267
  bacterial endocarditis, 559
  bacterial meningitis, 567
  bowel obstructions, 269
  breast cancer, 412
  C. difficile, 291
  cardiovascular disorders, 75-76, 95
  celiac disease, 545
  cellulitis, 208
  CGN (chronic glomerulonephritis), 173-174
  CHF (congestive heart failure), 87
  cholecystitis/cholelithiasis, 288-289
  cirrhosis, 284
  colorectal cancer, 404
  congestive heart failure, 87
  Conn’s syndrome, 119
cretinism, 110
CRF (chronic renal failure), 180
Cushing's Disease, 120
cystic fibrosis, 536
cystitis, 186
DHD (developmental hip dysplasia), 574
diabetes mellitus, 108, 115-116
diverticulitis, 265
ectopic pregnancy, 495
emergency care, 637
ependymitis, 566
endocrine system disorders, 106, 124
erectile dysfunction, 192
fungal skin infections, 208
galactosemia, 546
genitourinary system, 195-196
GERD (gastroesophageal reflux disease), 271, 540
GI (gastrointestinal) system disorders, 295
Guillain-Barré, 357
hematologic system disorders, 319
hemorrhagic stroke, 344
Hepatitis A, 276
Hepatitis B, 277
Hepatitis C, 278
herpes zoster, 207
hiatal hernia, 274
Hirschsprung's disease, 539
HSV (herpes simplex virus), 206
hydratiform mole, 496
hypertension, 69
hyperthyroidism, 111
IBS (irritable bowel syndrome), 263
immune system disorders, 389-390
immunological disorders, 381-382
infectious mononucleosis, 530
integumentary system disorders, 223-224
intussusception, 543
KD (Kawasaki’s disease), 559
kidney stones, 188
Legionnaires’ disease, 159
lung cancer, 407
maternal diabetes, 493
Meckel's diverticulum, 544
MI (myocardial infarction), 82
musculoskeletal system disorders, 474-475
neoplastic disorders, 432-433
neuroblastoma, 564
neurological system disorders, 368
obstructive uropathy, 561
osteoarthritis, 459
otosclerosis, 245
pancreatitis, 286
pediatric disorders, 584
peptic ulcer disease, 259
peritonitis, 268
pinworms, 544
PKD (polycystic kidney disease), 177
PKU (Phenylketonuria), 545
placenta previa, 497
pleurisy, 137
preeclampsia, 494
pregnancy, 515-516
presbycusis, 246
preterm labor, 498
prostate cancer, 409
prostatitis, 190
psoriasis, 209
psychiatric disorders, 612
pulmonary embolus, 154
pulmonary hypertension, 138
pyelonephritis, 178
RA (rheumatoid arthritis), 463
respiratory disorders, 161-162
retinoblastoma, 564
Reye's syndrome, 568
rhabdomyosarcoma, 565
rheumatic fever, 558
sarcoidosis, 140
scabies, 569
sensory system disorders, 251
TB (tuberculosis), 146
dialysis, 181-182
diaphragms, 511
diastolic pressure, 68
diazepam (Valium), 350
Dibenzyline (phenoxybenzamine hydrochloride), 119
DIC (disseminated intravascular coagulation), 426
DID (dissociative identity disorder), 591
dietary interventions
celiac disease, 545
cholecystitis/cholelithiasis, 289
cirrhosis, 284
CRF (chronic renal failure), 180
cultural considerations, 665-666
diabetes mellitus management, 116
diverticulitis, 265
GERD (gastroesophageal reflux disease), 271
gout, 461-462
Hirschsprung’s disease, 539
HIV management, 387
kidney stones, 189
nutrition notes, 902-903
osteoporosis management, 457
peptic ulcer disease, 260
PKU (Phenylketonuria), 546
pregnancy, 484-485
diffuse axonal injuries (DAI), 331
diffusion, 42
digital rectal exams (DREs), 409
Digitalis (digoxin), 73
digoxin (Digitalis), 73
dilation (cervical), 490
diphenhydramine (Benadryl), 24, 379
diphtheria, 572
direct fluorescent assay, 534
disasters, 635
discoid lupus erythematosus (DLE), 464
disease transmission, standard precautions, 900-901
disease-modifying antirheumatic drugs (DMARDs), 461
diseases. See disorders
disequilibrium syndrome, 182
disorders
acid/base balance, 906
cardiopulmonary system, 909
cardiovascular, 67
aneurysms, 89
angina pectoris, 80-81
Buerger's disease, 92
CAD (Coronary Artery Disease), 71-72
cardiac dysrhythmias, 76-80
cardiac monitoring, 74-76
cardiopulmonary resuscitation, 80
case study, 93
conduction system, 72-74
diagnostics, 95
hypertension, 68-71
inflammatory diseases, 90-92
key terms, 94-95
MI (myocardial infarction), 81-88
pediatrics, 549-560
pharmacological agents, 96-98, 100
Raynaud's phenomenon, 92
sample exam questions, 101-104
varicose veins/thrombophlebitis, 92
cerebral, 566-568
communicable diseases, 571
connective tissue, 447
lupus erythematosus, 464-466
RA (rheumatoid arthritis), 462
endocrine system, 119
Addison's Disease, 119-120
Conn's Syndrome, 119
Cushing's Disease, 120-121
diabetes insipidus, 107-108
diabetes mellitus, 114-116
hyperglycemia, 116-117
hyperparathyroidism, 113-114
hyperpituitarism, 106-107
hyperthyroidism, 110-112
hypoglycemia, 117
hypoparathyroidism, 112-113
hypopituitarism, 106
hypothyroidism, 108, 110
resources, 909
fluid and electrolyte balance, 906
genitourinary system, 171, 189
ARF (acute renal failure), 179-180
BPH (benign prostatic hypertrophy), 190-191
case study, 194
CRF (chronic renal failure), 180-185
diagnostics, 195-196
ED (erectile dysfunction), 191-192
epididymitis, 193
key terms, 195
pediatrics, 560-562
pharmacological agents, 196-200
prapism, 193-194
prostatitis, 190
renal disorders, 172-178
resources, 906
sample exam questions, 200-203
urinary disorders, 185-189
GI (gastrointestinal), 257-258
appendicitis, 266-268
case study, 292-293
cholecytitis/cholelitiasis, 287-290
Clostridium difficile, 290-291
diagnostics, 295
diverticular disease, 265-266
esophageal disorders, 270-274
food-borne illnesses, 291-292
hemorrhoids, 266
inflammatory bowel disorders, 263-265
intestinal obstruction, 269-270
key terms, 294-295
liver diseases, 275-285
pancreatitis, 285-287
pediatrics, 537-543
peptic ulcer disease, 258-261
peritonitis, 268-269
pharmacological agents, 295-297
resources, 908
sample exam questions, 298-301
hematologic system, 303
anemia, 303-311
case study, 317-318
diagnostics, 319
hemophilia, 313-315
key terms, 319
pharmacological agents, 320
polycythemia vera, 312-313
resources, 906
sample exam questions, 321-324
thalassemia, 311-312
transfusion therapy, 315-317
integumentary system, 205
bacterial infections, 208
burns, 212-221
case study, 221-222
diagnostics, 223-224
fungal infections, 207-208
key terms, 223
pediatrics, 568-571
pharmacological agents, 224-226
pressure ulcers, 209-211
psoriasis, 208-209
resources, 907
disorders

sample exam questions, 226-229
viral infections, 205-207
malabsorptive/metabolic, 545-546
musculoskeletal system, 447
ankylosing spondylitis, 460-461
case study, 472-473
diagnostics, 474-475
fibromyalgia, 460
fractures, 448-456
gout, 461-462
key terms, 474
osteoarthritis, 458-460
osteoporosis, 457-458
pediatrics, 573-577
pharmacology, 475-478
resources, 908
sample exam questions, 479-482
surgical procedures, 466-472
neoplastic, 399
associated disorders and emergencies, 426-427
bladder cancer, 417
bone marrow transplantation, 427-429
breast cancer, 411-416
case study, 429-430
categories, 400
cervical cancer, 418
colorectal cancer, 403-407
diagnostics, 432-433
esophageal cancer, 417
general interventions, 421-426
Hodgkin's lymphoma, 420
key terms, 431-432
leukemia, 419
lung cancer, 407-409
multiple myeloma, 419
Non-Hodgkin's lymphoma, 420
ovarian cancer, 418
pancreatic cancer, 418
pediatrics, 563-565
pharmacological agents, 433-439
prevention, 402
prostate cancer, 409-411
renal cancer, 417
resources, 907
risk factors for specific cancers, 400-402
sample exam questions, 440-445
skin cancer, 417
stomach cancer, 418
warning signs of cancer, 399
neurological system, 325
autoimmune disorders, 354-357
brain injuries, 329-336
brain tumors, 336-337
case study, 366
cranial nerve disorders, 359-360
CVA/stroke, 342-346
degenerative disorders, 358
diabetes insipidus, 365
diagnostics, 368
intervertebral disk disease, 363-364
intracranial surgery care, 338-342
key terms, 367-368
meningitis, 352-354
Parkinson's disease, 350-352
pharmacology, 369-374
resources, 909-910
sample exam questions, 374-378
seizures, 347-350
spinal cord injuries, 360-363
neuromuscular, 577-579
parasitic/inflammatory, 544
psychiatric, 589
anxiety-related disorders, 589-593
case study, 609-610
children and adolescence, 606-609
diagnostics, 612
key terms, 611
personality disorders, 593-596
psychotic disorders, 597-602
psychotropic medications, 612-617
resources, 910
sample exam questions, 618-621
substance abuse, 602-606
respiratory system, 133, 142
asthma, 135-137
case study, 160
chronic bronchitis, 133-134
diagnostics, 161-162
emerging infections, 158-159
emphysema, 134-135
influenza, 147-148
interstitial pulmonary disease, 139-140
key terms, 161
life-threatening pulmonary disorders, 148-158
occupational pulmonary disease, 140-142
pediatrics, 528-537
pharmacology, 162-165
pleurisy, 137-138
pneumonia, 142-145
pulmonary hypertension, 138-139
resources, 905
sample exam questions, 166-168
TB (tuberculosis), 145-147
sensory system, 231
case study, 248-249
diagnostics, 251
ear disorders, 242-247
eye disorders, 231-241
key terms, 250
pharmacological agents, 251-252
resources, 907
sample exam questions, 253-256
women, 508
maternal infections, 508-510
menopause, 508
PID (pelvic inflammatory disease), 508
disorganized schizophrenia, 597
displacement (defense mechanism), 902
dissecting aneurysms, 89
disseminated intravascular coagulation (DIC), 426
dissociative identity disorder (DID), 591
disulfiram-alcohol reaction, 604
disulfiram (Antabuse), 604
diuretics, 16, 70, 96
diverticular disease, 265-266
DLE (discoid lupus erythematosus), 464
DMARDs (disease-modifying antirheumatic drugs), 461
documentation, forensic evidence, 629-630
Doppler ultrasound, 486
dornase alpha (Pulmozyme), 537
dosimeter badges, 634
Dostinex (cabergoline), 106
dowager’s hump, 457
dRE (digital rectal exams), 409
dressings
burn care, 220-221
TPN (total parenteral nutrition), 424
droplet standard precautions, 384, 901
drug levels, therapeutic, 899
drugs. See medications
dry age-related macular degeneration, 237
dry-powder inhalers, 136
DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders), 589
DTRs (deep tendon reflexes), 494
Duchenne muscular dystrophy, 579
Dukes’ classification (colorectal cancer), 404
dumping syndrome, 262
duodenal ulcers, 259
DUR (duration) time-released drugs, 17
duration of contractions, 501
DVT (deep vein thrombosis), 92
dysphagia, 346
dysreflexia, 362
dysrhythmias, cardiac, 76
atrial dysrhythmias, 76-77
internal pacemakers/defibrillators, 79-80
ventricular dysrhythmias, 77-78
ventricular fibrillation, 78-79
dysthymeric disorder, 602
dystocia, 490
dystonias, 599

