

# Contents

<b>Chapter 1</b>	<b>Epidemiological Concepts .....</b>	1
	<b>Alfred S. Evans</b>	
	1. Introduction .....	1
	2. Definitions and Methods.....	2
	3. Epidemics and Their Investigation .....	7
	4. Agent .....	11
	5. Environment.....	14
	6. Host .....	15
	7. Routes of Transmission .....	17
	8. Pathogenesis .....	20
	9. Incubation Period .....	21
	10. Immune Response .....	22
	11. Patterns of Host Response .....	26
	12. Diagnosis of Bacterial Infections.....	34
	13. Proof of Causation .....	38
	14. Control and Prevention .....	38
	15. References .....	46
	16. Suggested Reading .....	50
<b>Chapter 2</b>	<b>Public Health Surveillance .....</b>	51
	<b>Philip S. Brachman</b>	
	1. Introduction .....	51
	2. History .....	51
	3. Use of Surveillance .....	52
	4. Data Sources .....	53
	5. Routine Surveillance .....	56
	6. Reporting .....	56
	7. Special Surveillance .....	60
	8. Data Analysis.....	62
	9. Reports .....	65
	10. Evaluation .....	66
	11. Limitations of Surveillance .....	66
	12. References .....	66
	13. Suggested Reading .....	67

<b>Chapter 3</b>	<b>Molecular Epidemiology .....</b>	69
	<b>Lee W. Riley</b>	
	1. Introduction .....	69
	2. Definitions .....	69
	3. Methodology .....	70
	4. Epidemiologic Problems Addressed by Genotyping Techniques .....	79
	5. Summary .....	85
	6. References .....	85
	7. Suggested Reading .....	88
<b>Chapter 4</b>	<b>The Epidemiology of Bacterial Resistance to Antimicrobial Agents .....</b>	91
	<b>Fred C. Tenover and John E. McGowan, Jr.</b>	
	1. Introduction .....	91
	2. Historical Background .....	91
	3. Mechanisms of Resistance .....	92
	4. Epidemiology of Antimicrobial Resistance .....	98
	5. Organisms of Special Importance .....	99
	6. Unresolved Problems .....	100
	7. References .....	101
	8. Suggested Reading .....	104
<b>Chapter 5</b>	<b>Anthrax .....</b>	105
	<b>Philip S. Brachman and Arnold F. Kaufmann</b>	
	1. Introduction .....	105
	2. Historical Background .....	105
	3. Methodology .....	106
	4. Biological Characteristics of the Organism .....	107
	5. Descriptive Epidemiology .....	108
	6. Mechanisms and Routes of Transmission .....	112
	7. Pathogenesis and Immunity .....	112
	8. Patterns of Host Responses .....	113
	9. Control and Prevention .....	115
	10. Unresolved Problems .....	116
	11. References .....	117
	12. Suggested Reading .....	119
<b>Chapter 6</b>	<b>Bacterial Foodborne Disease .....</b>	121
	<b>Heather Green, Jon Furuno, Amy Horneman, and J. Glenn Morris, Jr.</b>	
	1. Introduction .....	121
	2. Historical Background .....	122
	3. Foodborne Disease Outbreak Surveillance .....	123
	4. Etiologic Patterns .....	126
	5. <i>Staphylococcus aureus</i> .....	127

