## Contents

**About the editors** xix  
**Contributors** xxi  
**Reviewers** xxiii  
**Foreword** xxv  
**Preface** xxvii

### Part I  Physiological foundations of prenatal and postnatal care 3

1 Reproductive tract structure and function 5  
*Patricia W. Caudle*  
Anatomy of the female reproductive system 6  
External genitalia 6  
Internal genitalia 8  
Menstrual cycle physiology 11  
Beginnings 11  
Onset of puberty 13  
The hypothalamic–pituitary–ovarian axis 13  
Menstrual cycle phases 13  
Resources for women 18  
Resources for health-care providers 18  
References 18

2 Conception, implantation, and embryonic and fetal development 19  
*Patricia W. Caudle*  
Introduction 20  
Conception and implantation 20  
The placenta 21  
Beginnings and structure 21  
Chorionic and amniotic membranes 22  
The umbilical cord 23  
Placental functions 23  
The embryo 27  
Organogenesis 28  
The fetus 29  
Summary 30  
Resources for health-care professionals 32  
Resources for women, their families, and health-care professionals 32  
References 32

3 Maternal physiological alterations during pregnancy 34  
*Patricia W. Caudle*  
Introduction 34  
Hematologic system adaptations 34  
Blood changes 35  
Cardiovascular changes 37  
Changes to the heart 37  
Vascular adaptations 37  
Changes in blood pressure 37  
Supine hypotensive syndrome 37  
Respiratory adaptations 38  
Anatomical changes 38  
Adaptations in pulmonary function 38  
Renal adaptations 38  
Anatomical changes 39  
Renal function 39  
Gastrointestinal adaptations 39  
Anatomical adaptations 39  
Gastrointestinal function changes 40  
Liver and biliary adaptations 40  
Metabolic changes 40  
Basal metabolic rate 41  
Carbohydrate metabolism 41  
Protein metabolism 41  
Fat metabolism 41  
Leptin and ghrelin 41  
Insulin 41  
Skin changes 42  
Pigment changes of the skin 42  
Vascular changes of the skin 42  
Connective tissue changes 42  
Sebaceous and sweat gland changes 42  
Hair and nail changes 42  
Immunologic changes 43  
Fetus as allograft 43  
Disorders related to immunologic changes in pregnancy 44  
Neurological and sensory changes 45  
Musculoskeletal adaptations 45  
Endocrine changes 46  
Anatomical changes 46  
Pituitary function changes 46  
Thyroid function changes 47  
Adrenal function changes 47  
Summary 47  
Resources for women and their families 48  
Resources for health-care providers 48  
References 48

### Part II  Preconception and prenatal care 49

4 Preconception care 51  
*Victoria L. Baker*  
Introduction 51
| Challenges to providing preconception care | 51 |
| Benefits of preconception care | 52 |
| Evidence supporting preconception care | 52 |
| Content of preconception care | 53 |
| Risk assessment and screening | 53 |
| Preconception counseling | 57 |
| Preconception care for women with chronic diseases | 61 |
| Additional considerations | 64 |
| Preconception care for men | 65 |
| Summary | 66 |
| Resources for women and their families | 66 |
| Resources for health-care providers | 67 |
| Tools for screening | 68 |
| Consumer brochures for the office setting | 68 |
| References | 69 |
| Nutritional needs in pregnancy | 103 |
| Fluid intake | 103 |
| Macronutrients: Total energy | 103 |
| Macronutrients: Fats | 103 |
| Omega-3 fatty acids | 104 |
| Macronutrients: Carbohydrates | 105 |
| Protein | 105 |
| Macronutrients | 105 |
| Iron | 105 |
| Folate | 106 |
| Calcium and vitamin D | 107 |
| Weight gain in pregnancy | 107 |
| Overweight and obesity in pregnancy | 108 |
| Underweight in pregnancy | 108 |
| Food safety during pregnancy | 109 |
| Food-borne infections | 110 |
| Alcohol, caffeine, and artificial sweeteners | 110 |
| Factors influencing nutritional intake | 111 |
| Resource availability | 111 |
| Culture and family | 111 |
| Making a nutritional assessment | 112 |
| Using resources | 112 |
| Counseling for optimal prenatal nutrition | 114 |
| Special issues in nutrition | 116 |
| Adolescent pregnancy | 116 |
| Pregnant vegetarians and vegans | 117 |
| Eating disorders | 118 |
| Pica | 119 |
| Summary | 120 |
| Resources for women and their families | 121 |
| Resources for health-care providers | 121 |
| References | 121 |
| Pregnancy diagnosis and gestational age assessment | 125 |
| Janet L. Engstrom and Joyce D. Cappiello | 126 |
| Introduction | 126 |
| Early pregnancy diagnosis and gestational age assessment | 126 |
| Pregnancy diagnosis | 127 |
| Presumptive signs of pregnancy | 127 |
| Probable signs of pregnancy | 128 |
| Positive signs of pregnancy | 132 |
| Gestational age assessment | 133 |
| Terminology used to describe gestational age | 133 |
| Devices used to calculate the gestational age | 136 |
| Methods of estimating the gestational age | 137 |
| Counseling for pregnancy diagnosis | 140 |
| Counseling after a negative pregnancy test | 141 |
| Counseling after a positive pregnancy test | 141 |
| Options counseling for unintended pregnancy | 141 |
| Providing evidence-based information about pregnancy options | 143 |
| Summary | 145 |
| Resources for women and their families | 145 |
| Resources for health-care providers | 145 |
| References | 145 |
8 Risk assessment and risk management in prenatal care 149
Robin G. Jordan
Introduction 149
Process and purpose of risk assessment 149
Benefits of risk assessment 150
Limitations 150
- Poor predictive value 150
- Lack of precision 150
- Nonmodifiable risk factors 150
Disadvantages of risk assessment and risk management 150
- Unnecessary interventions 150
- Normalization of technology and illusion of risk control 151
- Labeling women as high risk 151
Misapplication of risk assessment and risk management 151
- Introduction of actual risk 152
- Increase in financial, physical, and emotional costs 152
- Birth fear 153
Perspective of risk and risk screening 153
Explaining risk to women 153
Potential problems of risk miscommunication 154
- Informed compliance 154
- Illusion of choice 154
Informed consent 154
Resources for health-care providers and women and their families 157
References 157