E

E. Coli, 292
EA (esophageal atresia), 541
ear
anatomy, 242
disorders, 242
acoustic neuroma, 245
hearing loss, 247
mastoiditis, 244
Ménière’s disease, 244-245
otitis externa, 243
otitis media, 243
otosclerosis, 245-246
presbycusis, 246
traumatic injuries, 246
drops, 244
eye, 74
reading, 75-76
echinacea, 34
ECT (electroconvulsive therapy), 601
ectopic pregnancy, 495
eczema (atopic dermatitis), 568-569
ED (erectile dysfunction), 191-192
education of clients, 650
effacement (cervical), 490
EGD (esophagogastroduodenoscopy), 260
ejection fraction, 86
elective abortions, 496
electrical bone stimulators, 456
electrical injuries, 212
electrical system of the heart, 72
electrocardiogram (ECG), 69
leads, 74
reading, 75-76
electrocardiography, 84
electroconvulsive therapy (ECT), 601
electrode placement (ECG), 74
ELIZA (Enzyme-Linked Immunosorbent Assay) test, 381, 534
emergency care, 623
ABCD assessment, 624
airway, 624-625
breathing, 625
circulation, 625-626
deficits, 626-627
bioterrorism, 632
chemical/biological agents, 632-634
nuclear warfare, 634-635
cancer-related, 426-427
case study, 635-636
diagnostics, 637
disasters, 635
key terms, 637
obtaining information, 627
pharmacology, 637-638
poisoning, 630-631
sample exam questions, 638-641
trauma, 627
  abdominal injuries, 628-629
  chest injuries, 628
  forensic evidence, 629-630
  head injuries, 627-628
triage categories, 623
emergent phase (burn care), 216
  Consensus formula, 218
  interventions, 219
  major burns, 216-217
  Parkland formula, 217-218
emerging infections, respiratory disorders
  Legionnaires' disease, 159
  SARS (severe acute respiratory syndrome), 158-159
emotional disorders, children/adolescence, 606
  ADHD (attention deficit hyperactive disorder), 608
  autism, 607
  conduct disorder, 607
  eating disorders, 608-609
  oppositional defiant disorder, 608
empacho, 660
emphysema, 134-135
ecephalitis, 566
ecephalopathies, 381
end stage renal failure stage (chronic renal failure), 180
endocarditis, 90
endocrine system, 105
  adrenal gland, 118-119
    Addison's Disease, 119-120
    Conn's Syndrome, 119
    Cushing's Disease, 120-121
diagnostics, 121, 124
glands, 105
  key terms, 123-124
pancreas
  diabetes mellitus, 114-116
  hyperglycemia, 116-117
  hypoglycemia, 117
parathyroid gland, 112
  hyperparathyroidism, 113-114
  hypoparathyroidism, 112-113
pharmacologic agents for treatment, 124-128
pituitary gland, 106
  diabetes insipidus, 107-108
  hyperpituitarism, 106-107
  hypopituitarism, 106
  SIADH, 108
regulation of electrolytes, 44
resources, 909
sample exam questions, 128-131
thyroid gland, 108
  hyperthyroidism, 110-112
  hypothyroidism, 108-110
endolymphatic subarachnoid shunt, 245
endoscopy procedures, 272
endotracheal care, 151-152, 650
Engerix-B, 277
engrafting (bone marrow), 428
enteral feedings, 219
enteric-coated tablets, 17
*Enterobiasis* (pinworms), 544
entry inhibitors, 386
enucleation, 241
envenomation, 631
enzymatic debridement, 220
Enzyme-Linked Immunosorbent Assay (ELIZA) test, 381, 534
epididymitis, 193
epidural blocks, 504
epidural hematomas, 332
epiglottitis, 532
epinephrine, 118
episiotomy, 504
epispladias, 562
EPSE (extrapyramidal side effects), 599
Epstein-Barr virus, 530
erectile dysfunction (ED), 191-192
erythema marginatum, 558
erithroblastosis fetalis, 507
erithropoietin, 172
esophageal atresia (EA), 541
esophageal disorders, 270
cancer, 401, 417
  GERD (gastroesophageal reflux disease), 270-274
eucards, 259
esophagogastroduodenoscopy (EGD), 260
essential hypertension, 68
estimated date of delivery, 483
Estriol levels, 485
estrogens, 118
ESWL (extracorporeal shock wave lithotripsy), 188, 289
ethical issues, 645-646
evil eye, 660
Ewing's sarcoma, 564-565
exacerbations, multiple sclerosis, 354
exam questions. See sample exam questions
excimer laser, 239
exercise electrocardiography, 83-84
exercise tolerance test, 83
exercises
  diabetes mellitus management, 116
  osteoporosis management, 457
  post-operative breast cancer patients, 414-415
exfoliative psoriasis, 209
exstrophy of the bladder, 562
external bleeding, 625
external defects, 561-562
external fetal monitoring, 501
external hemorrhoids, 266
external irradiation, 634
external tocodynamometer monitor, 501
extracapsular cataract extraction (ECCE), 233
extracellular fluid, 41
extracorporeal shock wave lithotripsy (ESWL), 188, 289
extrapyramidal side effects (EPSE), 24, 599
extravasation, 425
extrinsic asthma, 135
exudative age-related macular degeneration, 237

eye
- anatomy, 231
- disorders, 231
  - intraocular disorders, 232-235
  - ocular melanoma, 240-241
  - refractive errors, 239-240
  - retinal disorders, 236-238
  - traumatic injuries, 240
- uveitis, 235-236
- drops, 235

fluid and electrolyte balance, 41
- managing imbalances, 43
  - calcium, 48-50
  - chloride, 47-48
  - intravenous fluid replacement, 43-44
  - magnesium, 51
  - phosphorus, 50-51
  - potassium, 45-46
  - regulation of electrolytes, 44-45
  - sodium, 46
- resources, 906
- total body water, 41-43

flushing IV lines, 426
folic acid, 485
folk medicine, 657
Food and Drug Administration (FDA), 15
food-borne illnesses, 291-292
footling breech presentation (fetus), 499
forceps delivery, 501
foreign bodies (traumatic eye injury), 240
forensic evidence, emergency care, 629-630
formulas, burn care, 217-218
four-point gait (crutch walking), 470

fractures, 448-450
- basilar skull, 329-331
- common sites, 450
- complications, 454
  - compartment syndrome, 454-455
  - delayed union/healing, 456
  - osteomyelitis, 455-456
- hip, 466-467
- treatment, 450-451
- casts, 453-454
- traction, 451-453

frank breech presentation (fetus), 499
fraud, 648
Fredet-Ramstedt procedure, 542
frequency of contractions, 501
fresh frozen plasma (FFP), 316
fright sickness, 660
full thickness burns, 213
functional ED (erectile dysfunction), 192
functional incontinence, 187
functional obstructions, 269
functional scoliosis, 576

functions
- GI system, 257
- kidneys, 172
- pituitary gland, 106
- skin, 205

fundal height measurement, 486
fungus infections, 207-208, 386
fusiform aneurysms, 89
G

GAD (generalized anxiety disorder), 590

gag reflex, 84

gait, crutches, 470

galactosemia, 546

gallstones, ESWL (extracorporeal shock wave lithotripsy), 289

Garamycin (gentamicin), 143

Gardasil, 400

gastrectomy, 260

gastric bypass surgery, 262

gastric ulcers, 259

gastroenteritis, 538

Gastroesophageal reflux disease. See GERD

gastrointestinal system

-anatomy, 257-258
disorders. See GI system disorders
-regulation of electrolytes, 44

Gell and Coombs Classification of Hypersensitivity
-Reactions, 379

general anesthesia, labor management, 504

generalized anxiety disorder (GAD), 590

generalized seizures, 347-349

generic names (drugs), 19

genital herpes, 206, 509

genitourinary system disorders

-anatomy, 171
ARF (acute renal failure), 179-180
BPH (benign prostatic hypertrophy), 190-191
case study, 194

CRF (chronic renal failure), 180-181
-CRRT (continuous renal replacement therapy), 183-184
-hemodialysis, 182
-peritoneal dialysis, 181
-renal transplantation, 184-185
diagnoses, 195-196
ED (erection dysfunction), 191-192
-epididymitis, 193
-key terms, 195
-pediatrics, 560-562
-pharmacological agents, 196-200
-priapism, 193-194
-prostatitis, 190
-renai disorders, 172
-AGN (acute glomerulonephritis), 172-173
-CGN (chronic glomerulonephritis), 173-174
-Goodpasture's syndrome, 174
-hydronephrosis/hydrourereteronephrosis, 177-178
-nephrotic syndrome, 175
-PKD (polycystic kidney disease), 176-177
-pyelonephritis, 178
-resources, 906
-sample exam questions, 200-203

urinary disorders, 185
cystitis, 185-187
-incontinence, 187-188
-uroliithiasis, 188-189
gentamicin (Garamycin), 143

GERD (gastroesophageal reflux disease), 30, 270
-management, 271-274
-pediatrics, 539-540

German measles, 572

gestational age, 483

gestational trophoblastic neoplasms, 495

GFR (glomerular filtration rate), 180

GI (gastrointestinal) system disorders, 257-258
-appendicitis, 266-268
case study, 292-293
-cholelitis/cholestolithiasis, 287
diagnosis, 288-289
-symptoms, 288
treatment, 289-290
Clostridium difficile, 290-291
diagnostics, 295
diagnostic, 265-266
esophageal disorders, 270
-GERD (gastroesophageal reflux disease), 270-274
-hiatal hernia, 274
-food borne illnesses, 291-292
-hemorrhoids, 266
-inflammatory bowel disorders, 263
-Crohn's disease, 263
-management, 264-265
-ulcerative colitis, 263-264
-intestinal obstruction, 269-270
-key terms, 294-295
-liver diseases, 275
-cirrhosis, 281-285
-hepatitis, 275-281
-pancreatitis, 285-287
-pediatrics, 337
-motility issues, 538-540
-obstructive disorders, 542-543
-structural defects, 540-542
-peptic ulcer disease, 258
diagnosis, 259
treatment, 260-261
types of ulcers, 259
-peritonitis, 268-269
-pharmacological agents, 295-297
-resources, 908
-sample exam questions, 298-301

Gigantism, 106

ginkgo, 34

ginseng, 34

glands, endocrine system, 105
-adrenal gland, 118-121
-pancreas, 114-117
-parathyroid, 112-114
pituitary, 106-108
thyroid, 108-112
glandular epispadias, 562
Glasgow coma scale, 327-328
glaucoma, 234-235
glioma brain tumors, 336
glomerular filtration rate (GFR), 180
glans, endocrine system
glucagon, 117
glucocorticoids, 25-27, 118
gluconeogenesis, 114
Glucophage (metformin), 116
glucose, fasting blood test, 115
glucose tolerance test (GTT), 115, 487
glycosylated serum protein, 116
glycosylated hemoglobin assays (HbA1c), 115
goiters, 108, 110
goitrogens, 108
Gonorrhea, 509
Goodell’s sign, 484
Goodpasture’s syndrome, 174, 379
goat, 461-462
Gower’s maneuver, 579
grafts, burn clients, 220
Graves’ disease, 110
green stick fractures, 449
gross motor skills
infancy stage, 524
preschooler stage, 526
school age stage, 527
toddler stage, 525
ground glass infiltrates, 148
growth and development (pediatric clients), 523
adolescence stage, 527-528
infancy stage, 523-524
preschooler stage, 525-526
school age stage, 527
toddler stage, 524-525
growth hormone, 106
GTT (glucose tolerance test), 115, 487
Guillain-Barré, 357
Guthrie blood test, 545-546
H
H. influenza, 142, 531-532
H. pylori, 258-260
HA (hyaluronic acid) injections, 459
HAART (highly active antiretroviral therapy), 385
habit training (incontinence), 188
Haemophilus influenza, 142, 531-532
hallucinogens (substance abuse), 606
halo vest, 361, 451
hand wall-climbing exercises, 415
hazardous substances, pediatric ingestion, 547
acetaminophen overdose, 547
hydrocarbons/corrosives, 548-549
iron overdose, 548
lead poisoning, 547-548
salicylate overdose, 547
HbA1c (glycosylated hemoglobin assays), 115
HBIG (HBV [Hepatitis B Virus] Immune Globulin) vaccine, 278, 506
HCG (Human Chorionic Gonadotropin), 484
HCM (hypertrophic cardiomyopathy), 492
HDL (high-density lipoprotein) cholesterol, 70
head injuries, 627-628
head lice, 569-570
headaches, spinal, 504
healers, 659
Health Information Protection Privacy Act (HIPPA), 645
hearing aids, 247
hearing loss, 246-247
heart
anatomy, 67-68, 72
conduction system, 72
heart attack, 81
CABG (coronary artery bypass graft), 85-86
cardiac catheterization, 84
cardiogenic shock, 88
congestive heart failure, 86-88
diagnosis, 82
electrocardiography, 84
exercise electrocardiography, 83-84
management, 82-83
PTCA (percutaneous transluminal coronary angioplasty), 85
heart block, 78, 113
malfunction of system, 73-74
toxicity to medications, 73
heart rate, 899
heart tones, fetal, 486
Heberden’s nodes, 459
Hegar’s sign, 484
HELLP syndrome, 494
helper cells, 380
hematologic system disorders, 303
anemia, 303
aplastic, 304-305
iron deficiency, 309-311
pernicious, 304
sickle cell, 305-309
case study, 317-318
diagnostics, 319
hemophilia, 313-315
key terms, 319
pharmacological agents, 320
polycythemia vera, 312-313
resources, 906
sample exam questions, 321-324
hyperkalemia, 45-46

occupation exposure, 385
standard precautions, 383-384
progression tests, 381-382
transmission, 380
Hodgkin’s lymphoma, 420
Homan’s sign, 92
Home Access test, 381
homeostasis
acid/base balance, 52-53
case study, 58-59
diagnostics, 60
key terms, 60
management of imbalances, 53-58
pharmacology, 60-61
sample exam questions, 62-65
fluid and electrolyte balance, 41
managing imbalances, 43-51
total body water, 41-43
homocysteine, 70
homografts, 220
homozygous thalassemia, 311
hormone-dependent tumors (breast cancer), 413
hormones
ACTH (adrenocorticotropic hormone), 106, 118
antidiuretic, 106
calcitonin, 48
erthropoietin, 172
growth, 106
PTH (parathyroid hormone), 112
regulation, 105
renin, 118
thyroid gland, 108
TSH (thyroid-stimulating hormone), 106
hospital-acquired pneumonias, 143
hot/cold imbalance, 659
household system of measurement, 913
HPV vaccination, 400
HSV (herpes simplex virus), 206
Human Chorionic Gonadotropin (HCG), 484
Human Immunodeficiency Virus. See HIV
Humira (adalimumab), 264
Huntington’s Disease, 358
hyaluronic acid (HA) injections, 459
hydatidiform mole, 495-496
hydrocarbon ingestion, 548-549
hydrogen/potassium ATPase enzyme system, 31
hydrenephrosis, 177-178
hydroureronephrosis, 177-178
hyperacute graft rejection, 184
hyperbilirubinemia, 507
hypercalcemia, 48
hypercholesteremia, 47-48
hyperfusion syndrome, 344
hyperglycemina, 116-117
hyperhemolytic crisis (sickle cell anemia), 308
hyperkalemia, 45-46
hypermagnesemia, 51
hypernatremia, 46
hyperopia (farsightedness), 239
hyperparathyroidism, 113-114
hyperphosphatemia, 50-51
hypertensive retinopathy, 236
hyperthyroidism, 110-112
hypertone solutions, 44
hypertrophic cardiomyopathy (HCM), 492
hypertrophic pyloric stenosis, 542
hyphema (traumatic eye injury), 240
hypocalcemia, 48
hypochloremia, 47-48
hypochondriasis, 591
hypoglossal nerve, 326
hypoglycemia, 117
hypokalemia, 45-46
hypomagnesemia, 51
hyponatremia, 46
hypoparathyroidism, 112-113
hypopituitarism, 106
hypopituitarism, 106
hypothyroidism, 108-110
hypotonic solutions, 44
hypovolemic shock, 88, 626
IABP (intra-aortic balloon pump), 87
iatrogenic causes, immunodeficiency, 380
iatrogenic Cushing's syndrome, 120
IBS (irritable bowel syndrome), 262-263
ICP (intracranial pressure) monitor, 328
icteric stage (hepatitis), 280
IDDM (insulin-dependent diabetes mellitus), 114
identification helpers (medications), 33
idiopathic peripartum cardiomyopathy, 492
idiopathic scoliosis, 576
IFA (indirect immunofluorescence assay), 381
ileostomy, 405
illnesses. See disorders
IM (intramuscular) injections, 24
immune system, 379
pharmacologic agents, 390-393
sample exam questions, 394-397
Immunodeficiency syndrome, 380-381
key terms, 389
immunization schedule, 903
Immunodeficiency syndrome, 380-381
immunosuppressive therapies, aplastic anemia, 305
implants
cochlear, 247
radiation therapy, 423
in-canal style hearing aids, 247
in-ear style hearing aids, 247
incomplete abortions, 497
complete abortions, 497
incomplete spinal cord injuries, 360
incontinence, 187-188
incorporation, nuclear warfare, 634
Inderal (Propranolol), 111
indirect immunofluorescence assay (IFA), 381
inevitable abortions, 497
infancy stage (growth and development), 523-524
infants
complications due to maternal diabetes, 493
cretinism, 108
immunization schedule, 903
newborn care, 505
APGAR scoring, 505
normal newborn terms, 506-507
Rh incompatibility, 507
infections
bacterial, 386
ear, 243-244
emerging respiratory infections, 158-159
fungal, 386
integumentary system
bacterial infections, 208
fungal infections, 207-208
viral infections, 205-207
lower airway (pediatrics), 533-534
opportunistic, 380
post-burn clients, 219
protozoal, 386
sexually transmitted, 508
upper airway (pediatrics), 529-533
viral, 386
infectious cystitis, 185
infectious disorders, lower respiratory tract, 142
influenza, 147-148
pneumonia, 142-145
TB (tuberculosis), 145-147
infectious mononucleosis, 530
infective endocarditis, 90
**inflammatory diseases**
- cardiovascular system
  - bacterial endocarditis, 90
  - pericarditis, 90-91
  - PVD (peripheral vascular disease), 91-92
- inflammatory bowel disorders
  - Crohn's disease, 263
  - management, 264-265
  - ulcerative colitis, 263-264
- pediatrics, 544
- inflammatory bowel disorders
  - Crohn's disease, 263
  - management, 264-265
  - ulcerative colitis, 263-264
- pediatrics, 544
- inflammatory bowel disorders
  - Crohn's disease, 263
  - management, 264-265
  - ulcerative colitis, 263-264
- pediatrics, 544