	6. <i>Bacillus cereus</i> . . . . .	129
	7. <i>Clostridium perfringens</i> . . . . .	132
	8. “Noncholera” <i>Vibrio</i> Species . . . . .	136
	9. <i>Aeromonas</i> Species . . . . .	142
	10. <i>Plesiomonas</i> . . . . .	145
	11. Control and Prevention . . . . .	147
	12. Unresolved Problems . . . . .	149
	13. References . . . . .	149
<b>Chapter 7</b>	<b>Botulism . . . . .</b>	<b>159</b>
	<b>Patricia A. Yu, Susan E. Maslanka, Michael E. St. Louis, and David L. Swerdlow</b>	
	1. Introduction . . . . .	159
	2. Historical Background . . . . .	159
	3. Methodology . . . . .	160
	4. Biological Characteristics of the Organism . . . . .	162
	5. Descriptive Epidemiology . . . . .	162
	6. Mechanisms and Routes of Transmission . . . . .	166
	7. Pathogenesis and Immunity . . . . .	167
	8. Patterns of Host Response . . . . .	168
	9. Prevention, Control, and Treatment . . . . .	170
	10. Bioterrorism . . . . .	172
	11. Unresolved Problems . . . . .	172
	12. References . . . . .	172
	13. Suggested Reading . . . . .	176
<b>Chapter 8</b>	<b>Brucellosis . . . . .</b>	<b>177</b>
	<b>Edward J. Young</b>	
	1. Introduction . . . . .	177
	2. Historical Background . . . . .	177
	3. Methodology . . . . .	178
	4. Biological Characteristics of the Organism . . . . .	179
	5. Descriptive Epidemiology . . . . .	180
	6. Mechanisms and Routes of Infection . . . . .	183
	7. Pathogenesis and Immunity . . . . .	183
	8. Patterns of Host Response . . . . .	184
	9. Control and Prevention . . . . .	185
	10. Unresolved Problems . . . . .	185
	11. References . . . . .	185
<b>Chapter 9</b>	<b><i>Campylobacter</i> Infections . . . . .</b>	<b>189</b>
	<b>Ban Mishu Allos</b>	
	1. Introduction . . . . .	189
	2. Historical Background . . . . .	189

	3. Methodology .....	191
	4. Proof of Causation and Biological Characteristics of the Organism that Affect the Epidemiological Pattern .....	193
	5. Descriptive Epidemiology .....	194
	6. Mechanisms and Routes of Transmission .....	197
	7. Pathogenesis and Immunity .....	198
	8. Patterns of Host Response .....	200
	9. Control and Prevention .....	202
	10. Unresolved Problems .....	202
	11. References .....	203
<b>Chapter 10</b>	<b>Chancroid.....</b>	<b>213</b>
	<b>Jaffar A. Al-Tawfiq</b>	
	1. Introduction .....	213
	2. Historical Background .....	213
	3. Methodology .....	213
	4. Etiologic Patterns .....	213
	5. Descriptive Epidemiology .....	214
	6. Mechanisms and Routes of Transmission .....	214
	7. Pathogenesis and Immunity .....	214
	8. Patterns of Host Response .....	215
	9. Prevention, Control, and Treatment .....	216
	10. Unresolved Problems .....	217
	11. References .....	217
	12. Suggested Readings .....	219
<b>Chapter 11</b>	<b>Chlamydial Infections .....</b>	<b>221</b>
	<b>Julius Schachter and E. Russell Alexander</b>	
	1. Introduction .....	221
	2. Historical Background .....	221
	3. Methodology .....	223
	4. Biological Characteristics of the Organism .....	225
	5. Descriptive Epidemiology .....	227
	6. Mechanism and Routes of Transmission .....	231
	7. Pathogenesis and Immunity .....	233
	8. Patterns of Host Response .....	235
	9. Control and Prevention .....	242
	10. Unresolved Problems .....	244
	11. References .....	245
<b>Chapter 12</b>	<b>Cholera .....</b>	<b>249</b>
	<b>Manoj P. Menon, Eric D. Mintz, and Robert V. Tauxe</b>	
	1. Introduction .....	249
	2. Historical Background .....	249