9 Prenatal genetic counseling, screening, and diagnosis 160
Robin G. Jordan and Janet L. Engstrom
Introduction 160
Family history and risk evaluation 161
Genetic screening procedures offered to all pregnant women 161
- Screening options for neural tube defects 161
- Screening options for trisomy 21 and trisomy 18 162
Cystic fibrosis (CF) screening 165
Ethnicity-based genetic screening 165
- Additional genetic disease carrier screening 167
Diagnostic prenatal genetic testing procedures 167
- Amniocentesis 168
- Chorionic villus sampling 168
- Percutaneous umbilical blood sampling 168
Developments in genetic testing options 168
Scope of practice considerations 169
Ethical considerations in genetic screening 169
Communicating about genetic testing and risk during prenatal care 170
- Pretest counseling 170
Psychosocial effects in genetic testing 170
- Prenatal genetic testing and the tentative pregnancy 171
- Perspective on genetic counseling during prenatal care 171
Summary 173
Resources for women and their families 173
Resources for health-care providers 173
References 173

10 Assessment of fetal well-being 176
Jenifer Fahey
Introduction 176
Physiological principles and indications for antenatal fetal surveillance 177
Scope of practice considerations 177
Antenatal fetal testing methods 178
- Fetal movement counts (FMCs) 178
- Nonstress test 180
- Contraction stress test 183
- Amniotic fluid volume assessment 183
- The biophysical profile (BPP) and modified BPP 183
- Doppler velocimetry 187
Education and counseling 188
Cultural, personal, and family considerations 188
Health disparities and vulnerable populations 189
Legal and liability issues 189
Summary 190
References 191