**inflammatory diseases**
- cardiovascular system
  - bacterial endocarditis, 90
  - pericarditis, 90-91
  - PVD (peripheral vascular disease), 91-92
- inflammatory bowel disorders
  - Crohn's disease, 263
  - management, 264-265
  - ulcerative colitis, 263-264
- pediatrics, 544

**interferon injections**, 277, 439
**interleukins**, 439
**intermediate phase (burn care)**, 219-220
**internal fetal monitoring**, 501
**internal hemorrhoids**, 266
**internal pacemakers**, 79-80
**international normalizing ratio (INR)**, 83
**interpreters**, 658
**interstitial cystitis**, 185
**interstitial pulmonary disease**, 139-140
**interventions (management)**
- abdominal injuries, 629
- abruptio placenta, 497
- acetaminophen overdose, 547
- acid/base imbalance, 52
  - metabolic acidosis, 53-55
  - metabolic alkalosis, 56-57
  - respiratory acidosis, 55-56
  - respiratory alkalosis, 57-58
- acoustic neuroma, 245
- acute epiglottitis, 532
- acute renal failure, 179
- Addison's disease, 120
- age-related macular degeneration, 237
- AGN (acute glomerulonephritis), 173
- allergies, 379
- ankylosing spondylitis, 461
- AOM (acute otitis media), 531
- aplastic anemia, 305
- appendicitis, 267-268
- ascites, 281
- asthma, 135
- autonomic hyperreflexia, 362
- bacterial endocarditis, 90, 559
- basal skull fractures, 331
- Bell's palsy, 360
- biliary atresia, 543
- bowel obstructions, 270
- BPH (benign prostatic hypertrophy), 190-191
- brain tumors, 337-342
- breast cancer, 412-414
- bronchiolitis, 534
- bronchitis, 534
- Buerger's disease, 92
- burn care, 219
- C. difficile, 291
- cancer
  - chemotherapy, 423-424
  - radiation therapy, 421-423
  - TPN (total parenteral nutrition), 424-426
- cardiac disease in pregnancy, 491
- cardiac ischemia, 81
- cardiogenic shock, 88
cardiovascular disorders
medications, 96-100
ventricular fibrillation, 79
celiac, 545
CGN (chronic glomerulonephritis), 174
chest injuries, 628
cholecystitis/cholelithiasis, 289-290
chronic bronchitis, 134
cirrhosis, 284-285
cleft foot, 573
COA (coarctation of the aorta), 552
colorectal cancer, 404
compartment syndrome, 455
congestive heart failure, 87-88
Conn's syndrome, 119
corrosive ingestion, 549
CP (cerebral palsy), 577-578
CRF (chronic renal failure)
CRRT (continuous renal replacement therapy), 183-184
diet, 180
hemodialysis, 182
peritoneal dialysis, 181
renal transplantation, 184-185
Cushing's Disease, 121
cystic fibrosis, 536
cystitis, 186
delayed union/healing of fractures, 456
delusion of tasks, 648-651
DHD (developmental hip dysplasia), 574
diabetes insipidus, 108, 365
diabetes mellitus, 116
diverticulitis, 265-266
dumping syndrome, 262
ectopic pregnancy, 495
eczema, 569
emergent airway establishment, 624
emphysema, 135
epididymitis, 193
erectile dysfunction, 192
Ewing's sarcoma, 565
extrophy of the bladder, 562
fibromyalgia, 460
fluid and electrolyte imbalance, 43
calculator, 48-50
chloride, 47-48
intravenous fluid replacement, 43-44
magnesium, 51
phosphorus, 50-51
potassium, 45-46
regulation of electrolytes, 44-45
sodium, 46
fractures, 450-451
casts, 453-454
traction, 451-452
fungal skin infections, 208
galactosemia, 546
gastroenteritis, 538
GERD (gastroesophageal reflux disease), 271-274, 540
GI bleeding, 260
glaucoma, 235
Goodpasture's syndrome, 174
gout, 461-462
Guillain-Barré, 357
head injuries, 628
head lice, 570
hematomas, 332
hemorrhagic stroke, 345-346
hemorrhoids, 266
hepatitis, 281
Hepatitis A, 276
Hepatitis B, 277-278
Hepatitis C, 279
herniated disks, 363-364
herpes zoster, 207
hiatal hernia, 274
hip fractures, 467
Hirschprung's disease, 539
HIV, 385-387
HSV (herpes simplex virus), 206
hydronephrosis/hydrourerteronephrosis, 177
hypercalcemia, 48
hyperchloremia, 48
hyperglycemia, 117
hyperkalemia, 46
hypermagnesemia, 51
hypernatremia, 46
hyperparathyroidism, 114
hyperphosphatemia, 51
hypertension, 69-71
hyperthyroidism, 111
hypocalcemia, 48
hypochlorhydria, 48
hypoglycemia, 117
hypokalemia, 45
hypomagnesemia, 51
hyponatremia, 46
hypovolemic shock, 626
IBS (irritable bowel syndrome), 263
inadequate circulation, 626
incompetent cervix, 496
incontinence, 187-188
increased intracranial pressure, 335-336
ineffective breathing patterns, 625
infectious mononucleosis, 530
inflammatory bowel disorders, 264-265
iron deficiency anemia, 310
incompetent cervix, 496
incontinence, 187-188
inflammatory bowel disorders, 264-265
influenza, 148
ingestion of hydrocarbon/corrosives, 549
iron deficiency anemia, 310
iron overdose, 548
JAR (juvenile rheumatoid arthritis), 577
intraoperative floppy iris syndrome

KD (Kawasaki’s disease), 559
labor, 503-504
late decelerations, 503
lead poisoning, 548
Legg-Calvé-Perthes disease, 575
Legionnaires’ disease, 159
leukemia, 563
LTB (laryngotracheobronchitis), 532-533
lung cancer, 408
lupus erythematosus, 466
Lyme disease, 570
mastoiditis, 244
Meckel’s diverticulum, 544
meningitis, 353
menopause, 508
metabolic acidosis, 54-55
metabolic alkalosis, 57
Ménière’s disease, 245
MI (myocardial infarction), 82-83
CABG (coronary artery bypass graft), 85-86
cardiac catheterization, 84
cardiogenic shock, 88
congestive heart failure, 86-88
electrocardiography, 84
exercise electrocardiography, 83-84
PTCA (percutaneous transluminal coronary angioplasty), 85
multiple sclerosis, 354-355
muscular dystrophies, 579
myasthenia gravis, 355-356
myasthenia gravis, 355-356
neuroblastoma, 564
obstructive uropathy, 561
ocular melanoma, 241
OI (osteogenesis imperfecta), 575
osteoarthritis, 459-460
osteamyelitis, 456
osteoporosis, 457
otitis externa, 243
otitis media, 243
otosclerosis, 245-246
pancreatitis, 286-287
Parkinson’s disease, 351
peptic ulcer disease, 260-261
pericarditis, 90
peritonitis, 268-269
pernicious anemia, 304
personality disorders, 596
Pheochromocytoma, 119
physiologic jaundice, 507
PID (pelvic inflammatory disease), 508
pinworms, 544
pituitary gland disorders, 106
PKD (polycystic kidney disease), 177
PKU (Phenylketonuria), 546
pleurisy, 137
pneumonia, 143
pneumothorax, 155
poisoning, 630-631
polycythemia vera, 313
preeclampsia, 494-495
pressure ulcers, 211
priapism, 193
prostate cancer, 409-411
prostatitis, 190
psoriasis, 209
pulmonary embolus, 154
pulmonary fibrosis, 140
pulmonary hypertension, 138
PVD (peripheral vascular disease), 91-92
pyelonephritis, 178
RA (rheumatoid arthritis), 463-464
radiation disasters, 634
refractive errors, 239-240
respiratory acidosis, 56
retinal detachment, 238
retinoblastoma, 564
rhabdomyosarcoma, 565
rheumatic fever, 558
Rocky Mountain spotted fever, 571
salicylate overdose, 547
sarcoidosis, 140
scoliosis, 576
seizures, 350
SIADH, 108
sickle cell anemia, 308-309
spasmodic croup, 533
spinal cord injuries, 361-362
TB (tuberculosis), 147
TGA (transposition of the great arteries), 556
thalassemia, 312
thrombophlebitis, 92
thyroid storm, 111
TOF (Tetralogy of Fallot), 556
tonsillitis, 529
tracheitis, 533
trigeminal neuralgia, 359
umbilical cord prolapse, 500
uveitis, 236
vomiting, 302
variable decelerations, 502
intervertebral disk disease, 363-364
intestinal obstruction, 269-270
intra-aortic balloon pump (IABP), 87
intracellular fluid, 41
intracerebral hematomas, 332
intracranial bleeding, 314
intracranial infections, 566-567
intracranial pressure
brain injuries, 332-336
monitors, 328-329
intracranial surgery care, 338-342
intradermal PPD, 146
intramuscular (IM) injections, 24
intraocular eye disorders, 232
cataracts, 232-233
glaucoma, 234-235
intraoperative floppy iris syndrome, 232
intrapartal care, 488

cardiac disease during pregnancy, 492
labor influences, 488-489
normal ranges, 900
stages of labor, 489

intraparenal ARF, 179

intrauterine device (IUD), 511
intravascular fluid, 41
intravenous fluid replacement, 43-44
intravenous pyelography (IVP), 69, 186
intravitreal injection of gas, retinal detachment, 238
intrinsic ARF, 179
intrinsic asthma, 135
intussusceptions, 543
iron administration, 310-311
iron deficiency anemia, 309-311
iron overdose, 548
irritable bowel syndrome (IBS), 262-263
ischemia, 71, 80-81
ischemic stroke, 342-344
Islamic (Muslim) religion, 664
islets of Langerhans, 114
isoimmunization, 507
isotonic solutions, 44
IUD (intrauterine device), 511
IV lines
IV therapy
delegation of tasks, 649
flushing lines, 426
IVP (intravenous pyelography), 69, 186

J

J pouch construction (colorectal cancer treatment), 405
jaundice, 507
jaw-thrust maneuver, 625
Jehovah’s Witness, 667
Jobst garment, 221
JRA (juvenile rheumatoid arthritis), 576-577
Judaism, 667
junctional beat (bigeminy), 76
juvenile rheumatoid arthritis (JRA), 576-577
juvenile-onset diabetes, 114

K

Kalima prayer, 665
Kaposi sarcoma, 381
kava-kava, 34
Kawasaki’s disease, 559-560
keratitis, 507
ketonuria, 115-116
ketosis, 493
key terms
acid/base imbalance, 60
cardiovascular disorders, 94-95
cultural practices, 669
emergency care, 637
endocrine system, 123-124
genitourinary system, 195
GI (gastrointestinal) system, 294-295
hematologic system, 319
immune system disorders, 389
integumentary system, 223
legal issues, 652
musculoskeletal system, 474
neoplastic disorders, 431-432
neurological system disorders, 367-368
pediatric care, 583
pharmacology, 36
pregnancy, 489-490, 514-515
psychiatric disorders, 611
respiratory disorders, 161
sensory system disorders, 250
kidney stones, 188-189
kidneys
function, 172
pH regulation, 53
regulation of electrolytes, 44
killer cells, 380
knee replacement surgery, 467-468
knee-jerk (patella) reflex, 494
KOH (potassium hydroxide) test, 208
Kwell (lindane), 569