	3. Methodology .....	252
	4. Biological Characteristics of the Organism .....	255
	5. Descriptive Epidemiology .....	257
	6. Mechanism and Routes of Transmission .....	260
	7. Pathogenesis and Immunity .....	262
	8. Patterns of Host Response .....	263
	9. Control and Prevention .....	264
	10. Unresolved Problems .....	267
	11. References .....	268
	12. Suggested Reading .....	272
<b>Chapter 13</b>	<b><i>Clostridium difficile</i></b> .....	273
	<b>Dale N. Gerding and Stuart Johnson</b>	
	1. Introduction .....	273
	2. Historical Background .....	273
	3. Methodology .....	274
	4. Biological Characteristics of the Organism (Etiologic Patterns) .....	275
	5. Descriptive Epidemiology .....	275
	6. Mechanisms and Routes of Transmission .....	277
	7. Pathogenesis and Immunity .....	277
	8. Patterns of Host Response .....	278
	9. Control and Prevention .....	279
	10. Unresolved Problems .....	279
	11. References .....	280
	12. Suggested Reading .....	282
<b>Chapter 14</b>	<b>Diphtheria</b> .....	283
	<b>Melinda Wharton</b>	
	1. Introduction .....	283
	2. Historical Background .....	283
	3. Methodology .....	284
	4. Biological Characteristics of the Organism .....	286
	5. Descriptive Epidemiology .....	286
	6. Mechanism and Routes of Transmission .....	289
	7. Pathogenesis and Immunity .....	290
	8. Patterns of Host Response .....	290
	9. Control and Prevention .....	291
	10. Unresolved Problems .....	293
	11. References .....	293
	12. Suggested Reading .....	297
<b>Chapter 15</b>	<b><i>Escherichia coli</i> Diarrhea</b> .....	299
	<b>Herbert L. DuPont, M. Teresa Estrada-Garcia, and Zhi-Dong Jiang</b>	
	1. Introduction .....	299
	2. Historical Background .....	299

	3. Methodology .....	300
	4. Biological Characteristics of the Organisms .....	302
	5. Descriptive Epidemiology .....	303
	6. Mechanisms, Routes of Transmission and Reservoirs.....	306
	7. Pathogenesis and Immunity .....	307
	8. Patterns of Host Response .....	308
	9. Control and Prevention .....	310
	10. Unresolved Problems .....	311
	11. References .....	311
	12. Suggested Reading .....	314
<b>Chapter 16</b>	<b>Gonococcal Infections .....</b>	<b>315</b>
	<b>Jonathan M. Zenilman and J. McLeod Griffiss</b>	
	1. Introduction .....	315
	2. Historical Background .....	315
	3. Methodology .....	316
	4. Biological Characteristics of the Organism .....	318
	5. Descriptive Epidemiology .....	319
	6. Mechanisms and Routes of Transmission.....	323
	7. Pathogenesis and Immunity .....	323
	8. Patterns of Host Response .....	325
	9. Control and Prevention .....	327
	10. Unresolved Problems .....	331
	11. References .....	331
<b>Chapter 17</b>	<b><i>Haemophilus influenzae</i> .....</b>	<b>337</b>
	<b>Janet R. Gilsdorf</b>	
	1. Introduction .....	337
	2. Historical Background .....	337
	3. Methodology .....	338
	4. Biological Characteristics of <i>H. influenzae</i> .....	344
	5. Descriptive Epidemiology .....	346
	6. Mechanisms and Routes of Transmission.....	349
	7. Pathogenesis and Immunity .....	349
	8. Patterns of Host Response .....	354
	9. Control and Prevention of <i>H. influenzae</i> Infections .....	356
	10. Unresolved Problems .....	358
	11. References .....	358
<b>Chapter 18</b>	<b><i>Helicobacter pylori</i> .....</b>	<b>369</b>
	<b>Sharon Perry, Catherine de Martel, and Julie Parsonnet</b>	
	1. Introduction .....	369
	2. Historical Background .....	369
	3. Methodology .....	370

	4. Biological Characteristics of the Organism .....	372
	5. Descriptive Epidemiology .....	373
	6. Mechanisms and Routes of Transmission.....	376
	7. Pathogenesis and Immunity .....	378
	8. Patterns of Host Response .....	380
	9. Control and Prevention .....	382
	10. Unresolved Problems .....	383
	11. References .....	384
<b>Chapter 19</b>	<b>Legionellosis.....</b>	<b>395</b>
	<b>Roopal Patel, Matthew R. Moore, and Barry S. Fields</b>	
	1. Introduction .....	395
	2. Historical Background .....	395
	3. Methodology .....	396
	4. Descriptive Epidemiology .....	400
	5. Mechanism and Routes of Transmission .....	403
	6. Pathogenesis and Immunity .....	404
	7. Patterns of Host Response .....	405
	8. Control and Prevention .....	405
	9. Unresolved Issues .....	407
	10. References .....	408
<b>Chapter 20</b>	<b>Leprosy .....</b>	<b>415</b>
	<b>Richard I. Frankel and David M. Scollard</b>	
	1. Introduction .....	415
	2. Historical Background .....	416
	3. Methodology .....	416
	4. Biological Characteristics of the Organism .....	419
	5. Descriptive Epidemiology .....	420
	6. Mechanisms and Routes of Transmission.....	424
	7. Pathogenesis and Immunity .....	425
	8. Patterns of Host Response .....	426
	9. Control and Prevention .....	429
	10. Unresolved Problems .....	432
	11. References .....	434
	12. Suggested Reading .....	438
<b>Chapter 21</b>	<b>Leptospirosis .....</b>	<b>439</b>
	<b>Paul N. Levett and Charles N. Edwards</b>	
	1. Introduction .....	439
	2. Historical Background .....	439
	3. Methodology .....	440
	4. Biological Characteristics of the Organism .....	445
	5. Descriptive Epidemiology .....	445