11 Common discomforts of pregnancy 193
Robin G. Jordan
Overview 193
Back pain and pelvic girdle pain 194
- Assessment 195
- Relief and preventative measures 195
Bleeding gums 196
- Assessment 196
- Relief and preventative measures 196
Breast tenderness 196
- Assessment 197
- Relief and preventative measures 197
Carpal tunnel syndrome (CTS) 197
- Assessment 197
- Relief and preventative measures 198
Cervical pain 198
Constipation 198
- Assessment 198
- Relief and preventative measures 198
Dizziness/Syncope 199
- Assessment 199
- Relief and preventative measures 199
Edema 200
- Assessment 200
- Relief and preventative measures 200
Emotional changes 200
- Assessment 201
- Relief and preventative measures 201
Fatigue 201
- Assessment 201
- Relief and preventative measures 201
Flatulence 201
Assessment 201
Relief and preventative measures 202
Headache 202
Assessment 202
Relief and preventative measures 202
Heartburn 203
Assessment 203
Relief and preventative measures 203
Heart palpitations 204
Assessment 204
Relief and preventative measures 204
Hemorrhoids 204
Assessment 204
Relief and preventative measures 204
Increased warmth and perspiration 204
Leukorrhea 205
Assessment 205
Relief and preventative measures 205
Leg cramps 205
Assessment 205
Relief and preventative measures 205
Nasal congestion and epistaxis 206
Nasal congestion 206
Epistaxis 206
Nausea and/or vomiting during pregnancy 207
Assessment 207
Relief and preventative measures 207
Ptyalism 209
Assessment 210
Relief and preventative measures 210
Restless leg syndrome (RLS) 210
Assessment 210
Relief and preventative measures 210
Round ligament pain 211
Assessment 211
Relief and preventative measures 211
Shortness of breath 211
Assessment 212
Relief and preventative measures 212
Skin changes 212
Hyperpigmentation 212
Vascular changes 213
Hair and nail changes 213
Assessment 213
Relief and preventative measures 213
Sleep disturbances 214
Assessment 214
Relief and preventative measures 214
Supine hypotension syndrome (SHS) 215
Assessment 215
Relief and preventative measures 215
Urinary frequency 215
Assessment 215
Relief and preventative measures 215
Urinary incontinence 216
Assessment 216
Relief and preventative measures 216
Varicosities (legs/vulva) 216
Leg varicosities 216
Vulvar varicosities 217
Visual changes 219
Subjective data gathering 219
Assessment 219
Relief and preventative measures 220
Resources for health-care providers and women and their families 220
References 220

12 Medication use during pregnancy 223
Mary C. Brucker and Tekoa L. King
Introduction 224
Pharmacologic terms 224
Types of pharmaceutical agents 224
Prescriptive authority 224
Governmental oversight of pharmaceutical agents 225
The prescription: Essential components 225
Drugs and pregnancy 226
Teratology 227
Etiology of birth defects 228
Mechanisms of teratogenic drugs 228
Identification of a teratogen 229
FDA categories for drugs in pregnancy 229
Selected teratogens 231
Pharmacokinetics in pregnancy 231
Rational use of drugs in pregnancy 234
Summary 234
Resources for women and their families 236
References 236

13 Substance use during pregnancy 238
Daisy J. Goodman, Alane B. O’Connor, and Kelley A. Bowden
Risks of perinatal substance abuse 238
Prevalence of prenatal substance abuse 239
Definitions 239
Historical approaches to maternal substance use 240
Harm reduction approach to prenatal substance use 240
Position statements on prenatal substance use 240
Comorbid conditions and prenatal substance use 241
Psychiatric disease 241
Medical risks 241
Commonly abused substances and pregnancy implications 241
Alcohol 241
Nicotine 242
Cocaine 243
Opioids 243
Benzodiazepines 243
Marijuana 244
Amphetamines/Methamphetamines 244
Designer drugs 244
Screening for prenatal substance abuse 244
Screening tools 245
Brief intervention and treatment 246
Smoking cessation during pregnancy 246
The 5 A's and the 5 R's model of smoking cessation 246
Bupropion (Zyban®, Wellbutrin®) 246
Nicotine replacement therapy 246
Varenicline (Chantix®) 246
Care of pregnant women with substance use disorders 247
Antepartum assessment 248
Referral to treatment 249
Opioid replacement therapy in pregnancy 249
Methadone 250
Buprenorphine 250
Treatment with methadone vs. buprenorphine 250
Breastfeeding and medication-assisted treatment counseling 251
Communication and coordination of care 251
Neonatal abstinence syndrome 252
Assessment and treatment of neonatal abstinence syndrome 252
Breastfeeding and neonatal abstinence syndrome 252
Long-term implications of neonatal abstinence syndrome 252
Postpartum care 253
Breastfeeding and substance use 253
Cultural considerations 254
Personal and family considerations 256
Scope of practice considerations 256
Summary 256
Resources for health-care providers 256
Resources for women and their families 256
References 256

14 Social issues in pregnancy 261
Nena R. Harris
Introduction 261
Poverty 262
Interdisciplinary care 263
Incarceration 264
Intimate partner violence during pregnancy 265
Pregnancy and a history of childhood sexual abuse 266
Assessing for childhood sexual abuse 266
Providing care 268
Summary 268
Resources for health-care providers 270
Resources for women and their families 270
References 271

