

The Health Consequences of Involuntary Exposure to Tobacco Smoke

Chapter 1. Introduction, Summary, and Conclusions 1

Introduction	3
Definitions and Terminology	9
Evidence Evaluation	10
Major Conclusions	11
Chapter Conclusions	12
Methodologic Issues	17
Tobacco Industry Activities	23
References	24

Chapter 2. Toxicology of Secondhand Smoke 27

Introduction	29
Evidence of Carcinogenic Effects from Secondhand Smoke Exposure	30
Mechanisms of Respiratory Tract Injury and Disease Caused by Secondhand Smoke Exposure	46
Mechanisms of Secondhand Smoke Exposure and Heart Disease	52
Evidence Synthesis	64
Conclusions	65
Overall Implications	66
References	67

Chapter 3. Assessment of Exposure to Secondhand Smoke 83

Introduction	85
Building Designs and Operations	86
Atmospheric Markers of Secondhand Smoke	93
Exposure Models	96
Biomarkers of Exposure to Secondhand Smoke	100
Conclusions	115
References	116

Chapter 4. Prevalence of Exposure to Secondhand Smoke 127

Introduction	129
Methods	129
Metrics of Secondhand Smoke Exposure	130
Estimates of Exposure	132
Conclusions	158
Overall Implications	158
References	159

Chapter 5. Reproductive and Developmental Effects from Exposure to Secondhand Smoke 165

Introduction	167
Conclusions of Previous Surgeon General's Reports and Other Relevant Reports	167
Literature Search Methods	167

Critical Exposure Periods for Reproductive and Developmental Effects	169
Fertility	171
Pregnancy (Spontaneous Abortion and Perinatal Death)	176
Infant Deaths	179
Sudden Infant Death Syndrome	180
Preterm Delivery	194
Low Birth Weight	198
Congenital Malformations	205
Cognitive, Behavioral, and Physical Development	210
Childhood Cancer	221
Conclusions	242
Overall Implications	244
References	245
Chapter 6. Respiratory Effects in Children from Exposure to Secondhand Smoke	257
Introduction	261
Mechanisms of Health Effects from Secondhand Tobacco Smoke	262
Methods Used to Review the Evidence	266
Lower Respiratory Illnesses in Infancy and Early Childhood	267
Middle Ear Disease and Adenotonsillectomy	292
Respiratory Symptoms and Prevalent Asthma in School-Age Children	310
Childhood Asthma Onset	355
Atopy	375
Lung Growth and Pulmonary Function	385
Conclusions	400
Overall Implications	401
References	402
Chapter 7. Cancer Among Adults from Exposure to Secondhand Smoke	421
Introduction	423
Lung Cancer	423
Other Cancer Sites	446
Conclusions	484
Overall Implications	484
Appendix 7.1. Details of Recent Lung Cancer Studies	485
References	498
Chapter 8. Cardiovascular Diseases from Exposure to Secondhand Smoke	507
Introduction	509
Coronary Heart Disease	509
Stroke	527
Subclinical Vascular Disease	529
Evidence Synthesis	531
Conclusions	532
Overall Implications	532
References	533

Chapter 9. Respiratory Effects in Adults from Exposure to Secondhand Smoke 537

Introduction 539
Biologic Basis 542
Odor and Irritation 545
Respiratory Symptoms 547
Lung Function 553
Respiratory Diseases 555
Conclusions 562
Overall Implications 563
References 564

Chapter 10. Control of Secondhand Smoke Exposure 569

Introduction 571
Historical Perspective 571
Attitudes and Beliefs About Secondhand Smoke 588
Policy Approaches 598
Technical Approaches 635
Conclusions 649
Overall Implications 649
References 651

A Vision for the Future 667

Appendix 671

List of Abbreviations 675

List of Tables and Figures 679

Index 685