	6. Mechanisms and Routes of Transmission .....	447
	7. Pathogenesis and Immunity .....	448
	8. Patterns of Host Response .....	451
	9. Control and Prevention .....	454
	10. Unresolved Problems .....	455
	11. References .....	456
<b>Chapter 22</b>	<b><i>Listeria monocytogenes</i> Infections .....</b>	<b>461</b>
	<b>Donald Armstrong and Donald B. Louria</b>	
	1. Introduction .....	461
	2. Historical Background .....	462
	3. Methodology .....	463
	4. Biological Characteristics of the Organism .....	465
	5. Descriptive Epidemiology .....	465
	6. Mechanisms and Routes of Transmission .....	468
	7. Pathogenesis and Immunity .....	468
	8. Patterns of Host ResponsePlease note that heading level 8 and 8.1 are the same. Please check. ....	469
	9. Control and Prevention .....	470
	10. Unresolved Problems .....	471
	11. References .....	472
<b>Chapter 23</b>	<b>Lyme Disease .....</b>	<b>479</b>
	<b>Roger P. Clark and Linden T. Hu</b>	
	1. Historical Perspective .....	479
	2. Microbiology .....	479
	3. Life Cycle .....	480
	4. Epidemiology .....	480
	5. Pathophysiology: Host–Pathogen Interactions .....	482
	6. Spectrum of Disease/Clinical Manifestations .....	483
	7. Possible New Borrelial Syndromes .....	485
	8. Diagnosis .....	485
	9. Special Considerations .....	486
	10. Prevention .....	487
	11. Treatment .....	488
	12. Conclusion .....	489
	13. References .....	489
<b>Chapter 24</b>	<b>Meningococcal Infections .....</b>	<b>495</b>
	<b>Robert S. Baltimore</b>	
	1. Introduction .....	495
	2. Historical Background .....	495
	3. Methodology .....	497
	4. Biological Characteristics of the Organism .....	498
	5. Descriptive Epidemiology .....	500

	6. Mechanisms and Routes of Transmission .....	505
	7. Pathogenesis and Immunity .....	506
	8. Patterns of Host Response .....	507
	9. Control and Prevention .....	509
	10. Unresolved Problems .....	512
	11. References .....	513
	12. Suggested Reading .....	517
<b>Chapter 25</b>	<b><i>Mycoplasma pneumoniae and Other Human Mycoplasmas</i></b> .....	<b>519</b>
	<b>Deborah F. Talkington and Ken B. Waites</b>	
	1. Introduction .....	519
	2. Historical Background .....	519
	3. Methodology .....	520
	4. Etiologic Patterns .....	523
	5. Descriptive Epidemiology .....	526
	6. Mechanisms and Routes of Transmission .....	527
	7. Pathogenesis and Immunity .....	527
	8. Patterns of Host Response .....	529
	9. Control and Prevention .....	530
	10. Unresolved Problems .....	531
	11. Other Human Mycoplasmas .....	531
	12. References .....	534
<b>Chapter 26</b>	<b>Healthcare-Acquired Bacterial Infections</b> .....	<b>543</b>
	<b>Ebbing Lautenbach and Elias Abrutyn</b>	
	1. Introduction .....	543
	2. Historical Background .....	543
	3. Methodology .....	544
	4. Biological Characteristics of Nosocomial Organisms .....	550
	5. Descriptive Epidemiology .....	551
	6. Mechanisms and Routes of Transmission .....	558
	7. Pathogenesis and Immunity .....	559
	8. Patterns of Host Response: Clinical Features and Diagnosis .....	560
	9. Control and Prevention .....	561
	10. Unresolved Problems .....	566
	11. References .....	567
	12. Suggested Reading .....	575
<b>Chapter 27</b>	<b>Pertussis</b> .....	<b>577</b>
	<b>Scott A. Halperin and Gaston De Serres</b>	
	1. Introduction .....	577
	2. Historical Background .....	577
	3. Methodology .....	577
	4. Biological Characteristics of the Organism .....	579