15 Exercise, recreational and occupational issues, and intimate relationships in pregnancy 274
Meghan Garland
Exercise in pregnancy 274
Physiological changes during pregnancy and exercise 274
Benefits of exercise in pregnancy 275
Motivating women to exercise in pregnancy 276
Exercise activities 277
Exercise guidelines 277
General advice for exercising in pregnancy 278
Summary 279
Environmental exposures in pregnancy 279
Making an environmental exposure assessment 280
Metals and metalloids 280
Organic solvents 282
Pesticides 283
Endocrine-disrupting chemicals 283
Reducing exposures 283
Summary 284
Sexuality in pregnancy 284
Pregnancy influences on sexuality 284
Sexual activities during pregnancy 285
Sexual history 285
Counseling 285
Summary 286
Working during pregnancy 286
Shift work 286
Heavy lifting and long work hours 286
Noise exposure 287
Psychosocial stress 287
Pregnancy discrimination in the workplace 287
Data gathering and counseling 287
Summary 288
Resources on pregnancy and environmental exposure for women 288
Resources on pregnancy and environmental exposure for health-care providers 288
Resources on work during pregnancy for women 288
References 288

16 Psychosocial adaptations in pregnancy 291
Cindy L. Farley
Introduction 292
Maternal attachment and adaptation 292
Bowlby and Ainsworth 293
Kennell and Klaus 293
Brazelton 294
Rubin 294
Lederman 297
Sibling adaptation and attachment 301
Partner adaptation and attachment 302
Male partners 303
Lesbian partners 304
Body image 305
Childbirth confidence 306
Self-efficacy and childbirth 306
Summary 308
Resources for women and their families 308
Resources for health-care providers 309
References 309
## Part III  Common complications of pregnancy

### 19  Bleeding during pregnancy

*Robin G. Jordan*

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>335</td>
</tr>
</tbody>
</table>

### 20  Amniotic fluid and fetal growth disorders

*Victoria H. Burslem and Cindy L. Farley*

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>353</td>
</tr>
<tr>
<td>Amniotic fluid dynamics</td>
<td>353</td>
</tr>
<tr>
<td>Normal placentation and fetal development</td>
<td>354</td>
</tr>
<tr>
<td>Amniotic fluid disorders</td>
<td>354</td>
</tr>
<tr>
<td>Oligohydramnios</td>
<td>354</td>
</tr>
<tr>
<td>Polyhydramnios</td>
<td>357</td>
</tr>
<tr>
<td>Fetal growth disorders</td>
<td>358</td>
</tr>
<tr>
<td>Determination of growth disorders</td>
<td>358</td>
</tr>
<tr>
<td>Intrauterine growth restriction</td>
<td>359</td>
</tr>
<tr>
<td>Assessment and management</td>
<td>360</td>
</tr>
<tr>
<td>Summary</td>
<td>362</td>
</tr>
</tbody>
</table>
21 Preterm labor and birth 365
Robin G. Jordan
Introduction 365
Social and racial disparities 366
Physiology of preterm birth 366
Complications related to prematurity 367
Risk factors for preterm birth 367
Predicting preterm birth 368
- Fetal fibronectin (fFN) testing 368
- Cervical length measurement 368
Diagnosing preterm labor 368
Management of women with preterm labor 368
Preterm birth prevention 369
- Nutrition 369
- Smoking cessation 370
- Interpregnancy interval 370
- Treating infections 370
- Disturbed sleep and fatigue 371
Progesterone therapy 371
Cerclage 371
Summary 371
Resources for women and health-care providers 373
References 373

22 Hypertensive disorders in pregnancy 375
Robin G. Jordan
Introduction 375
Classification of hypertensive disorders of pregnancy 375
Chronic hypertension 375
Gestational hypertension 376
Preeclampsia–eclampsia 376
Preeclampsia superimposed on chronic hypertension 377
Preeclampsia 377
- Pathophysiology of preeclampsia 377
- Potential problems due to preeclampsia 378
- Risk factors for developing preeclampsia 378
- Diagnostic evaluation 379
- Management of women with preeclampsia 380
HELLP syndrome 382
Atypical presentation preeclampsia 382
Prediction of preeclampsia 383
Prevention of preeclampsia 383
Long-term sequelae of preeclampsia 383
Risk management issues in the office setting 384
Interprofessional practice issues 384
Summary 384
Resources for women and their families 384
Resources for health-care providers 384
References 385