L

L/S (Lecithin/sphingomyelin) ratios, 485, 487
LA (long acting) drugs, 17
labor (pregnancy), 488
complications
assisted birth, 501
cesarean birth, 500-501
fetal malpresentation, 499
post-term labor and birth, 499
precipitate delivery, 500
premature labor, 498-499
umbilical cord prolapse, 500
cultural considerations
Arab-Americans, 665
Asian-Americans, 664
Hispanic/Latino population, 661
Native Americans/Alaskan natives, 662
influences, 488-489
pharmacologic management, 503-504
prelabor testing, 486-488
stages, 489
terms, 489-490
labrynthectomy, 245
lacerations (traumatic eye injury), 240
lactic dehydrogenase (LDH), 82
LADA (latent autoimmune diabetes in adults), 114
language differences, 658
lymphatic mapping

laparoscopic Nissen fundoplication (LNF), 272
larynx cancer, 401
laser in-situ keratomileusis (LASIK), 239
laser therapy, age-related macular degeneration, 237
LASIK (laser in-situ keratomileusis), 239
late decelerations (fetal heart tones), 503
latent autoimmune diabetes in adults (LADA), 114
Latino/Hispanic population, 659
  childbirth/pain response, 661
  nonverbal/verbal communication, 660
time considerations, 660
laxatives, 16
LDH (lactic dehydrogenase), 82
LDL (low-density lipoprotein) cholesterol, 70
lead poisoning
  case study, 581-582
  pediatrics, 547-548
leads (ECG), 74
lecithin/sphingomyelin (L/S) ratios, 485-487
legal issues, 643
  case study, 651
  civil laws, 644
  common law, 644-645
  criminal laws, 644
  key terms, 652
  management/delegation of care, 648-651
  resources, 911
  sample exam questions, 653-656
  standards of practice, 646
  assault and battery, 648
  fraud, 648
  malpractice, 647
  negligence, 647
  torts, 647
  witnessing consent, 647
  statutory laws, 644
Legg-Calvé-Perthes disease (Coxa Plana), 575
Legionnaires’ disease, 142, 159
Leopold’s maneuver, 484
leukemia, 400, 419
  pediatrics, 563
  risk factors, 401
leukopenic, 382
leukotriene modifiers, 135
levothyroxine sodium (Synthroid), 110
lice, 569-570
licensed practical nurses (LPNs), 648-651
licensing boards, 643, 921-933
LICOX PMO ICP, 328
life-threatening pulmonary disorders, 148
  ARDS (acute respiratory distress syndrome), 148-149
  mechanical ventilation care, 149-151
  vent-dependent clients, 151-152
  hemothorax, 155-158
  PE (pulmonary embolus), 152-154
  pneumothorax, 154-155
lindane (Kwell), 569
lithium therapy, 600
liver biopsy, 284
liver diseases, 275
cancer, 401
diagnosis, 284
treatment, 284-285
hepatitis, 275
  Hepatitis A, 275-276
  Hepatitis B, 276-278
  Hepatitis C, 278-279
  Hepatitis D, 279
  Hepatitis E, 279-280
  Hepatitis G, 280
  stages, 280
  treatment, 281
LNF (laparoscopic Nissen fundoplication), 272
lobectomies, 408
local infiltration (nerve blocks), 503
lochia alba, 504
lochia serosa, 504
lochia rubra, 504
long acting (LA) drugs, 17
loop diuretics, 70, 96
Loratidine (Claritin), 379
lorazepam (Ativan), 350
loss of hearing, 247
Lou Gehrig’s disease, 358
lower respiratory tract
  infectious disorders, 142
  influenza, 147-148
  pneumonia, 142-145
  TB (tuberculosis), 145-147
  noninfectious disorders, 133
  asthma, 135-137
  chronic bronchitis, 133-134
  emphysema, 134-135
  interstitial pulmonary disease, 139-140
  occupational pulmonary disease, 140-142
  pleurisy, 137-138
  pulmonary hypertension, 138-139
  pediatrics, 533-534
LPNs (licensed practical nurses), 648-651
LTB (laryngotracheobronchitis), 532-533
Lugol’s solution, 111
lumpectomy, 412
Lund and Browder method, 214
lung cancer, 407-409
  classifications, 407
  risk factors, 401
lungs, pH regulation, 53
lupus erythematosus, 464-466
Lyme disease, 570
lymphatic mapping, 412
lymphocytes, 382
lymphoid tissue, 529
lymphomas, 400, 420

**M**

*M. catarrhalis*, 531
Ma Huang, 34
macrosomia, 493
macular degeneration, 237
magnesium, homeostasis, 51
magnesium sulfate, 498
  preeclampsia management, 494
  preterm labor management, 498
  toxicity, 495, 499
major depression, 600-602
malabsorptive disorders, 545-546
maladaptive beliefs, 657
malignancies. See cancer
malignant hypertension, 69
malpractice, 647
mammography, 412
management of disorders. See interventions
mandibular fractures, 450
mania (bipolar disorder), 600
Mantoux test, 146
manual traction, 451
MAOIs (monoamine oxidase inhibitors), 601
MAP (mean arterial pressure), 329
Marfan's syndrome, 491
marijuana (substance abuse), 606
mask of pregnancy, 484
mast cell stabilizers, 135
mastoiditis, 244
maternal infections, 508-510
maternal-newborn care, 910
math calculations, 913-914
McBurney's point, 266
McDonald cerclage, 496
MCL (modified chest lead) system, 74
mean arterial pressure (MAP), 329
measles, 572
measurements
  burns, 214-215
  conversion tables, 913-914
mebendazole (Vermox), 544
mechanical obstructions, 269
mechanical ventilation, 149-151
Meckel's diverticulum, 544
Meckel's scan, 544
medications, 36
  acid/base imbalance, 60-61
  acute renal failure, 179
  administration, 18, 649
  age-related macular degeneration, 237
  AGN (acute glomerulonephritis), 173
  alcoholism management, 604
  ankylosing spondylitis, 461
  asthma, 135
  bacterial endocarditis, 559
  Bell's palsy, 360
  BPH (benign prostatic hypertrophy), 190
  cardiovascular disorders, 70-71, 96-100
  cirrhosis, 285
  classifications, 16-17
    angiotensin-converting enzyme inhibitors, 19-20
    angiotension receptor blockers, 29-30
    anti-infectives, 21-22
    anticoagulants, 32-33
    antivirals, 27-28
    benzodiazepines, 23-24
    beta adrenergic blockers, 20-21
    cholesterol-lowering agents, 28-29
    glucocorticoids, 25-27
    histamine 2 antagonists, 30-31
    identification helpers, 33
    phenothiazines, 24-25
    proton pump inhibitors, 31-32
  congestive heart failure, 87
  cystic fibrosis, 536
  cystitis, 186
  diabetes insipidus, 365
  diabetes mellitus management, 116
  diuretics, 70
  diverticulitis, 265
  drug names, 19
  drug schedules, 35
  dumping syndrome, 262
  eczema, 569
  emergency care, 637-638
  endocrine system disorders, 124-128
  erectile dysfunction, 192
  eye disorders, 252
  fibromyalgia, 460
  fungal infections, 208, 225
  genitourinary system, 196-200
  GERD (gastroesophageal reflux disease), 272, 540
  GI (gastrointestinal) system, 295-297
  Goodpasture's syndrome, 174
  gout, 462
  hematologic system disorders, 320
  Hepatitis B, 278
  Hepatitis C, 279
  herpes zoster, 207
  HIV treatment, 385-387
  IBS (irritable bowel syndrome), 263
  immune system disorders, 390-393
  increased intracranial pressure, 336
  inflammatory bowel disorders, 264
  influenza, 148
  integumentary system disorders, 224-226
  iron deficiency anemia, 310
  JAR (juvenile rheumatoid arthritis), 577
key terms, 36
labor management, 503-504
Legionnaires’ disease, 159
lupus erythematosus, 466
mastoiditis, 244
meningitis, 353
most prescribed medications in U.S., 917-919
multiple sclerosis, 355
musculoskeletal system disorders, 475-478
myasthenia gravis, 355
neoplastic disorders, 433-439
neurological system disorders, 369-374
nitroglycerine, 81
obstetric clients, 516-517
osteoporosis, 458
pancreatitis, 287
Parkinson’s disease, 351
pediatric disorders, 584
peptic ulcer disease, 260
pinworms, 544
pneumonia, 143
polycythemia vera, 313
pressure ulcers, 226
prostatitis, 190
psoriasis, 209, 224
psychiatric disorders, 612-617
respiratory disorders, 162-165
sample exam questions, 37-40
sarcoidosis, 140
sensory system disorders, 251-252
spinal cord injuries, 362
status epilepticus, 350
TB (tuberculosis), 147
therapeutic drug levels, 899
toxicity, 73
ulcerative colitis, 359
urinary incontinence, 198
uveitis, 236

mumps, 572

metastasis, 399
metered-dose inhalers, 136
metformin (Glucophage), 116
methicillin-resistant staphylococcus aureus. See MRSA
methimazole (Tapazole), 111
methods of contraception, 511-512
methyloxanthines, 135
metric measurements, 914
ménière’s disease, 244-245
MI (myocardial infarction), 81
CABG (coronary artery bypass graft), 85-86
cardiogenic shock, 88
congestive heart failure, 86-88
diagnosis, 82
electrocardiography, 84
management, 82-83
PTCA (percutaneous transluminal coronary angioplasty), 85

milia, 507
Milwaukee brace, 576
mineralocorticoids, 118
minor burn injuries, 215
miotics, 17
misdemeanor, 644
missed abortions, 497
mixed defects (congenital heart defects), 556
mixed incontinence, 187
moderate burn injuries, 215
modified chest lead (MCL) system, 74
mongolian spots, 507
monitoring
  cardiac, 74
dysrhythmias, 76-80
electrocardiogram reading, 75-76
fetal monitoring, 501-503
intracranial pressure, 328-329
monoamine oxidase inhibitors (MAOIs), 601
Monoclonal Antibodies, 437
Monospot, 530
Mormons, 667
motility disorders, 538
  gastroenteritis, 538
GER (gastroesophageal reflux), 539-540
Hirschsprung’s disease, 538-539
MRSA (methicillin-resistant staphylococcus aureus), 23
MS (multiple sclerosis), 354-355
mucoviscidosis (cystic fibrosis), 536-537
multiple myeloma, 401, 419
  risk factors, 401
multiple personality disorder, 591
multiple puncture (tine) test, 146
multiple sclerosis (MS), 354-355
mumps, 572
Munchausen's (abuse by proxy), 580
muscular dystrophies, 579
musculoskeletal system disorders, 447
  ankylosing spondylitis, 460-461
  fibromyalgia, 460
  fractures, 448
    common sites, 450
    complications, 454-456
    treatment, 450-454
  gout, 461-462
  osteoarthritis, 458-460
  osteoporosis, 457-458
pediatrics, 573
  congenital clubfoot, 573
  DHD (developmental hip dysplasia), 573-574
  JRA (juvenile rheumatoid arthritis), 576-577
  Legg-Calvé-Perthes disease, 575
  OI (osteogenesis imperfecta), 574-575
  scoliosis, 576
resources, 908
surgical procedures, 466
  amputations, 468-470
  assistive devices for ambulation, 470-472
  hip fractures/replacements, 466-467
  total knee replacement, 467-468
Muslims, 664
myasthenia gravis, 355-357
mycobacterium tuberculosis, 145
Mycoplasma pneumoniae, 143
mydriatic eye drops, 233
mydriatics, 17
myelin sheath, multiple sclerosis, 354
myeloma, multiple, 419
myelomeningocele, 578
myocardial infarction. See MI
myoclonic seizures, 349
myoglobinuria, 213
myopia (nearsightedness), 239
myringotomy, 243
myxedema coma, 108-110
Myxovirus influenzae, 147