	5.	Descriptive Epidemiology .....	580
	6.	Mechanisms and Routes of Transmission .....	585
	7.	Pathogenesis and Immunity .....	585
	8.	Patterns of Host Response .....	586
	9.	Control and Prevention .....	587
	10.	Unresolved Problems .....	590
	11.	References .....	590
	12.	Suggested Reading .....	595
<b>Chapter 28</b>		<b>Plague .....</b>	<b>597</b>
		<b>David T. Dennis and J. Erin Staples</b>	
	1.	Introduction .....	597
	2.	Historical Background .....	597
	3.	Methodology .....	598
	4.	Biological Characteristics of the Organism .....	598
	5.	Epidemiology .....	600
	6.	Mechanisms and Routes of Transmission .....	603
	7.	Pathogenesis and Immunity .....	603
	8.	Patterns of Host Response .....	604
	9.	Control and Prevention .....	606
	10.	Unresolved Problems .....	608
	11.	References .....	609
	12.	Suggested Reading .....	611
<b>Chapter 29</b>		<b>Pneumococcal Infections .....</b>	<b>613</b>
		<b>Keith P. Klugman and Charles Feldman</b>	
	1.	Introduction .....	613
	2.	Historical Background .....	613
	3.	Methodology .....	615
	4.	Biological Characteristics of the Organism .....	616
	5.	Descriptive Epidemiology .....	617
	6.	Mechanisms and Routes of Transmission .....	624
	7.	Pathogenesis and Immunity .....	624
	8.	Patterns of Host Response .....	627
	9.	Control and Prevention .....	628
	10.	Unresolved Problems .....	634
	11.	References .....	634
	12.	Suggested Reading .....	641
<b>Chapter 30</b>		<b>Q fever .....</b>	<b>643</b>
		<b>Thomas J. Marrie</b>	
	1.	Introduction .....	643
	2.	Historical Aspects .....	643
	3.	Methodology .....	644
	4.	Biological Characteristics of the Organism .....	644

	5. Descriptive Epidemiology .....	645
	6. Routes of Transmission .....	652
	7. Biological Characteristics of the Organism: Pathogenesis and Immunity .....	653
	8. Patterns of Host Response .....	653
	9. Control and Prevention .....	653
	10. Unresolved Issues .....	654
	11. References .....	654
	12. Suggested Readings .....	660
<b>Chapter 31</b>	<b>Rocky Mountain Spotted Fever .....</b>	<b>661</b>
	<b>Aaron Milstone and J. Stephen Dumler</b>	
	1. Introduction .....	661
	2. Historical Background .....	661
	3. Methodology .....	662
	4. Biological Characteristics of the Organism .....	664
	5. Descriptive Epidemiology .....	665
	6. Mechanisms and Routes of Transmission .....	667
	7. Pathogenesis and Immunity .....	667
	8. Patterns of Host Response .....	669
	9. Control and Prevention .....	671
	10. Unresolved Problems .....	673
	11. References .....	673
	12. Suggested Reading .....	676
<b>Chapter 32</b>	<b>Salmonellosis: Nontyphoidal .....</b>	<b>677</b>
	<b>Michael F. Lynch and Robert V. Tauxe</b>	
	1. Introduction .....	677
	2. Historical Background .....	678
	3. Methodology .....	678
	4. Biological Characteristics of the Organism .....	681
	5. Descriptive Epidemiology .....	683
	6. Mechanisms and Routes of Transmission .....	688
	7. Pathogenesis and Immunity .....	689
	8. Patterns of Host Response .....	690
	9. Control and Prevention .....	692
	10. Unresolved Problems .....	693
	11. References .....	694
	12. Suggested Reading .....	698
<b>Chapter 33</b>	<b>Shigellosis .....</b>	<b>699</b>
	<b>Gerald T. Keusch</b>	
	1. Introduction .....	699
	2. Historical Background .....	699
	3. Methodology .....	700