23 Gestational diabetes 387
Kimberly K. Trout
Introduction 387
Pathophysiology and potential problems of gestational diabetes 387
Prenatal screening and diagnosis of GDM 388
- One-hour oral glucose tolerance testing 389
- Two-hour oral glucose tolerance testing 389
- Screening for women at high risk for GDM 390
Management of gestational diabetes 390
- Dietary intervention 390
- Exercise therapy 391
- Blood glucose monitoring 391
Oral medications for GDM 392
- Glyburide 392
- Metformin 392
Insulin therapy 392
Fetal surveillance and timing of birth 392
- Labor and birth 393
Postpartum follow-up 393
Scope of practice issues 394
Perspective on GDM risk 394
Resources for women and their families 395
Resources for health-care providers 395
References 395

24 Other complications in pregnancy: Multiple gestation, post-term pregnancy, hyperemesis, and abdominal pain 397
Tonya B. Nicholson
Abdominal pain in pregnancy 398
- Appendicitis 399
- Cholecystitis 399
- Abdominal trauma 399
Hyperemesis gravidarum (HG) 399
- Etiology and risk factors 400
- Complications of hyperemesis gravidarum 400
- Evaluation 400
- Care and management 400
Multifetal pregnancy 401
- Care of women with multifetal gestation 402
- Assessing fetal growth 402
- Fetal surveillance 402
- Nutritional counseling 403
- Anticipatory guidance 403
Post-term pregnancy 403
- Overview 403
- Complications associated with post-term pregnancy 404
- Prevention, intervention, and management options 404
Resource for health-care providers 406
Resources for women and their families 406
References 407
25 Perinatal loss and grief 409
Robin G. Jordan

Introduction 409
Stillbirth 409
Breaking the news 410
Care and management of women with stillbirth 410
Grieving and emotional care after perinatal loss
   Cultural considerations 412
Physical care after stillbirth 413
Follow-up 413
Interconception and subsequent pregnancy care 413
Summary 414
Resources for women and their families 415
Resources for health-care providers 415
References 415

Part IV Postnatal care 417

26 Physiological alterations
during the postnatal period 419
Kimberly A. Couch and
Karen DeCocker-Geist

Introduction 419
Uterus 420
Lochia 420
Cervix 420
Vagina 420
Labia and perineum 420
Additional maternal alterations during the
   postpartum period
   Endocrine changes 421
   Cardiovascular system 421
   Renal system 421
   Gastrointestinal tract 421
Summary 421
Resource for women 422
Resource for health-care providers 422
References 422

27 Components of postnatal care 423
Tia P. Andrighetti and
Deborah Brandt Karsnitz

Introduction 423
Assessment of maternal physical and emotional
   adjustment 425
   Review of birth experience 426
   Family adaptation 426
   Infant feeding 428
Activity/Exercise 428
Diet and nutrition 429
   Weight loss 429
Lochia 430
Afterbirth pain 430
Perineal discomfort 431
Diureseis/Diaphoresis 431
Constipation/Hemorrhoids 431
Sexuality 431
   Resumption of menses and ovulation 432
   Contraception 432
   Postpartum physical examination 433
   Breast exam 433
   Abdominal exam 433
   Costovertebral angle tenderness (CVAT) 434
   Perineal exam 434
   Vaginal and uterine exam 434
   Rectal exam 434
   Leg exam 435
   Postpartum depression and domestic
      violence screening 435
   Postnatal warning signs 435
   Cultural considerations 435
   Health disparities and vulnerable populations 436
   Scope of practice considerations 437
   Legal issues 438
Summary 438
References 439

28 Common complications during the
   postnatal period 441
Deborah Brandt Karsnitz

Introduction 441
Postpartum morbidity and mortality 442
Postpartum cultural considerations 442
Postpartum disorders 443
   Puerperal fever (pyrexia) 443
   Puerperal infection (postpartum infection) 443
   Wound infection 445
   Delayed or late postpartum hemorrhage 445
   Postpartum hematoma 446
   Subinvolution 446
   Postpartum preeclampsia-eclampsia 446
   Postpartum thrombophlebitis 447
   Postpartum thyroiditis 447
   Postpartum mood and anxiety disorders 448
   Postpartum blues 449
   Postpartum depression 449
   Postpartum psychosis 451
   Generalized anxiety disorder 451
   Obsessive-compulsive disorder 451
   Panic disorder 451
   Post-traumatic stress disorder 451
Summary 457
References 458