N
Naegele’s rule, 483, 498
nalbuphine (Nubain), 503
naltrexone (ReVia), 604
narcissistic personality disorder, 594
narcotics, 17
narrow-angle glaucoma, 234
National Asthma Education and Prevention Program, 535
National Cholesterol Education Program, 70
National Council Licensure Exam, 15
National Council of State Boards of Nursing (NCSBN), 648
Native American population, 661-662
natural disasters, 635
Navajo medicine men, 661
NCSBN (National Council of State Boards of Nursing), 648
nearsightedness (myopia), 239
neck injuries, cervical-spine immobilization, 625
negative-pressure ventilators, 150
neglect of children, 580-581
negligence, 647
Neonatal Behavioral Assessment Scale, 506
neoplastic disorders, 399, 416
  associated disorders and emergencies, 426-427
  bladder cancer, 417
  bone marrow transplantation, 427-429
  breast cancer, 411-413
    arm circle exercises, 415
    hand wall-climbing exercises, 415
    pulley exercises, 414
    surgery complications, 416
  case study, 429-430
  categories, 400
  cervical cancer, 418
  colorectal cancer, 403-407
  diagnostics, 432-433
  esophageal cancer, 417
  general interventions
    chemotherapy, 423-424
    radiation therapy, 421-423
    TPN (total parenteral nutrition), 424-426
  Hodgkin’s lymphoma, 420
    key terms, 431-432
    leukemia, 419
    lung cancer, 407-409
    multiple myeloma, 419
  Non-Hodgkin’s lymphoma, 420
  ovarian cancer, 418
  pancreatic cancer, 418
  pediatrics, 563
    leukemia, 563
    neuroblastoma, 564
    retinoblastoma, 564
    rhabdomyosarcoma, 565
    sarcomas, 564-565
    survival, 565
  Wilms’ tumor, 563
  pharmacological agents, 433-439
  prevention, 402
  prostate cancer, 409-411
  renal cancer, 417
  resources, 907
  risk factors for specific cancers, 400-402
  sample exam questions, 440-445
  skin cancer, 417
  stomach cancer, 418
  warning signs of cancer, 399
nephroblastoma (Wilms’ tumor), 563
nephrostomy tubes, 178
nephrotic syndrome, 175
nerve agents, 632
nerve blocks, labor management, 503
neural tube defects, 578
neuroblastomas, 564
neurogenic shock, 88
neurohypophysis, 106
neuroleptic malignant syndrome (NMS), 599
neuroleptics, 24
neurological system disorders, 325
  assessment, 326
  cranial nerves, 326-327
  Glasgow coma scale, 327-328
  intracranial pressure monitors, 328-329
  autoimmune disorders, 354
    Guillain-Barré, 357
    MS (multiple sclerosis), 354-355
    myasthenia gravis, 355-357
  brain injuries, 329-332
    epidural hematomas, 332
    increased intracranial pressure, 332-336
    intracerebral hematomas, 332
    subdural hematomas, 332
    treatment for hematomas, 332
  brain tumors, 336-337
  case study, 366
  cranial nerve disorders, 359-360
  CVA/stroke
    hemorrhagic stroke, 344-346
    ischemic stroke, 342-344
    risk factors, 342
  degenerative disorders, 358
  diabetes insipidus, 365
  diagnostics, 368
  intervertebral disk disease, 363-364
  intracranial surgery care, 338-342
  key terms, 367-368
  meningitis, 352-354
  Parkinson's disease, 350-352
  pediatrics, 577
    CP (cerebral palsy), 577-578
    muscular dystrophies, 579
    neural tube defects, 578
    spina bifida, 578-579
  pharmacology, 369-374
  resources, 909-910
  sample exam questions, 374-378
  seizures, 347
    generalized seizures, 347-349
    partial seizures, 349-350
    status epilepticus, 350
    treatment, 350
  spinal cord injuries, 360
    complications, 362-363
    treatment, 361-362
  neuromas, 245
  neurotic disorders, 589
    DID (dissociative identity disorder), 591
    GAD (generalized anxiety disorder), 590
    OCD (obsessive-compulsive disorder), 592-593
    panic disorder, 591-592
    phobic disorders, 592
    PTSD (post-traumatic stress disorder), 590
    somatoform disorder, 591
  neurotransmitters, 589
  neutral beliefs, 657
  newborn care, 505
    APGAR scoring, 505
    blood pressure, 899
    normal heart rate, 899
    normal newborn terms, 506-507
    resources, 910
    Rh incompatibility, 507
  NG tubes, 261-262, 649
  Nipride (nitroprusside), 119
  Nissen fundoplication, 272
  nitroglycerine, 81
  nitroprusside (Nipride), 119
  Nix, 570
  NMS (neuroleptic malignant syndrome), 599
  Non-Hodgkin's lymphoma, 401, 420
  nonallergic asthma, 135
  nonbacterial prostatitis, 190
  noncardiogenic pulmonary edema, 148-149
    mechanical ventilation care, 149-151
    vent-dependent clients, 151-152
  noninfectious disorders
    cystitis, 185
    lower respiratory tract, 133
      asthma, 135-137
      chronic bronchitis, 133-134
      emphysema, 134-135
      interstitial pulmonary disease, 139-140
      occupational pulmonary disease, 140-142
      pleurisy, 137-138
      pulmonary hypertension, 138-139
  nonstress test, 487
  nonsulfonylurea agents, 116
  nonverbal communication
    Arab-Americans, 665
    Asian-Americans, 663
    Hispanic/Latino population, 660
    Native Americans/Alaskan natives, 662
  non–insulin-dependent diabetes, 114
  non–potassium-sparing diuretics, 70
  norepinephrine, 118
  normal sinus rhythm, 76
  North Atlantic Treaty Organization (NATO) color-coding system, 635
  novel antipsychotics, 598
  Nubain (nalbuphine), 503
  nuclear warfare, 634-635
  nucleoside analog reverse transcriptase inhibitors, 385
  nucleoside analogs, 278
  Nurse Practice Acts, 643, 650
nursing assistants, 648-651
nursing boards, 643, 921-933
nursing considerations
  acute mania, 600
  acute renal failure, 179
  AGN (acute glomerulonephritis), 173
  angiotensin-converting enzyme inhibitors, 20
  angiotensin receptor blockers, 30
  anti-infectives, 22
  anticoagulants, 33
  antivirals, 28
  ARDS (acute respiratory distress syndrome), 149
  autonomic hyperreflexia, 362
  bacterial meningitis, 567
  Bell's palsy, 360
  benzodiazepines, 24
  beta adrenergic blockers, 21
  bone marrow transplantation, 428-429
  bowel obstructions, 270
  bronchiolitis, 534
  burns, 215
  dressings, 220-221
  emergent phase, 216-219
  intermediate phase, 219-220
  psychological care, 215
  rehabilitative phase, 221
  C. difficile, 291
  cardiac catheterization, 84
  cardiac ischemia, 81
  cataract surgery, 233
  CGN (chronic glomerulonephritis), 174
  child abuse, 581
  cholesterol-lowering agents, 29
  cleft lip and palate repair, 540-541
  colorectal cancer, 405-407
  cystic fibrosis, 537
  cystitis, 186-187
  delayed union/healing of fractures, 456
  eating disorders, 609
  ECT (electroconvulsive therapy), 601
  endotracheal suctioning, 151-152
  eye drops, 235
  femoral popliteal bypass graft, 91-92
  gastric bleeding, 260
  GERD (gastroesophageal reflux disease), 272-274
  glucocorticoids, 27
  hearing loss, 247
  hemorrhagic stroke, 346
  hemothorax, 156-158
  herpes zoster, 207
  hip surgery, 467
  histamine 2 antagonists, 31
  HSV (herpes simplex virus), 206
  ICP monitors, 329
  imperforate anus, 543
  incontinence, 187-188
  intracranial surgery care, 338-342
  KD (Kawasaki's disease), 559-560
  kidney stones, 188
  lead poisoning, 548
  leukemia, 563
  lupus erythematosus, 465
  major depression, 601
  mastoiditis, 244
  meningitis, 354
  MI (myocardial infarction), 82-83
  myasthenia gravis, 356-357
  nephrotic syndrome, 175
  OCD (obsessive-compulsive disorder), 592
  otitis externa, 243
  otitis media, 243
  pacemakers, 79-80
  pancreatic surgery, 287
  paracentesis, 282
  Parkinson's disease, 351-352
  peritonitis, 268-269
  pharmacology, 37
  phenothiazines, 25
  post-operative breast cancer patients, 413
  pressure ulcers, 211
  proton pump inhibitors, 32
  pulmonary embolus, 154
  radiation, 422-423
  rheumatic fever, 558
  Rocky Mountain spotted fever, 571
  schizophrenia, 598
  scleral buckling, 238
  scoliosis, 576
  sickle cell anemia, 309
  stroke, 343-344
  tonic-clonic seizures, 348-349
  tonsillectomies, 530
  total knee replacement surgery, 468
  TPN (total parenteral nutrition), 425
  transphenoidal surgery, 107
  trigeminal neuralgia, 359
  vent-dependent clients, 151
nutrition notes, 902-903

obsessive-compulsive disorder (OCD), 592-593, 596
obstetric clients. See pregnancy
obstruction, bowel, 269-270
obstructive congenital heart defects, 551-552
obstructive disorders (GI system), 542
  biliary atresia, 543
  hypertrophic pyloric stenosis, 542
  imperforate anus, 543
  intussusception, 543
obstructive uropathy, 561
occupational exposure, HIV, 385
occupational pulmonary disease, 140
  asbestosis, 142
  berylliosis, 142
  pneumoconiosis, 141
silicosis, 141
talcosis, 142
OCD (obsessive-compulsive disorder), 592-593, 596
ocular melanoma, 240-241
ocular prostheses, 241
oculogyric crisis, 599
OI (osteogenesis imperfecta), 574-575
olecranon fractures, 450
olfactory nerve, 326
OMT (oral mucosal transudate) test, 381
open fractures, 448
open head injuries, 329, 627
opiates (substance abuse), 605
opportunistic infections, 380
oppositional defiant disorder, 608
ophthalmia neonatorum, 506
optic nerve, 326
Oracle test, 381
oral antibiotic suspensions, 531
oral contraceptives, 511
oral mucosal transudate (OMT) test, 381
orchietomy, 411
organ rejection (transplants), 184-185
organic ED (erectile dysfunction), 191
orientation assessment, 626
Ortolani click, 574
osmosis, 41
osmotic diuretics, 96
osteoarthritis, 458-460
osteogenesis imperfect (OI), 574-575
osteomyelitis, 455-456
osteoporosis, 457-458, 508
osteosarcoma, 564-565
otitis externa, 243
otitis media, 243, 531
otorrhea, 330
otosclerosis, 245-246
ovarian cancer, 401, 418
overflow incontinence, 187
oxygen therapy, 144
oxygen toxicity, 144
oxalate stones, 189
oxytocin (Pitocin), 106, 488

P-R interval, 75
P. aeruginosa, 537
p24 levels, 381
PAC (premature atrial contractions), 77
pacemakers, 73, 79-80
PACG (primary angle-closure glaucoma), 234
packed red blood cells (PRBCs), 315
pain assessment, 626
pain disorder, 591

pain response
Arab-Americans, 665
Asian-Americans, 664
Hispanic/Latino population, 661
Native Americans/Alaskan natives, 662
palivizumab (Synagis), 535
palm method, 214
pancreas, 537
cancer, 401, 418
diabetes mellitus, 114
diagnosis, 115-116
management, 116
signs and symptoms, 115
enzymes, 537
hyperglycemia, 116-117
hypoglycemia, 117
islets of Langerhans, 114
pancreatitis, 285-287
pancreatitis, 285-287
pantoprazole (Protonix), 32
paraeosophageal hernia (hiatal hernia), 274
paranoid personality disorder, 594
paranoid schizophrenia, 597
parasitic disorders, 544
parathyroid gland, 112
hyperparathyroidism, 113-114
hypoparathyroidism, 112-113
parathyroid hormone (PTH), 112
parenteral contamination, HIV, 380
Parkinson's disease, 350-352
Parkland formula (burn care), 217-218
Parlodel (bromocriptine mesylate), 106
Parlodel (bromocriptine), 599
paroxysmal supraventricular tachycardia (PSVT), 77
partial molar pregnancy, 495
partial seizures, 349-350
partial thromboplastin time (PTT), 83
passageway (labor influence), 488
passenger (labor influence), 488
pathogens, 379
pathological fractures, 449
Patient's Bill of Rights, 18, 645
Pavlik harness, 574
PAWP (pulmonary artery wedge pressure), 87
PCP (Pneumocystis carinii pneumonia), 143
PE (pulmonary embolus), 152-154
peak levels, 22
pediatrics, 523
abuse and neglect, 580-581
cardiovascular disorders, 549
acquired heart disease, 557-560
congenital heart defects, 550-556
cerebral disorders, 566
intracranial infections, 566-567
Reye's syndrome, 567-568
communicable diseases, 571
diagnostics, 584
emotional/behavioral disorders, 606
ADHD (attention deficit hyperactive disorder), 608
autism, 607
conduct disorder, 607
eating disorders, 608-609
oppositional defiant disorder, 608
gastrointestinal disorders, 537
motility issues, 538-540
obstructive disorders, 542-543
structural defects, 540-542
genitourinary disorders, 560-562
growth and development, 523
adolescence stage, 527-528
infancy stage, 523-524
preschooler stage, 525-526
school age stage, 527
toddler stage, 524-525
immunization schedule, 903
ingestion of hazardous substances, 547
acetaminophen overdose, 547
hydrocarbons/corrosives, 548-549
iron overdose, 548
lead poisoning, 547-548
salicylate overdose, 547
 integumentary disorders, 568
eczema, 568-569
head lice, 569-570
Lyme disease, 570
Rocky Mountain spotted fever, 570-571
scabies, 569
key terms, 583
malabsorptive/metabolic disorders, 545-546
celiac, 545
galactosemia, 546
PKU (Phenylketonuria), 545-546
musculoskeletal disorders, 573
congenital clubfoot, 573
DHD (developmental hip dysplasia), 573-574
JRA (juvenile rheumatoid arthritis), 576-577
Legg-Calvé-Perthes disease, 575
OI (osteogenesis imperfecta), 574-575
scoliosis, 576
neoplastic disorders, 563
leukemia, 563
neuroblastoma, 564
retinoblastoma, 564
rhabdomyosarcoma, 565
sarcomas, 564-565
survival, 565
Wilms’ tumor, 563
neuromuscular disorders, 577
CP (cerebral palsy), 577-578
muscular dystrophies, 579
neural tube defects, 578
spina bifida, 578-579
newborn care, 505
APGAR scoring, 505
normal newborn terms, 506-507
Rh incompatibility, 507
parasitic/inflammatory disorders, 544
pharmacological agents, 584
resources, 910
respiratory disorders, 528
long-term, 533-537
lower airway infections, 533-534
upper airway infections, 529-533
sample exam questions, 585-587
signs of depression, 602
pediculicides, 570
Pediculus capitis (head lice), 569-570
pelvic fractures, 450
pelvic inflammatory disease (PID), 508
penetrating injuries (traumatic eye injury), 240
peptic ulcer disease, 258
diagnosis, 259
treatment, 260-261
types of ulcers, 259
percutaneous nephrostomy tubes, 178
percutaneous transluminal coronary angioplasty (PTCA), 85
pericarditis, 90-91
perinatal exposure to HIV, 380
perineal care (postpartum), 504
perineal prostatectomy, 191
peripheral cell transplantation, 427-429
peripheral vascular disease (PVD), 91-92
peritoneal dialysis, 181
penicillin, 268-269
pernicious anemia, 304
Persantine, 84
personality disorders, 593
Cluster A disorders, 593
paranoid personality, 594
schizoid personality, 594
schizotypal personality, 594
Cluster B disorders, 594
antisocial personality, 595
borderline personality, 595
histrionic personality, 594
narcissistic personality, 594
Cluster C disorders, 595
avoidant personality, 595
dependent personality, 595
obsessive-compulsive personality, 596
management, 596
pervasive developmental delay, 607
petit mal seizures, 349
PFTs (pulmonary function tests), 408
PG (Phosphatidylglycerol) test, 487
pH regulation (acid/base imbalance), 52
metabolic acidosis, 53-55
metabolic alkalosis, 56-57
pregnancy