4.	Biological Characteristics of the Organism .....	702
5.	Descriptive Epidemiology .....	705
6.	Mechanisms and Routes of Transmission.....	710
7.	Pathogenesis and Immunity .....	711
8.	Patterns of Host Response .....	714
9.	Control and Prevention .....	716
10.	Unresolved Problems .....	718
11.	References .....	719
12.	Suggested Reading .....	724

<b>Chapter 34</b>	<b>Evans' Infections of Humans: Staphylococcal Infections .....</b>	725
-------------------	---	-----

**Zeina A. Kanafani and Vance G. Fowler, Jr.**

1.	Introduction .....	725
2.	Historical Background .....	725
3.	Methodology .....	725
4.	Biological Characteristics of the Organism .....	726
5.	Descriptive Epidemiology .....	727
6.	Mechanisms and Routes of Transmission.....	729
7.	Pathogenesis and Immunity .....	729
8.	Patterns of Host Response .....	730
9.	Control and Prevention .....	734
10.	Unresolved Problems .....	734
11.	References .....	735
12.	Suggested Reading .....	741

<b>Chapter 35</b>	<b>Streptococcal Infections.....</b>	743
-------------------	--------------------------------------	-----

**Barry M. Gray and Dennis L. Stevens**

1.	Introduction .....	743
2.	Historical Background .....	743
3.	Methodology .....	746
4.	Biological Characteristics of the Organisms .....	754
5.	Descriptive Epidemiology .....	758
6.	Mechanisms and Routes of Transmission.....	765
7.	Pathogenesis and Immunity .....	766
8.	Patterns of Host Response .....	768
9.	Control and Prevention .....	771
10.	Unresolved Problems .....	775
11.	References .....	776
12.	Suggested Reading .....	782

<b>Chapter 36</b>	<b>Syphilis .....</b>	783
-------------------	-----------------------	-----

**Anne Rompalo and Willard Cates**

1.	Introduction .....	783
2.	Historical Aspects .....	783
3.	Methodology .....	785

	4. Biological Characteristics of the Organism .....	786
	5. Descriptive Epidemiology .....	787
	6. Mechanisms and Routes of Transmission.....	791
	7. Pathogenesis and Immunity .....	791
	8. Patterns of Host Response .....	791
	9. Control and Prevention .....	793
	10. Unresolved Problems .....	799
	11. References .....	800
	12. Suggested Reading .....	801
<b>Chapter 37</b>	<b>Nonvenereal Treponematoses .....</b>	<b>803</b>
	<b>Ammar M. Ahmed, Vandana Madkan, Julie S. Brantley, Natalia Mendoza, and Stephen K. Tyring</b>	
	1. Introduction .....	803
	2. Historical Background .....	803
	3. Methodology .....	805
	4. Biological Characteristics of the Organism .....	806
	5. Descriptive Epidemiology .....	806
	6. Mechanisms and Routes of Transmission.....	808
	7. Pathogenesis and Immunity .....	808
	8. Patterns of Host Response .....	808
	9. Control and Prevention .....	810
	10. Unresolved Problems .....	810
	11. References .....	810
	12. Suggested Reading .....	811
<b>Chapter 38</b>	<b>Tetanus .....</b>	<b>813</b>
	<b>Steven G.F. Wassilak and Katrina Kretsinger</b>	
	1. Introduction .....	813
	2. Historical Background .....	813
	3. Methodology .....	814
	4. Biological Characteristics of the Organism .....	815
	5. Descriptive Epidemiology .....	816
	6. Mechanisms and Routes of Transmission.....	819
	7. Pathogenesis and Immunity .....	820
	8. Patterns of Host Response .....	821
	9. Control and Prevention .....	822
	10. Unresolved Problems .....	828
	11. References .....	829
	12. Suggested Readings .....	832
<b>Chapter 39</b>	<b>Toxic Shock Syndrome (Staphylococcal) .....</b>	<b>833</b>
	<b>Arthur L. Reingold</b>	
	1. Introduction .....	833
	2. Historical Background .....	833