29 Contraception 462
Patricia Aikins Murphy and Leah N. Torres

Introduction 462
Postpartum care and return to fertility
   after childbirth 463
Considerations in selecting a postpartum contraceptive method 463
Contraceptive methods 465
Tier one methods 466
Permanent methods 466
Long-acting reversible contraceptive (LARC) methods 467
Tier two methods 469
Combined hormonal contraceptives (CHCs) 469
Progestin-only contraceptives 470
Lactational amenorrhea method (LAM) 472
Tier three methods 472
Barrier methods 472
Other methods 474
Emergency contraception 474
Summary 475
Resources for women and health-care providers 476
References 476

30 Lactation and breastfeeding
Marsha Walker
Introduction 478
Breastfeeding as a public health issue 479
The unique properties of human milk 480
Nutritional properties of human milk 480
Defense agents in human milk 482
Maternal and infant anatomy and physiology of lactation and breastfeeding 482
Promoting and supporting breastfeeding 483
The basics of breastfeeding support and assessment 484
Position 484
Latch 487
Milk production 489
Breastfeeding patterns 489
Assessing intake 490
Care of the breastfeeding mother 491
Nutrition for nursing mothers 491
Contraception 492
Smoking 492
Alcohol and illicit drugs 493
Medications and breastfeeding 493
Employed nursing mothers 493
Summary 494
Resources for women and health-care providers 495
References 495

31 Common breastfeeding problems
Marsha Walker
Introduction 499
Common infant-related breastfeeding problems 499
Fussy baby 499
Sleepy baby 500
Slow weight gain 501
Preterm and late preterm infants 502
Common maternal breastfeeding problems 503
Sore nipples 503
Management of sore nipples 505
Breast engorgement 506
Plugged ducts 506
Mastitis 507
Abscess 507
Low milk supply 508
Summary 510
Resources for women and their families 511
Resources for health-care providers 511
References 511

Part V Management of common health problems during the prenatal and postnatal periods 515
32 Respiratory disorders
Janyce Cagan Agruss
Introduction 517
Respiratory physiology and pregnancy 517
Asthma 517
Potential problems 518
Differential diagnosis 518
Common clinical presentation and data gathering 518
Management of asthma during pregnancy 518
Scope of practice considerations 520
Influenza 521
Upper respiratory infection 521
Pneumonia 522
Summary 523
Resource for health-care providers 523
References 523

33 Hematological and thromboembolic disorders
Julie A. Marfell
Introduction 525
Anemia 525
Physiological changes in pregnancy 525
Iron-deficiency anemia 526
Hemoglobinopathies 529
Hemoglobin S 529
Thalassemia 529
Folate deficiency 530
Vitamin B12 deficiency 530
Unexplained maternal anemia 530
Bleeding disorders 531
Thrombocytopenia 531
Inherited bleeding disorders 531
Coagulopathies during pregnancy 531
Summary 534
Resource for women and their families 534
Resources for health-care providers 534
References 534

34 Urinary tract disorders
Rhonda Arthur and Nancy Pesta Walsh
Introduction 536
Urinary tract infection 536
  Prevalence and risk factors 536
  Pathophysiology 537
  Common pathogens 537
  Asymptomatic bacteriuria 537
  Acute cystitis 537
  Acute pyelonephritis 538
Evaluation 538
  Health history 538
  Physical examination 538
  Laboratory testing 538
Care of women with urinary tract infections 538
  Recurrent UTI 540
Care of women with suspected acute pyelonephritis 540
Nephrolithiasis 541
  Evaluation 541
  Care of women with suspected nephrolithiasis 541
Summary 541
Resources for women 542
Resource for health-care providers 542
References 542

35 Gastrointestinal disorders 544
  Audra C. Malone and Karen DeCocker-Geist
Introduction 544
Gastroenteritis 544
  Evaluation and management 544
  Scope of practice issues 545
Intraheptic cholestasis of pregnancy 545
  Scope of practice issues 546
Cholecystitis 546
  Evaluation and management 546
  Scope of practice issues 547
Appendicitis 547
  Evaluation and management 547
  Scope of practice issues 547
Summary 548
Resource for women and their families 548
References 548

36 Obesity 549
  Cecelia M. Jevitt
Introduction 549
Overview 549
Prevalence 550
Health disparities and cultural considerations 550
Personal and family considerations 550
Obesity physiology 551
Potential problems associated with obesity in childbearing women 551
Management of pregestational obesity 552
  Nondiscriminatory language 552
  Assessment of the obese pregnant woman 552
Management principles 553
Nutrition 554
Weight loss concerns 554
Physical activity 554
Comfort measures 554
Bariatric surgery 555
Scope of practice considerations 555
Legal and liability issues 555
Intrapartum and postpartum issues 556
Summary 556
Resources for women and their families 556
Resources for health-care providers 556
References 558