respiratory acidosis, 55-56
respiratory alkalosis, 57-58
phacoemulsion, 233
phantom limb pain, 469
pharmacodynamics, 15
pharmacokinetics, 15
pharmacology. See medications
pharmacotherapeutics, 15
Phenergan (promethazine), 15, 24, 503
phenothiazines, 24-25
phenoxybenzamine hydrochloride (Dibenzyline), 119
Phenylketonuria (PKU), 545-546
phenylpropanolamine, 342
Pheochromocytoma, 119
phobic disorders, 592
Phoslo (calcium acetate), 113
Phosphatidylglycerol (PG) test, 487
phosphorus, 50-51
photorefractive keratotomy (PRK), 239
physical growth and development
infancy stage, 524
preschooler stage, 526
school age stage, 527
toddler stage, 525
physiologic jaundice, 507
PICC lines, 425
PID (pelvic inflammatory disease), 508
pilocarpine iontophoresis, 536
Pin-Rid (pyrantel), 544
Pin-X (pyrantel), 544
pinworms (Enterobiasis), 544
Pitocin (oxytocin), 536
pituitary adenomas, 337
pituitary gland, 106
diabetes insipidus, 107-108
hyperpituitarism, 106-107
hypopituitarism, 106
SIADH, 108
PKD (polycystic kidney disease), 176-177
PKU (Phenylketonuria), 545-546
placenta previa, 497
plague, 633
plasmapheresis, 357
platelets, 315
pleurisy, 137-138
plumbism, 536-548
plutonium, 634
pneumatic retinopexy, 238
pneumoconiosis, 141
Pneumocystis carinii pneumonia (PCP), 143, 381, 386
pneumonecromies, 408
pneumonia, 142-143
chest physiotherapy, 144-145
oxygen therapy, 144
pneumothroax, 154-155
POAG (primary open-angle glaucoma), 234
Poison Prevention Packaging Act of 1970, 547
poisoning (emergency care), 630-631
polycystic kidney disease (PKD), 176-177
polycythemia vera disorder, 312-313
polydipsia, 115
polymerase chain reaction, 390
polymigratory arthritis, 558
polyphagia, 115
polyuria, 115
porcine valve, 90
position (labor influence), 489
positional clubfoot, 573
positive signs of pregnancy, 484
positive symptoms
positive-pressure ventilators, 150
post-term labor and birth, 499
post-traumatic stress disorder (PTSD), 590
postpartum period, 348
posterior pituitary, 106
diabetes insipidus, 107-108
SIADH, 108
posterior uveitis, 236
postmenopausal period, 508
postpartum care, 492-493, 504-505
postrenal ARF, 179
potassium, 45-46
potassium hydroxide (KOH) test, 208
potassium-sparing diuretics, 70, 96
powers (labor influence), 489
PRBCs (packed red blood cells), 315
precipitate delivery, 490, 500
Prednisone (prednisolone), 120
preeclampsia, 494-495
pregnancy
case study, 512-513
complications, 490
abruptions, 496-497
abruptio placenta, 497-498
assisted birth, 501
cardiac disease during pregnancy, 490-493
cesarean birth, 500-501
diabetes in pregnancy, 493
ectopic pregnancy, 495
fetal malpresentation, 499
hydatidiform mole, 495-496
incompetent cervix, 496
placenta previa, 497
post-term labor and birth, 499
precipitate delivery, 500
preeclampsia, 494-495
premature labor, 498-499
umbilical cord prolapse, 500
diagnostics, 515-516
drugs to avoid, 35
fetal monitoring, 501-503
intrapartal care, 488-489
key terms, 514-515
labor, 900
maternal infections, 508-510
pharmacologic management, 503-504, 516-517
postpartum care, 504-505
prenatal care, 483
diet and weight maintenance, 484-485
fetal heart tones, 486
fundal height measurement, 486
prelabor testing, 486-488
signs of pregnancy, 483-484
resources, 910
sample exam questions, 517-521
terms, 489-490
Prehn's sign, 193
prelabor testing, 486-488
preload, 86
premature atrial contractions (PAC), 77
premature labor, 498-499
premature rupture of membranes (PROM), 498
premature ventricular contractions (PVCs), 78
prenatal care, 483
diet and weight maintenance, 484-485
fetal heart tones, 486
fundal height measurement, 486
prelabor testing, 486-488
signs of pregnancy, 483-484
prerenal ARF, 179
presbycusis, 246
presbyopia, 239
preschooler stage (growth and development), 525-526
presentation (fetus), 489
pressure ulcers, 209-211
presumptive signs of pregnancy, 483-484
prevention
- cancer, 402
- compartment syndrome, 454
- contractures, 469
- Hepatitis A, 276
- Hepatitis B, 277-278
- HIV, 383-385
- pressure ulcers, 211
- pulmonary embolus, 152-153
priapism, 193-194
primary aldosteronism (Conn's Syndrome), 119
primary angle-closure glaucoma (PACG), 234
primary brain injuries, 627
primary Cushing's syndrome, 120
primary hypertension, 68
primary hypothyroidism, 108
primary open-angle glaucoma (POAG), 234
primary progressive multiple sclerosis, 354
PRK (photorefractive keratotomy), 239
probable signs of pregnancy, 484
prochlorperazine (Compazine), 24
proctosigmoidoscopy, 404
prodomal stage (hepatitis), 280
projection (defense mechanism), 902
prolactin, 106
prolactinomas, 106
proliferation of cells. See cancer
proliferative diabetic retinopathy, 236
PROM (premature rupture of membranes), 498
Promethazine (Phenergan), 15, 24, 503
prophylactic mastectomies, 412
Propranolol (Inderal), 111
Propylthiouracil (PTU), 111
prostate cancer, 401, 409-411
prostatitis, 190
prostheses, 241
protamine sulfate, 900
protease inhibitors, 385
protection of forensic evidence, 629-630
Protestants, 667
prothrombin time (PT), 83
proton pump inhibitors, 31-32
Protonix (pantoprazole), 32
protozoal infections, 386
psoriasis, 208-209
PSVT (paroxysmal supraventricular tachycardia), 77
psychiatric disorders, 589
- anxiety-related disorders, 589
  - DID (dissociative identity disorder), 591
  - GAD (generalized anxiety disorder), 590
  - OCD (obsessive-compulsive disorder), 592-593
  - panic disorder, 591-592
  - phobic disorders, 592
  - PTSD (post-traumatic stress disorder), 590
  - somatoform disorder, 591
- case study, 609-610
  - children and adolescence, 606
    - ADHD (attention deficit hyperactive disorder), 608
    - autism, 607
    - conduct disorder, 607
    - eating disorders, 608-609
    - oppositional defiant disorder, 608
- diagnostics, 612
- key terms, 611
- personality disorders, 593
  - Cluster A disorders, 593-594
  - Cluster B disorders, 594-595
  - Cluster C disorders, 595-596
  - management, 596
- psychotic disorders, 597
  - bipolar disorders, 599-602
  - schizophrenia, 597-599
- psychotropic medications, 612-617
- resources, 910
- sample exam questions, 618-621
renal transplantation

substance abuse
alcoholism, 602-604
chemical dependence, 604-606

psychological response (labor influence), 489
psychotic disorders, 597
bipolar disorders, 599
acute mania, 600
major depression, 600-602
schizophrenia, 597-599

psychototropic medications, 612-617

PT (prothrombin time), 83
PTCA (percutaneous transluminal coronary angioplasty), 85
PTH (parathyroid hormone), 112
PTSD (post-traumatic stress disorder), 590
PTT (partial thromboplastin time), 83
PTU (Propylthiouracil), 111

pudendal blocks (nerve blocks), 503
pulley exercises, 414
pulmonary artery wedge pressure (PAWP), 87
pulmonary blood flow defects (congenital heart defects), 552-556
pulmonary disorders. See respiratory disorders
pulmonary embolus (PE), 152-154
pulmonary fibrosis, 140
pulmonary function tests (PFTs), 408
pulmonary hypertension, 138-139
pulmonary intoxicants, 632
Pulmozyme (dornase alpha), 537
Purkinje fibers, 72
PVCs (premature ventricular contractions), 78
PVD (peripheral vascular disease), 91-92
pyelograms, 186
pyelonephritis, 178
pyloricstenosis, 542
pylorotomy, 542
pyloroplasty, 260
pyrantel (Pin-X, Pin-Rid), 544

Q
Q fever, 633
QRS complex, 75
questions. See sample exam questions

R
RA (rheumatoid arthritis), 462-464
raccoon eyes, 330
radial keratotomy (RK), 239
radiation therapy, 421-422
as general intervention for cancer, 421
implants, 423
injuries, 212, 634-635
nursing considerations, 423
ocular melanoma, 241
prostate cancer, 410
side effects, 422
radical mastectomy, 412
radical prostatectomy, 410
radioactive iodine, hyperthyroidism, 111
radioimmunoprecipitation assay (RIPA), 381
radiotherapy, 107
Ramadan, 664
rape trauma kit, 630
rationalization (defense mechanism), 902
Raynaud's phenomenon, 92
reaction formation (defense mechanism), 902
reading electrocardiograms, 75-76
rebound tenderness, 267
rebound vasodilation, 235
Recombivax HB, 277
recovery stage (acute renal failure), 179
redness, edema, ecchymosis, discharge, and approximation of thewound (REEDA) assessment, 504
reduced renal reserve stage (chronic renal failure), 180
REEDA (redness, edema, ecchymosis, discharge, and approximation of the wound) assessment, 504
reflux, 270
refractive errors (eye disorders), 232, 239-240
refusal of treatment 18, 667
regression (defense mechanism), 902
Regular insulin, 116

regulation
calcium, 48
electrolytes, 44-45
hormones, 105
pH, 52-58
regulatory laws, 644

rehabilitation
burn care, 221
cardiac, 86
rejection, organs, 184-185
religious beliefs, 667
Remicade (infliximab), 264
remissions, multiple sclerosis, 354
renal biopsy, 174
renal disorders. 172
AGN (acute glomerulonephritis), 172-173
ARF (acute renal failure), 179-180
cancer, 401, 417, 563
CGN (chronic glomerulonephritis), 173-174
CRF (chronic renal failure), 180-181
Goodpasture's syndrome, 174
hydronephrosis/hydroureronephrosis, 177-178
nephrotic syndrome, 175
PKD (polycystic kidney disease), 176-177
pyelonephritis, 178
renal failure stage (chronic renal failure), 180
renal insufficiency stage (chronic renal failure), 180
renal transplantation, 184-185
resources, 905
sample exam questions, 166-168
respiratory rate, 899
respiratory syncytial virus (RSV), 534
restraints, 649
resuscitation, cardiopulmonary, 80
retinal detachment, 237-238
retinal eye disorders, 232
age-related macular degeneration, 237
diabetic retinopathy, 236
hypertensive retinopathy, 236
retinal detachment, 237-238
retinitis pigmentosa, 237
retinoblastomas, 564
retrograde pyelograms, 186
retropubic prostatectomy, 191
Rett’s disorder, 607
ReVia (naltrexone), 604
Reye’s syndrome, 567-568
Rh incompatibility, 507
rhabdomyolysis, 29
rhabdomyosarcomas, 565
rheumatic fever, 557-558
rheumatoid arthritis (RA), 462-464
rhinorrhoea, 330
RhOGAM, 507
Rhythm method (birth control), 511
ribavirin (Virazole), 534
ribonucleotide reductase inhibitors, 386
Ricin, 633
rickettsia, 570-571
rights, medication administration, 18
Rinne test, 245
riot control agents, 632
RIPA (radioimmunoprecipitation assay), 381
risk factors
asthma, 536
cardiac ischemia, 80
CHD (congenital heart defects), 550
Hepatitis C, 278
Legionnaires’ disease, 159
MI (myocardial infarction), 81
osteoarthritis, 458
osteoporosis, 457
Parkinson’s disease, 350
pulmonary embolus, 153
specific cancers, 400-402
stroke, 342
RK (radial keratotomy), 239
Rocky Mountain spotted fever, 570-571
roseola, 572
Rovsing’s sign, 267
RSV (respiratory syncytial virus), 534
Rubella virus, 485
S

