

# Contents

1. Laying the Foundations: The Epidemiologic Approach to Disease 3
  - A. General Purposes of Epidemiologic Studies 4
  - B. Content of Epidemiologic Activities 10
  - C. The Sequence of Epidemiologic Reasoning 13
  - D. An Example of the Epidemiologic Approach 15
  - Study Problems 20
2. Threads of Epidemiologic History 23
  - A. The Environment 23
  - B. The Epidemiologic Study 27
  - C. The Epidemiologic Fabric 43
3. Selected Epidemiologic Concepts of Disease 46
  - A. Agent, Host, and Environment 46
  - B. Classification of Human Infections by Mode of Transmission 48
  - C. The Incubation Period 50
  - D. Spectrum of Disease 58
  - E. Herd Immunity 61
  - Study Problems 63
4. Mortality Statistics 66
  - A. Introduction 66

**xiv** Contents

- B. Classification of Cause of Death 67
- C. Measures of Mortality 71
- Study Problems 80
  
- 5. Epidemiologic Studies of Mortality 84
  - A. Distribution of Mortality in Populations 84
  - B. Limitations of Official Mortality Statistics 122
  - C. Studies of Autopsy Series 122
  - Study Problems 125
  
- 6. Morbidity Statistics 133
  - A. Sources 133
  - B. Morbidity Surveys 136
  - C. Measurement of Morbidity 138
  - D. Morbidity Surveys—Some Issues and Problems 144
  - E. Record Linkage 159
  - Study Problems 160
  
- 7. Epidemiologic Studies of Morbidity 166
  - A. Time 166
  - B. Place 169
  - C. Time and Space Clusters 175
  - D. Persons 176
  - Study Problems 183
  
- 8. Observational Studies:
  - I. Retrospective and Cross-Sectional Studies 191
    - A. The Epidemiologic Study 191
    - B. Retrospective and Cross-Sectional Studies 194
    - Study Problems 218
  
- 9. Observational Studies: II. Prospective Studies 226
  - A. The Prospective Approach 226
  - B. Prospective vs. Retrospective Studies 246
  - Study Problems 249
  
- 10. Experimental Epidemiology: I. Clinical Trials 256
  - A. The Experimental Method 256

- B. The Clinical Trial 256
- C. Ethical Considerations 271
- Study Problems 272

11. Experimental Epidemiology: II. Community Trials 276

- A. Experimental Epidemics 277
- B. Human Community Trials 280
- Study Problems 286

12. The Derivation of Biological Inferences  
from Epidemiologic Studies 289

- A. Hypotheses Based on Statistical Relationships 289
- B. Methods of Distinguishing Between Hypotheses 295
- C. General Comment 316
- Study Problems 318

Appendix 1. Selected Statistical Procedures 323

- A. Sampling of Areas and Groups 323
- B. Sampling Variability 329
- C. Tests of Hypotheses for Proportions 338
- D. Relative and Attributable Risks: Derivation, Tests of Significance, Variance, and Confidence Limits 342
- E. Controlling Extraneous Factors 347
- F. Age-Adjusted Mortality Rates: Variance and Standard Errors 352

Appendix 2. Theoretical Epidemiology 355

- A. Epidemic Theory 356
- B. Age-Specific Prevalence of Certain Serological and Skin Tests 358
- C. Age-Specific Incidence Curve of Cancer in Man 359

Author Index 364

Subject Index 371