37 Endocrine disorders 560
  Elizabeth Gabzdyl
Introduction 560
Thyroid disorders in pregnancy 560
  Thyroid physiology in pregnancy 560
Diagnosing thyroid disorders 561
Overt hypothyroidism 562
  Maternal and fetal risks 562
  Clinical presentation 562
  Laboratory testing, diagnosis, and management 562
Subclinical hypothyroidism 563
Screening for hypothyroidism in pregnancy 563
Preconception care of a woman with hypothyroidism 564
Hyperthyroidism 564
  Maternal and fetal risks 564
  Clinical presentation 564
  Laboratory testing, diagnosis, and management 564
  Scope of practice considerations 565
Subclinical hyperthyroidism 565
Thyroid storm 565
Postpartum thyroiditis 565
  Laboratory evaluation, diagnosis, and management 565
Pregestational diabetes 566
  Classifications 566
  Perinatal risks of pregestational diabetes 567
  Preconception counseling and care of women with pregestational diabetes 567
Summary 567
Resources for women and health-care providers 567
References 568

38 Neurological disorders 570
  Tonya B. Nicholson
Introduction 570
Care of the pregnant woman with seizure disorders 570
Care of pregnant women with headache 573
  Tension-type headaches 574
  Migraine headaches 574
  Nonpharmacological headache management 574
  Pharmacological treatment of migraine headaches 575
  Postpartum headaches 576
Cluster headaches 576
Care of pregnant women with multiple sclerosis 577
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 Dermatological disorders</td>
<td>580</td>
</tr>
<tr>
<td>Gwendolyn Short and Elizabeth Powell Holcomb</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>580</td>
</tr>
<tr>
<td>Atopic dermatitis</td>
<td>580</td>
</tr>
<tr>
<td>Assessment</td>
<td>581</td>
</tr>
<tr>
<td>Differential diagnoses</td>
<td>581</td>
</tr>
<tr>
<td>Treatment and management</td>
<td>581</td>
</tr>
<tr>
<td>Prurigo of pregnancy</td>
<td>581</td>
</tr>
<tr>
<td>Assessment</td>
<td>581</td>
</tr>
<tr>
<td>Differential diagnoses</td>
<td>581</td>
</tr>
<tr>
<td>Treatment and management</td>
<td>582</td>
</tr>
<tr>
<td>Pruritic urticarial papules and plaques of pregnancy</td>
<td>582</td>
</tr>
<tr>
<td>Assessment</td>
<td>582</td>
</tr>
<tr>
<td>Differential diagnoses</td>
<td>583</td>
</tr>
<tr>
<td>Treatment and management</td>
<td>583</td>
</tr>
<tr>
<td>Pemphigoid gestationis</td>
<td>583</td>
</tr>
<tr>
<td>Assessment</td>
<td>584</td>
</tr>
<tr>
<td>Differential diagnosis</td>
<td>584</td>
</tr>
<tr>
<td>Treatment and management</td>
<td>584</td>
</tr>
<tr>
<td>Collaboration, consultation, and referral</td>
<td>585</td>
</tr>
<tr>
<td>Impetigo herpetiformis</td>
<td>585</td>
</tr>
<tr>
<td>Assessment</td>
<td>585</td>
</tr>
<tr>
<td>Differential diagnosis</td>
<td>585</td>
</tr>
<tr>
<td>Treatment and management</td>
<td>585</td>
</tr>
<tr>
<td>Collaboration, consultation, and referral</td>
<td>585</td>
</tr>
<tr>
<td>Intrahepatic cholestasis of pregnancy</td>
<td>585</td>
</tr>
<tr>
<td>Assessment</td>
<td>586</td>
</tr>
<tr>
<td>Differential diagnoses</td>
<td>586</td>
</tr>
<tr>
<td>Treatment and management</td>
<td>586</td>
</tr>
<tr>
<td>Collaboration, consultation, and referral</td>
<td>586</td>
</tr>
<tr>
<td>Summary</td>
<td>587</td>
</tr>
<tr>
<td>Resources for health-care providers</td>
<td>587</td>
</tr>
<tr>
<td>References</td>
<td>588</td>
</tr>
<tr>
<td>40 Infectious diseases</td>