S. pneumoniae, 531

SA (sinoatrial) node, 72
SA (sustained action) drugs, 17
saccular aneurysms, 89
Safe Effective Care, 648
safety
  drug schedules, 35
  pregnancy categories, 35
  standard precautions, 900-901
salicylate overdose, 547
Salmonella, 292
Salmonella septicemia, 381
sample exam questions
  calculations, 914
  cardiovascular disorders, 101-104
  cultural practices, 669-672
  emergency care, 638-641
  endocrine system disorders, 128-131
  GI (gastrointestinal) system, 298-301
  homeostasis, 62-65
  immune system disorders, 394-397
  integumentary system disorders, 226-229
  legal issues, 653-656
  musculoskeletal system disorders, 479-482
  neoplastic disorders, 440-445
  neurological system disorders, 374-378
  pediatrics, 585-587
  pharmacology, 37-40
  pregnancy, 517-521
  psychiatric disorders, 618-621
  respiratory disorders, 166-168
  sensory system disorders, 253-256
saphenous veins, 85
sarcoidosis, 139-140
sarcomas, 400, 564-565
SARS (severe acute respiratory syndrome), 158-159
SBE (self breast exams), 412
scabicides, 569
scabies, 569
scans
  Cardiolite, 84
  CT (computer tomography), 69
  Meckel's, 544
  thyroid, 111
scheduled toileting, 188
schedules, drug schedules, 35
schizoid personality disorder, 594
schizophrenia, 597-599
schizotypal personality disorder, 594
school age stage (growth and development), 527
Schwartz-Barter syndrome, 108
scleral buckling, 238
sclerotherapy, 282
scoliosis, 576
sealed radiation, 422
second-degree burns, 213
second-degree heart block, 73
secondary brain injuries, 627
secondary Cushing's syndrome, 120
secondary glaucoma, 234
secondary hypertension, 68
secondary hypothyroidism, 108
secondary progressive multiple sclerosis, 354
secondary sex characteristics, 106
sedative-hypnotics, 604-605
sedatives, 23-24, 503
segmental resection, 404
seizures, 347
  generalized seizures, 347-349
  partial seizures, 349-350
  status epilepticus, 350
  treatment, 350
selective serotonin reuptake inhibitors (SSRIs), 601
self breast exams (SBE), 412
self-catheterization, 188
sella turcica, 106
Sengstaken-Blakemore tube, 282
sensorineural hearing loss, 246
sensory system disorders, 231
  case study, 248-249
  diagnostics, 251
  ear disorders, 242
    acoustic neuroma, 245
    hearing loss, 247
    mastoiditis, 244
    Ménière's disease, 244-245
    otitis externa, 243
    otitis media, 243
    otosclerosis, 245-246
    presbycusis, 246
    traumatic injuries, 246
  eye disorders, 231
    intraocular disorders, 232-235
    ocular melanoma, 240-241
    refractive errors, 239-240
    retinal disorders, 236-238
    traumatic injuries, 240
    uveitis, 235-236
  key terms, 250
  pharmacological agents, 251-252
  resources, 907
  sample exam questions, 253-256
sentinel node biopsies, 412
septic abortions, 497
sequestration crisis (sickle cell anemia), 307
serotonin syndrome, 601
serum osmolarity, 47
set pacemakers, 73
settings (ventilators), 150-151
seven rights, medication administration, 18
severe acute respiratory syndrome (SARS), 158-159
sexual assault, forensic evidence collection, 630
sexually transmitted infections, 206, 380, 508
shaken baby syndrome, 580
shaman, 661
shingles (Herpes zoster), 206-207
Shinto religion, 663
Shirodkar’s cerclage, 496
shock, 88
SIADH (Syndrome of Inappropriate Antidiuretic Hormone), 108
sickle cell anemia, 305-309
sickle cell trait, 306
sickle cell-C disease, 306
sickled cells, 305
side effects
angiotensin-converting enzyme inhibitors, 20
angiotension receptor blockers, 30
anti-infectives, 22
anticoagulants, 32
antipsychotic medications
antivirals, 27
benzodiazeepines, 23
beta adrenergic blockers, 21
chemotherapy, 423-424
cholesterol-lowering agents, 29
EPSE (extrapyramidal side effects), 599
glucocorticoids, 26
histamine 2 antagonists, 31
phenothiazines, 25
proton pump inhibitors, 32
radiation therapy, 422
signs and symptoms. See symptoms
signs of pregnancy, 483-484
Sikhism, 663, 667
silicosis, 141
simple fractures, 448
simple partial seizures, 349
sinoatrial (SA) node, 72
sinus bradycardia, 77
sinus tachycardia, 76
skeletal bones, 447
skeletal traction, 451
skills (nursing)
24-hour urine collection, 173
administering eye drops, 235
blood transfusions, 316
endotracheal suctioning, 151-152
insertion of NG tubes, 261-262
installation of ear drops, 244
skin
cancer, 401, 417
functions, 205
traction, 451
SLE (systemic lupus erythematosus), 464-465
sliding hernia (hiatal hernia), 274
Slow Mag, 498
smallpox, 633
snake bites, 631
social phobia, 592
socialization
infancy stage, 524
preschooler stage, 526
school age stage, 527
toddler stage, 525
sodium, 46
sodium warfarin, 899
soluble solution of potassium iodine (SSKI), 111
solutions, intravenous fluid replacement, 43-44
somatoform disorder, 591
Something the Lord Made, 556
Somogyi effect, 117
sources
burns, 212
lead poisoning, 547
southern belle syndrome, 594
spansules, 17
spasmodic croup, 533
specific phobia, 592
specimen collection, 649
spina bifida, 578-579
spinal accessory nerve, 326
spinal blocks, labor management, 504
spinal cord injuries, 360
complications, 362-363
treatment, 361-362
spinal headaches, 504
spinal shock, 362
Spironolactone (Aldactone), 119, 121
splitting dissociation, 595
spontaneous pneumothorax, 154
SR (sustained release) drugs, 17
SSKI (soluble solution of potassium iodine), 111
SSRIs (selective serotonin reuptake inhibitors), 601
St. John’s Wort, 34
Stadol (Butorphanol), 503
stages
hepatitis, 280
labor, 489
pressure ulcers, 211
stairs (crutch walking), 470
standard precautions, 900
airborne, 901
contact, 901
droplets, 901
HIV prevention, 383-384
standards of practice, 646
assault and battery, 648
case study, 651
fraud, 648
key terms, 652
malpractice, 647
management/delegation of care, 648-651
negligence, 647
sample exam questions, 653-656
torts, 647
witnessing consent, 647
stapedectomy, 245
stapes, 245
Staphylococcal illness, 292, 633
state boards of nursing, 643
station (fetal), 490
status asthmaticus, 536
status epilepticus (seizures), 350
statutory laws, 644
stents, 85
stereotactic radiation, 107
stereotactic surgery, 351
sterilization, 512
stimulants, 605
stimulators, bone, 456
stings (poisons), 631
stomach cancer, 2, 404-405
Streptokinase, 154
stress
defense mechanisms, 902
incontinence, 187
test, 83-84
Stretta, 272
stroke
hemorrhagic stroke, 344-346
ischemic stroke, 342-344
risk factors, 342
sickle cell anemia, 308
structural defects (GI system), 540
cleft lip/palate, 540-541
EA (esophageal atresia), 541
TEF (tracheoesophageal fistula), 541
structural scoliosis, 576
subacute subdural hematomas, 332
subarachnoid anesthesis (nerve blocks), 503
subcutaneous nodules, 558
subdural hematomas, 332
sublimation (defense mechanism), 902
substance abuse, 602
alcoholism, 602-604
chemical dependence
cannabis, 606
hallucinogens, 606
opiates, 605
sedative-hypnotics, 604-605
stimulants, 605
suicidal ideation assessment, 601
sulfanylurea agents, 116
superficial partial thickness burns, 213
suppression (defense mechanism), 902
suppressor cells, 380
suprapubic prostatectomy, 191
supraventricular rhythms, 76-77
surgical interventions/repairs
acoustic neuroma, 245
appendicitis, 267-268
ASD (atrial septic defect), 554
biliary atresia, 543
BPH (benign prostatic hypertrophy) management, 190-191
brain tumors, 337-342
breast cancer, 416
CABG (coronary artery bypass graft), 85-86
cataracts, 233
cesarean birth, 500-501
cleft lip and palate, 540
clubfoot, 573
COA (coarctation of the aorta), 552
colorectal cancer, 404-405
diverticulitis management, 266
esophageal atresia, 542
Ewing's sarcoma, 565
extrophy of the bladder, 562
femoral popliteal bypass graft, 91-92
gallstones, 290
gastric bypass, 262
as general intervention for cancer, 421
GERD (gastroesophageal reflux disease), 272-274, 540
Hirschsprung's disease, 539
hypospadias, 561-562
inflammatory bowel disease, 264-265
lung cancer, 408
Meckel's diverticulum, 544
Ménière's disease, 245
musculoskeletal system, 466
amputations, 468-470
assistive devices for ambulation, 470-472
hip fractures/replacements, 466-467
total knee replacement, 467-468
myasthenia gravis, 356
osteoarthritis, 460
otosclerosis, 245-246
pancreatitis, 287
Parkinson's disease, 351
prostate cancer, 409-410
pyloric stenosis, 542
refractive errors, 239-240
renal transplantation, 184-185
retinal detachment, 238
scoliosis, 576
spina bifida, 578-579
<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGA (transposition of the great arteries)</td>
<td>556</td>
</tr>
<tr>
<td>TOF (Tetralogy of Fallot)</td>
<td>556</td>
</tr>
<tr>
<td>Tonsilitis</td>
<td>529-530</td>
</tr>
<tr>
<td>Transsphenoidal</td>
<td>107</td>
</tr>
<tr>
<td>Trigeminal neuralgia</td>
<td>359</td>
</tr>
<tr>
<td>Ulcer management</td>
<td>260-261</td>
</tr>
<tr>
<td>VSD (ventricular septal defect)</td>
<td>553</td>
</tr>
<tr>
<td>Sustained action (SA) drugs</td>
<td>17</td>
</tr>
<tr>
<td>Sustained release (SR) drugs</td>
<td>17</td>
</tr>
<tr>
<td>Swan-Ganz catheters</td>
<td>86</td>
</tr>
<tr>
<td>Sweat test</td>
<td>536</td>
</tr>
<tr>
<td>Swimmer's ear</td>
<td>243</td>
</tr>
<tr>
<td>Swing through gait (crutch walking)</td>
<td>470</td>
</tr>
<tr>
<td>Sympathectomy</td>
<td>91</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
</tr>
<tr>
<td>Abuse</td>
<td>580-581</td>
</tr>
<tr>
<td>Acoustic neuroma</td>
<td>245</td>
</tr>
<tr>
<td>Acute glaucoma</td>
<td>234</td>
</tr>
<tr>
<td>Acute mania</td>
<td>600</td>
</tr>
<tr>
<td>Acute pyelonephritis</td>
<td>178</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>179</td>
</tr>
<tr>
<td>Addison's disease</td>
<td>119</td>
</tr>
<tr>
<td>AGN (acute glomerulonephritis)</td>
<td>172</td>
</tr>
<tr>
<td>Anemia</td>
<td>303</td>
</tr>
<tr>
<td>Ankylosing spondylitis</td>
<td>460</td>
</tr>
<tr>
<td>AOM (acute otitis media)</td>
<td>531</td>
</tr>
<tr>
<td>Aplastic anemia</td>
<td>304-305</td>
</tr>
<tr>
<td>Appendicitis</td>
<td>266</td>
</tr>
<tr>
<td>ARDS (acute respiratory distress syndrome)</td>
<td>148</td>
</tr>
<tr>
<td>Arteriosclerosis/atherosclerosis</td>
<td>72</td>
</tr>
<tr>
<td>Asbestosis</td>
<td>142</td>
</tr>
<tr>
<td>ASD (atrial septal defect)</td>
<td>553</td>
</tr>
<tr>
<td>Asthma</td>
<td>135, 335</td>
</tr>
<tr>
<td>Autonomic hyperreflexia</td>
<td>362</td>
</tr>
<tr>
<td>Bacterial endocarditis</td>
<td>90, 558</td>
</tr>
<tr>
<td>Bacterial meningitis</td>
<td>567</td>
</tr>
<tr>
<td>Basilar skull fractures</td>
<td>330</td>
</tr>
<tr>
<td>Bell's palsy</td>
<td>360</td>
</tr>
<tr>
<td>Biliary atresia</td>
<td>543</td>
</tr>
<tr>
<td>Bowel obstructions</td>
<td>269</td>
</tr>
<tr>
<td>BPH (benign prostatic hypertrophy)</td>
<td>190</td>
</tr>
<tr>
<td>Brain tumors</td>
<td>337</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>412</td>
</tr>
<tr>
<td>Bronchiolitis</td>
<td>534</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>534</td>
</tr>
<tr>
<td>Buerger's disease</td>
<td>92</td>
</tr>
<tr>
<td>C. difficile</td>
<td>290</td>
</tr>
<tr>
<td>Cardiac disease in pregnancy</td>
<td>491</td>
</tr>
<tr>
<td>Cardiogenic shock</td>
<td>88</td>
</tr>
<tr>
<td>Cataracts</td>
<td>232</td>
</tr>
<tr>
<td>Celiac</td>
<td>545</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>208</td>
</tr>
<tr>
<td>CGN (chronic glomerulonephritis)</td>
<td>173</td>
</tr>
<tr>
<td>Cholecystitis/cholelithiasis</td>
<td>288</td>
</tr>
<tr>
<td>Chrohn's disease</td>
<td>263</td>
</tr>
<tr>
<td>Chronic bronchitis</td>
<td>134</td>
</tr>
<tr>
<td>Chronic pyelonephritis</td>
<td>178</td>
</tr>
<tr>
<td>Cirrhosis</td>
<td>283-284</td>
</tr>
<tr>
<td>COA (coarctation of the aorta)</td>
<td>552</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>403</td>
</tr>
<tr>
<td>Communicable diseases</td>
<td>571-572</td>
</tr>
<tr>
<td>Compartment syndrome</td>
<td>454-455</td>
</tr>
<tr>
<td>Congenital heart defects</td>
<td>550</td>
</tr>
<tr>
<td>Conn's syndrome</td>
<td>119</td>
</tr>
<tr>
<td>CP (cerebral palsy)</td>
<td>577</td>
</tr>
<tr>
<td>Cretinism</td>
<td>110</td>
</tr>
<tr>
<td>CRF (chronic renal failure)</td>
<td>180</td>
</tr>
<tr>
<td>Cushing's Disease</td>
<td>120</td>
</tr>
<tr>
<td>Cushing's syndrome</td>
<td>26</td>
</tr>
<tr>
<td>Cystic fibrosis</td>
<td>536</td>
</tr>
<tr>
<td>Cystitis</td>
<td>186</td>
</tr>
<tr>
<td>DHD (developmental hip dysplasia)</td>
<td>574</td>
</tr>
<tr>
<td>Diabetes insipidus</td>
<td>365</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>115</td>
</tr>
<tr>
<td>Disequilibrium syndrome</td>
<td>182</td>
</tr>
<tr>
<td>Diverticulitis</td>
<td>265</td>
</tr>
<tr>
<td>Dumping syndrome</td>
<td>262</td>
</tr>
<tr>
<td>EA (esophageal atresia)</td>
<td>541</td>
</tr>
<tr>
<td>Eczema</td>
<td>568</td>
</tr>
<tr>
<td>Emphysema</td>
<td>134</td>
</tr>
<tr>
<td>Encephalitis</td>
<td>566</td>
</tr>
<tr>
<td>Encephalopathy</td>
<td>283</td>
</tr>
<tr>
<td>Epididymitis</td>
<td>193</td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td>460</td>
</tr>
<tr>
<td>Fractures</td>
<td>449</td>
</tr>
<tr>
<td>Galactosemia</td>
<td>546</td>
</tr>
<tr>
<td>GERD (gastroesophageal reflux disease)</td>
<td>270-271, 539</td>
</tr>
<tr>
<td>Goodpasture's syndrome</td>
<td>174</td>
</tr>
<tr>
<td>Gout</td>
<td>461</td>
</tr>
<tr>
<td>Guillain-Barré</td>
<td>357</td>
</tr>
<tr>
<td>Head lice</td>
<td>569</td>
</tr>
<tr>
<td>Hemophilia</td>
<td>314-315</td>
</tr>
<tr>
<td>Hemorrhagic stroke</td>
<td>344</td>
</tr>
<tr>
<td>Hemothorax</td>
<td>156</td>
</tr>
<tr>
<td>Herniated disks</td>
<td>363</td>
</tr>
<tr>
<td>Hiatal hernia</td>
<td>274</td>
</tr>
<tr>
<td>Hirschsprung's disease</td>
<td>539</td>
</tr>
<tr>
<td>Hydatidiform mole</td>
<td>496</td>
</tr>
<tr>
<td>Hydronephrosis/hydroureteronephrosis</td>
<td>177</td>
</tr>
<tr>
<td>Hypercalcemia</td>
<td>48</td>
</tr>
<tr>
<td>Hypercholesterolemia</td>
<td>48</td>
</tr>
<tr>
<td>Hyperglycemia</td>
<td>116</td>
</tr>
<tr>
<td>Hyperkalemia</td>
<td>46</td>
</tr>
<tr>
<td>Hypermagnesemia</td>
<td>51</td>
</tr>
<tr>
<td>Hypernatremia</td>
<td>46</td>
</tr>
<tr>
<td>Hyperparathyroidism</td>
<td>113</td>
</tr>
<tr>
<td>Hyperphosphatemia</td>
<td>51</td>
</tr>
<tr>
<td>Hyperthyroidism</td>
<td>111</td>
</tr>
<tr>
<td>Hypocalcemia</td>
<td>48</td>
</tr>
<tr>
<td>Hypochloremia</td>
<td>48</td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td>117</td>
</tr>
<tr>
<td>Hypokalemia</td>
<td>45</td>
</tr>
<tr>
<td>Hypomagnesemia</td>
<td>51</td>
</tr>
<tr>
<td>Hyponatremia</td>
<td>46</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>109</td>
</tr>
</tbody>
</table>
IBS (irritable bowel syndrome), 262
imperforate anus, 543
increased intracranial pressure, 333-335
influenza, 147
ingestion of hydrocarbon/corrosives, 548-549
interstitial pulmonary disease, 139
intra-abdominal bleeding, 629
intussusception, 543
iron deficiency anemia, 310
iron overdose, 548
JAR (juvenile rheumatoid arthritis), 576
KD (Kawasaki's disease), 559
kidney stones, 188
lead poisoning, 547
Legg-Calvé-Perthes disease, 575
Legionnaires' disease, 159
leukemia, 563
lung cancer, 407
lung stones, 544
Ménière's disease, 244
malignant hypertension, 138
mixed congenital defects, 556
multiple sclerosis, 354
nephrotic syndrome, 175
neuroblastoma, 564
obstructive uropathy, 561
ocular melanoma, 240
O1 (osteogenesis imperfecta), 574
osteoarthritis, 458-459
osteomyelitis, 455
osteoporosis, 457
otitis externa, 243
otitis media, 243
otosclerosis, 245
pancreatitis, 286
Parkinson's disease, 351
pericarditis, 90
peritonitis, 268
pernicious anemia, 304
PID (pelvic inflammatory disease), 508
pinworms, 544
pituitary tumors, 106
PKD (polycystic kidney disease), 176
PKU (phenylketonuria), 545
pleurisy, 137
pneumococcal pneumonia, 141
pneumonia, 143
pneumothorax, 155
POAG (primary open-angle glaucoma), 234
polycythemia vera, 312
prostate cancer, 409
prostatitis, 190
PTSD (post traumatic stress disorder), 590
pulmonary embolus, 153
pulmonary fibrosis, 140
pulmonary hypertension, 138
PVD (peripheral vascular disease), 91
RA (rheumatoid arthritis), 463
respiratory acidosis, 55
respiratory alkalosis, 57-58
retinal detachment, 237
retinoblastoma, 564
Reye's syndrome, 568
rhabdomyosarcoma, 565
rheumatic fever, 557-558
Rocky Mountain spotted fever, 570
salicylate overdose, 547
sarcoidosis, 140
SARS (severe acute respiratory syndrome), 158
scabies, 569
SIADH, 108
sickle cell anemia, 306-307
silicosis, 141
spasmodic croup, 533
spinal cord injuries, 360
spinal shock, 362
substance abuse, 602
TB (tuberculosis), 146
TEF (tracheoesophageal fistula), 541
TGA (transposition of the great arteries), 556
thalassemia, 311
thrombophlebitis, 92
TOF (Tetralogy of Fallot), 555
tonic-clonic seizures, 347
tonsillitis, 529
tracheitis, 533
trigeminal neuralgia, 359
ulcerative colitis, 264
VSD (ventricular septal defect), 553
withdrawal from alcohol, 602-603

