

CONTENTS

1

EPIDEMIOLOGIC ORIENTATION TO HEALTH AND DISEASE	1
Population Medicine and Epidemiology	1
Epidemiology Defined	3
Natural History of Disease	6
Levels of Prevention	9
Application of Prevention and Natural History: Stroke	12
Summary	15
Study Questions	16
References	19

2

EPIDEMIOLOGIC CONCEPTS AND MODELS	21
The Scope of Epidemiology	21
Variations in Severity of Disease	22
Models of Disease: Multiple Causation	26
Summary	40
Study Questions	40
References	41

3

DESCRIPTIVE EPIDEMIOLOGY: PERSON	43
Age	43
Sex	47
Ethnic Group and Color	49
Social Class	51
Occupation	54

Marital Status.....	56
Other Family Variables	57
Summary	60
Study Questions	60
References	61

4

DESCRIPTIVE EPIDEMIOLOGY: PLACE AND TIME.....	63
Place	63
Time.....	73
Summary	79
<i>Appendix 4-1</i> †	
COHORT ANALYSIS OF MORTALITY.....	81
Study Questions	87
References	89

5

THE SEARCH FOR CAUSAL RELATIONS: OBSERVATIONAL STUDIES.....	91
Observational vs. Experimental Studies.....	92
The Concept of Causality and Steps in the Establishment of Causal Relationships	94
Further Criteria for Judging Whether an Association is Causal.....	101
Summary	109
Study Questions	109
References	110

6

PROPHYLACTIC AND THERAPEUTIC TRIALS: EXPERIMENTAL STUDIES	112
Principles of Conducting Experimental Trials	112
Examples of Experimental Trials.....	116
The Need for Experimentally Derived Information: Ethical Issues	120
Summary	123
Study Questions	123
References	124

7

MEASURES OF MORBIDITY AND MORTALITY	126
Incidence and Prevalence Rates	126
Crude, Specific, and Adjusted Rates	134
Major Sources of Error in Measurement of Disease	139
Summary	144
<i>Appendix 7-1</i>	
ADJUSTMENT OF RATES	146
Need for Adjusting Rates	146
Direct Adjustment of Rates	147
Indirect Adjustment of Rates	149
Summary	153
Study Questions	153
References	159

8

SOURCES OF DATA ON COMMUNITY HEALTH	160
The Census	160
Vital Statistics	163
Morbidity Data	171
Linked Health Records	179
Summary	181
Study Questions	182
References	183

9

SELECTED INDICES OF COMMUNITY HEALTH	184
Cause-Specific Indices	185
Infant and Neonatal Mortality	188
Fetal and Perinatal Mortality	193
Maternal Mortality	195
Life Expectancy	198
Measurement of Disability	201
Other Health-Related Information	202
Summary Index of Health	203
Summary	204
<i>Appendix 9-1</i>	
CALCULATION OF LIFE EXPECTANCY (THE DEMOGRAPHIC LIFE TABLE)	206

Study Questions	210
References	212

10

POPULATION DYNAMICS AND HEALTH	213
Factors in Population Dynamics.....	213
World Population	218
The Stages in Demographic Development.....	221
Trends in United States Population	225
Summary	231
Study Questions	232
References	236

11

SCREENING IN THE DETECTION OF DISEASE AND MAINTENANCE OF HEALTH.....	237
Definition of Screening	239
Criteria for Evaluation of Screening Tests	242
Principles Underlying Screening Programs.....	252
Current Status of Screening for Specific Diseases	255
Summary	260
Study Questions	261
References	263

12

EPIDEMIOLOGIC ASPECTS OF INFECTIOUS DISEASE	264
Host-Parasite Relations.....	264
Mechanisms of Transmission of Infection	269
Types of Epidemics: Common Source vs. Propagated	272
Some Aspects of Person-to-Person Spread of Disease.....	277
Outline of the Investigation of an Epidemic	281
Central Concepts Underlying Control of Infectious Disease in the United States Today.....	283
Current Status of Specific Infectious Disease Problems in the United States.....	289
Summary	300
Study Questions	301
References	306

13

METHODS FOR THE STUDY OF CHRONIC DISEASE.....	307
Emerging Importance of the Chronic Diseases.....	307
Problems in Etiologic Investigation of Chronic Diseases	310
Analytic Approaches to the Etiology of Chronic Disease.....	312
Retrospective Studies	314
Prospective Studies	321
Historical Prospective Studies	325
Choice of Study Methods	327
Survivorship (Prognosis) in Chronic Disease.....	328
Summary	330
<i>Appendix 13-1</i>	
COHORT LIFE TABLES (SURVIVORSHIP STUDIES).....	332
Study Questions	335
References	339
ANSWERS TO STUDY QUESTIONS.....	341
AUTHOR INDEX	363
SUBJECT INDEX	367