	3. Methodology .....	834
	4. Biological Characteristics of the Organism .....	835
	5. Descriptive Epidemiology .....	835
	6. Mechanisms and Routes of Transmission.....	841
	7. Pathogenesis and Immunity .....	841
	8. Patterns of Host Response .....	842
	9. Control and Prevention .....	844
	10. Unresolved Problems .....	845
	11. References .....	845
	12. Suggested Reading .....	848
<b>Chapter 40</b>	<b>Tuberculosis .....</b>	<b>849</b>
	<b>Diana S. Pope, Richard E. Chaisson, and George W. Comstock</b>	
	1. Introduction .....	849
	2. Historical Background .....	849
	3. Methodology .....	851
	4. Biological Characteristics of the Organism .....	854
	5. Descriptive Epidemiology .....	854
	6. Mechanisms and Routes of Transmission.....	863
	7. Pathogenesis and Immunity .....	863
	8. Patterns of Host Response .....	864
	9. Control and Prevention .....	865
	10. Unresolved Problems .....	869
	11. References .....	870
	12. Suggested Readings .....	876
<b>Chapter 41</b>	<b>Nontuberculous Mycobacterial Infections .....</b>	<b>879</b>
	<b>Charles L. Daley</b>	
	1. Introduction .....	879
	2. Historical Background .....	879
	3. Methodology .....	880
	4. Biological Characteristics of the Nontuberculous Mycobacteria .....	881
	5. Descriptive Epidemiology .....	882
	6. Mechanisms and Routes of Transmission.....	884
	7. Pathogenesis and Immunity .....	885
	8. Patterns of Host Response .....	885
	9. Control and Prevention of NTM Infections .....	888
	10. Unresolved Problems .....	891
	11. References .....	891
	12. Suggested Reading .....	894
<b>Chapter 42</b>	<b>Tularemia .....</b>	<b>897</b>
	<b>Paul S. Mead and Jeannine M. Petersen</b>	
	1. Introduction .....	897
	2. Historical Background .....	897

3.	Methodology .....	898
4.	Biological Characteristics.....	898
5.	Descriptive Epidemiology .....	899
6.	Transmission to Humans .....	902
7.	Pathogenesis and Immunity .....	903
8.	Patterns of Host Response .....	903
9.	Control and Prevention .....	906
10.	Unresolved Issues .....	907
11.	References .....	908
 <b>Chapter 43</b>		
<b>Typhoid Fever .....</b>		913
<b>Myron M. Levine</b>		
1.	Introduction .....	913
2.	Historical Background .....	913
3.	Methodology .....	914
4.	Biological Characteristics of the Organism .....	918
5.	Descriptive Epidemiology .....	919
6.	Mechanisms and Routes of Transmission.....	926
7.	Pathogenesis and Immunity .....	927
8.	Patterns of Host Response .....	928
9.	Control and Prevention .....	929
10.	Unresolved Problems .....	932
11.	References .....	932
12.	Suggested Reading .....	937
 <b>Chapter 44</b>		
<b><i>Yersinia enterocolitica</i> Infections .....</b>		939
<b>Ann M. Schmitz and Robert V. Tauxe</b>		
1.	Introduction .....	939
2.	Historical Background .....	939
3.	Methodology .....	940
4.	Biological Characteristics of the Organism .....	942
5.	Descriptive Epidemiology .....	943
6.	Mechanisms and Routes of Transmission.....	948
7.	Pathogenesis and Immunity .....	949
8.	Patterns of Host Response .....	950
9.	Control and Prevention .....	951
10.	Unresolved Problems .....	952
11.	References .....	953
12.	Suggested Reading .....	957
 <b>Index .....</b>		959