Synagis (palivizumab), 535
synchronized intermittent mandatory controlled ventilators, 150
Syndenham's chorea, rheumatic fever, 558
Syndrome of Inappropriate Antidiuretic Hormone (SIADH), 108
syngeneic transplant, 428
synthetic thyroid hormone, 110
Synthroid (levothyroxine sodium), 110
Syntocinon, 492
syphilis, 485, 509
systemic lupus erythematosus (SLE), 464-465
systemic therapy, psoriasis, 209
systems
  cardiovascular, 67
  aneurysms, 89
  angina pectoris, 80-81
Buerger’s disease, 92
CAD (Coronary Artery Disease), 71-72
cardiac dysrhythmias, 76-80
cardiac monitoring, 74-76
cardiopulmonary resuscitation, 80
case study, 93
conduction system, 72-74
diagnostics, 95
hypertension, 68-71
inflammatory diseases, 90-92
key terms, 94-95
MI (myocardial infarction), 81-88
pharmacological agents, 96-98, 100
Raynaud’s phenomenon, 92
sample exam questions, 101-104
varicose veins/thrombophlebitis, 92
endocrine, 105
adrenal gland, 118-121
diagnostics, 124
glands, 105
key terms, 123-124
pancreas, 114-117
parathyroid gland, 112-114
pharmacologic agents for treatment, 124-128
pituitary gland, 106-108
resources, 909
sample exam questions, 128-131
thyroid gland, 108-112
genitourinary, 171
ARF (acute renal failure), 179-180
BPH (benign prostatic hypertrophy), 190-191
case study, 194
CRF (chronic renal failure), 180-185
diagnostics, 195-196
ED (erectile dysfunction), 191-192
epididymitis, 193
key terms, 195
pharmacological agents, 196-200
priapism, 193-194
prostatitis, 190
renal disorders, 172-178
resources, 906
sample exam questions, 200-203
urinary disorders, 185-189
GI (gastrointestinal), 257-258
appendicitis, 266-268
case study, 292-293
cholecystitis/cholelithiasis, 287-290
Clostridium difficile, 290-291
diagnostics, 295
diverticular disease, 265-266
esophageal disorders, 270-274
food-borne illnesses, 291-292
hemorrhoids, 266
inflammatory bowel disorders, 263-265
intestinal obstruction, 269-270
key terms, 294-295
liver diseases, 275-285
pancreatitis, 285-287
peptic ulcer disease, 258-261
peritonitis, 268-269
pharmacological agents, 295-297
resources, 908
sample exam questions, 298-301
hematologic, 303
anemia, 303-311
case study, 317-318
diagnostics, 319
hemophilia, 313-315
key terms, 319
pharmacological agents, 320
polycythemia vera, 312-313
resources, 906
sample exam questions, 321-324
thalassemia, 311-312
transfusion therapy, 315-317
immune, 379
diagnostics, 381-382, 389-390
HIV, 383-387
Immunodeficiency syndrome, 380-381
key terms, 389
pharmacologic agents, 390-393
sample exam questions, 394-397
integumentary, 205
bacterial infections, 208
burns, 212-221
case study, 221-222
diagnostics, 223-224
fungal infections, 207-208
key terms, 223
pharmacological agents, 224-226
pressure ulcers, 209-211
psoriasis, 208-209
resources, 907
sample exam questions, 226-229
viral infections, 205-207
musculoskeletal system, 447
ankylosing spondylitis, 460-461
case study, 472-473
diagnostics, 474-475
fibromyalgia, 460
fractures, 448-456
gout, 461-462
key terms, 474
osteoarthritis, 458-460
osteoporosis, 457-458
pharmacology, 475-478
resources, 908
sample exam questions, 479-482
surgical procedures, 466-472
neurological, 325
autoimmune disorders, 354-357
brain injuries, 329-336
brain tumors, 336-337
case study, 366
cranial nerve disorders, 359-360
CVA/stroke, 342-346
degenerative disorders, 358
diabetes insipidus, 365
diagnostics, 368
intervertebral disk disease, 363-364
intracranial surgery care, 338-342
key terms, 367-368
meningitis, 352-354
Parkinson's disease, 350-352
pharmacology, 369-374
resources, 909-910
sample exam questions, 374-378
seizures, 347-350
spinal cord injuries, 360-363
respiratory, 133
asthma, 135-137
case study, 160
chronic bronchitis, 133-134
diagnostics, 161-162
emerging infections, 158-159
emphysema, 134-135
influenza, 147-148
interstitial pulmonary disease, 139-140
key terms, 161
life-threatening pulmonary disorders, 148-158
occupational pulmonary disease, 140-142
pharmacology, 162-165
pleurisy, 137-138
pneumonia, 142-145
pulmonary hypertension, 138-139
resources, 905
sample exam questions, 166-168
TB (tuberculosis), 145-147
sensory, 231
case study, 248-249
diagnostics, 251
ear disorders, 242-247
eye disorders, 231-241
key terms, 250
pharmacological agents, 251-252
resources, 907
sample exam questions, 253-256

systole, 67
systolic pressure, 68

t wave, 75
T-2 mycotoxins, 633
T3 (triiodothyronine), 108
T4 (CD4+) helper cells, 380
T4 (thyroxine), 108
tachycardia, 486
tachydysrhythmias, 76
talcosis, 142
talipes equinovarus (congenital clubfoot), 573
tamsulosin (Flomax), 232
Tapazole (methimazole), 111
tape test, 544
tardive dyskinesia, 599
Targeted Cancer Therapy, 437
tasks (care), 648-651
TB (tuberculosis), 145-147
TBSA (total body surface area), 212
Lund and Browder method, 214
palm method, 214
Rule of Nines, 214
TCAs (tricyclic antidepressants), 601
TEF (tracheoesophageal fistula), 541
teletherapy, 421
temperature, 899
tenesmus, 264
TENS (Transcutaneous Electrical Nerve Stimulator), 469
tensilon test, 356
tension pneumothorax, 155
teratogenic agents, 485
teratologic clubfoot, 573
terbutaline (Brethine), 498
terbutaline pumps, 498
terrorism, bioterrorism, 632
chemical/biological agents, 632-634
nuclear warfare, 634-635
testicular cancer, 402
tests (diagnostic), 381
amniotic fluid, 485
audiometric, 246
blood, 22
cardiac disorders
CABG (coronary artery bypass graft), 85-86
cardiac catheterization, 84
electrocardiogram, 75-76, 84
PTCA (percutaneous transluminal coronary angioplasty), 85
stress test, 83-84
ELIZA (Enzyme-Linked Immunosorbent Assay), 381
fluid and electrolyte evaluation, 44
HIV progression, 381-382
Home Access, 381
IFA (indirect immunofluorescence assay), 381
Mantoux, 146
OMT (oral mucosal transudate), 381
Oracle, 381
prelabor, 486-488
responsiveness, 626
RIPA (radioimmunoprecipitation assay), 381
tensilon, 356
Western Blot Analysis, 381
See also diagnostics
tetracycline, 33, 143, 485, 570
Tetralogy of Fallot (TOF), 554
TGA (transposition of the great arteries), 556
thalassemia, 311-312
theories

assault and battery, 648
fraud, 648
legal, 646-647

therapeutic bleeding time, 83
therapeutic drug levels, 899
thermal injuries, 212
Thiazide diuretics, 96
thiazolidinediones, 116
third-degree burns, 213
third-degree heart block, 73
thoracentesis, 137
threatened abortions, 496
three-point gait (crutch walking), 470
thrombolytic disease, 32-33
thrombolytics, 100
thrombophlebitis, 92
thunderbird amulet, 661
thymectomy, 356
thyrocalcitonin, 108
thyroid gland, 108
hyperthyroidism, 110-112
hypothyroidism, 108-110
thyroid storm, 111
thyroid-stimulating hormone (TSH), 106
thyrotoxicosis, 110-112
thyroxine (T4), 108
TIA (transient ischemic attacks), 343
tibia fractures, 450
tidaling, 157
time considerations
Arab-Americans, 665
Asian-Americans, 663
Hispanic/Latino population, 660
Native Americans/Alaskan natives, 661
time-cycled ventilators, 150
time-released drugs, 17
TIPS (transjugular intrahepatic portosystemic shunting), 282
tissue, extravasation, 425
TNM classification system, breast cancer, 412
tocolytic drugs, 498
toddler stage (growth and development), 524-525
toddlers, immunization schedule, 903
TOF (Tetralogy of Fallot), 554
ton brace, 576
tonic-clonic seizures, 347-349
tonsillectomy, 529
tonsillitis, 529-530
topoisoisomerase inhibitors, 423, 435
TORCHS syndrome, 486
torticollis, 599
torts, 647
total body surface area (TBSA), 212-214
total body water, calculation, 41-43
total knee replacement, 467-468
total parenteral nutrition (TPN), 387, 424-426
tourniquets, 625
toxic diffuse goiter, 110
toxicity
magnesium sulfate, 495, 499
medications, 73
oxygen, 144
toxoplasmosis, 381, 485
TPN (total parenteral nutrition), 387, 424-426
trabeuclectomy, 235
tracheoesophageal fistula (TEF), 541
tracheostomy care, 650
traction, 451-453, 650
trade names (drugs), 19
traditional healers, 659
Transcutaneous Electrical Nerve Stimulator (TENS), 469
transesophageal echocardiography, 84
transfusion therapy, 315-317
transfusions, blood, 315-317
transient ischemic attacks (TIA), 343
transjugular intrahepatic portosystemic shunting (TIPS), 282
transluminal angioplasty, 344
transmission, HIV, 380, 383-385
transplants
bone marrow, 427-429
renal, 184-185
transposition of the great arteries (TGA), 556
transrectal ultrasound (TRUS), 409
transsphenoidal approach, pituitary tumors, 107
transurethral resection of the prostate (TURP), 191, 410
trauma (emergency care), 627
abdominal injuries, 628-629
chest injuries, 628
forensic evidence, 629-630
head injuries, 627-628
traumatic injuries
ears, 246
eyes, 232, 240
pneumothorax, 154
treatment. See interventions
Trendelenburg position, 500
triage, 623
NATO color-coding system, 635
traumatic injuries
ears, 246
eyes, 232, 240
pneumothorax, 154
tricyclic antidepressants (TCAs), 601
trigeminal nerve, 326
trigeminal neuralgia, 359
triglycerides, 70
triiodothyronine (T3), 108
troponin T and 1, 82
trough levels, 22