<td>589</td>
</tr>
<tr>
<td>Jacquelyne Brooks and Elizabeth A. Parr</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>589</td>
</tr>
<tr>
<td>Cytomegalovirus</td>
<td>590</td>
</tr>
<tr>
<td>Potential problems</td>
<td>590</td>
</tr>
<tr>
<td>Clinical presentation and assessment</td>
<td>590</td>
</tr>
<tr>
<td>Management</td>
<td>591</td>
</tr>
<tr>
<td>Prevention</td>
<td>591</td>
</tr>
<tr>
<td>Group B Streptococcus</td>
<td>592</td>
</tr>
<tr>
<td>Potential problems</td>
<td>592</td>
</tr>
<tr>
<td>Assessment</td>
<td>592</td>
</tr>
<tr>
<td>Management</td>
<td>592</td>
</tr>
<tr>
<td>Hepatitis infections</td>
<td>593</td>
</tr>
<tr>
<td>41 Sexually transmitted infections and common vaginitis</td>
<td>608</td>
</tr>
<tr>
<td>Meghan Garland and Barbara P. Brennan</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>608</td>
</tr>
<tr>
<td>Sexually transmitted bacterial infections</td>
<td>609</td>
</tr>
<tr>
<td>Chlamydia trachomatis</td>
<td>609</td>
</tr>
<tr>
<td>Neisseria gonorrhoeae</td>
<td>609</td>
</tr>
<tr>
<td>Syphilis</td>
<td>610</td>
</tr>
<tr>
<td>Sexually transmitted viral infections</td>
<td>610</td>
</tr>
<tr>
<td>Herpes simplex</td>
<td>610</td>
</tr>
<tr>
<td>Human papillomavirus</td>
<td>612</td>
</tr>
<tr>
<td>Fungal infection</td>
<td>613</td>
</tr>
<tr>
<td>Vaginal candidiasis</td>
<td>613</td>
</tr>
<tr>
<td>Sexually transmitted parasitic infection</td>
<td>613</td>
</tr>
<tr>
<td>Trichomonas vaginalis</td>
<td>613</td>
</tr>
<tr>
<td>Sexually transmitted bacterial infection</td>
<td>614</td>
</tr>
<tr>
<td>Bacterial vaginosis</td>
<td>614</td>
</tr>
<tr>
<td>Partner treatment of an STI</td>
<td>616</td>
</tr>
<tr>
<td>Legal requirements for reporting STI diagnosis</td>
<td>616</td>
</tr>
<tr>
<td>Psychosocial impacts of STI diagnosis</td>
<td>616</td>
</tr>
<tr>
<td>Effects on the individual</td>
<td>616</td>
</tr>
<tr>
<td>STI prevention within relationships</td>
<td>617</td>
</tr>
<tr>
<td>Summary</td>
<td>618</td>
</tr>
<tr>
<td>Resources for health-care providers</td>
<td>619</td>
</tr>
<tr>
<td>Resource for women and partners</td>
<td>619</td>
</tr>
<tr>
<td>References</td>
<td>619</td>
</tr>
<tr>
<td>42 Psychological disorders</td>
<td>621</td>
</tr>
<tr>
<td>Heather Shlosser</td>
<td></td>
</tr>
<tr>
<td>Overview</td>
<td>621</td>
</tr>
<tr>
<td>Depression during pregnancy</td>
<td>621</td>
</tr>
<tr>
<td>Potential problems of prenatal depression</td>
<td>623</td>
</tr>
<tr>
<td>Topic</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Screening for prenatal depression</td>
<td>623</td>
</tr>
<tr>
<td>Management of prenatal depression</td>
<td>623</td>
</tr>
<tr>
<td>Bipolar disorder in pregnancy</td>
<td>625</td>
</tr>
<tr>
<td>Signs and symptoms of bipolar disorder</td>
<td>625</td>
</tr>
<tr>
<td>Management of pregnant women with bipolar disorder</td>
<td>626</td>
</tr>
<tr>
<td>Generalized anxiety disorder (GAD)</td>
<td>626</td>
</tr>
<tr>
<td>Screening for GAD</td>
<td>627</td>
</tr>
<tr>
<td>Management of GAD</td>
<td>627</td>
</tr>
<tr>
<td>Scope of practice considerations</td>
<td>627</td>
</tr>
<tr>
<td>Summary</td>
<td>628</td>
</tr>
<tr>
<td>Resources for women and their families</td>
<td>629</td>
</tr>
<tr>
<td>Resources for health-care providers</td>
<td>629</td>
</tr>
<tr>
<td>References</td>
<td>629</td>
</tr>
<tr>
<td>Index</td>
<td>631</td>
</tr>
</tbody>
</table>