## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>iii</td>
</tr>
<tr>
<td>Preface</td>
<td>ix</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>xiii</td>
</tr>
<tr>
<td>Introduction</td>
<td>xix</td>
</tr>
<tr>
<td>List of Tables</td>
<td>xxvii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xxix</td>
</tr>
<tr>
<td>1. The Scientific Rationale for Comprehensive, Community-Based, Smoking Control Strategies</td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Background: Efforts To Control Tobacco Use</td>
<td>5</td>
</tr>
<tr>
<td>Patterns of Smoking Behavior</td>
<td>8</td>
</tr>
<tr>
<td>Role of Public Information Campaigns</td>
<td>11</td>
</tr>
<tr>
<td>Results of Early Tobacco Control Efforts</td>
<td>12</td>
</tr>
<tr>
<td>Comprehensive Control Strategies</td>
<td>21</td>
</tr>
<tr>
<td>References</td>
<td>28</td>
</tr>
<tr>
<td>2. Evolution of Smoking Control Strategies</td>
<td>33</td>
</tr>
<tr>
<td>Introduction</td>
<td>35</td>
</tr>
<tr>
<td>Information and Education Campaigns</td>
<td>35</td>
</tr>
<tr>
<td>Cessation Program Strategies</td>
<td>37</td>
</tr>
<tr>
<td>Prevention Strategies</td>
<td>48</td>
</tr>
<tr>
<td>Comprehensive Approach to Smoking Control</td>
<td>51</td>
</tr>
<tr>
<td>Conclusions</td>
<td>60</td>
</tr>
<tr>
<td>References</td>
<td>61</td>
</tr>
<tr>
<td>3. Smoking Prevalence and Lung Cancer Death Rates</td>
<td>73</td>
</tr>
<tr>
<td>Introduction</td>
<td>75</td>
</tr>
<tr>
<td>Analysis of Smoking Behavior</td>
<td>77</td>
</tr>
<tr>
<td>Smoking Prevalence</td>
<td>80</td>
</tr>
<tr>
<td>Lung Cancer Mortality</td>
<td>86</td>
</tr>
<tr>
<td>A Discrete State Model of Health Intervention</td>
<td>109</td>
</tr>
<tr>
<td>Conclusions</td>
<td>122</td>
</tr>
<tr>
<td>References</td>
<td>125</td>
</tr>
<tr>
<td>Appendix A. Data Points for Figures in Chapter 3</td>
<td>127</td>
</tr>
<tr>
<td>4. Approaches Directed to the Individual</td>
<td>145</td>
</tr>
<tr>
<td>Introduction</td>
<td>147</td>
</tr>
<tr>
<td>Public Information Campaigns</td>
<td>147</td>
</tr>
<tr>
<td>Evolution of School-Based Interventions</td>
<td>152</td>
</tr>
</tbody>
</table>
List of Tables

CHAPTER 3

Table 1. Sample sizes for three major NHIS data sets, by birth cohort, gender, and race .........................81
Table 2. Lung cancer mortality rates, 1950 to 1985, for all males born 1901 through 1950, by birth cohort .........................................................92
Table 3. Lung cancer mortality rates, 1950 to 1985, for white males born 1901 through 1950, by birth cohort .........................................................92
Table 4. Lung cancer mortality rates, 1950 to 1985, for nonwhite males born 1901 through 1950, by birth cohort .........................................................93
Table 5. Lung cancer mortality rates, 1950 to 1985, for all females born 1901 through 1950, by birth cohort .........................................................93
Table 6. Lung cancer mortality rates, 1950 to 1985, for white females born 1901 through 1950, by birth cohort .........................................................94
Table 7. Lung cancer mortality rates, 1950 to 1985, for nonwhite females born 1901 through 1950, by birth cohort .........................................................94
Table 8. Age-specific lung cancer death rates, 1950 to 1980, for all males born 1901 through 1940, by birth cohort .........................................................95
Table 9. Age-specific lung cancer death rates, 1950 to 1980, for white males born 1901 through 1940, by birth cohort .........................................................95
Table 10. Age-specific lung cancer death rates, 1950 to 1980, for nonwhite males born 1901 through 1940, by birth cohort .........................................................96
Table 11. Age-specific lung cancer death rates, 1950 to 1980, for all females born 1901 through 1940, by birth cohort .........................................................96
Table 12. Age-specific lung cancer death rates, 1950 to 1980, for white females born 1901 through 1940, by birth cohort .........................................................97
Table 13. Age-specific lung cancer death rates, 1950 to 1980, for nonwhite females born 1901 through 1940, by birth cohort .........................................................97
Table 14. Distribution of nonsmokers, smokers, and ex-smokers in 1980, by race, gender, and birth cohort .........................................................114
Table 15. Relative risks of death for current and former smokers (males) .........................................................115
Table 16. Relative risks of death for current and former smokers (females) ....................................................... 116
Table 17. Probability of initiating smoking in future as a function of age (5-year rate) ........................................... 118
Table 18. Probability of termination of smoking during 5-year period, by 5-year duration .............................. 118
Table 19. Forecast mortality rates for select causes of death, white males, ages 55 to 84 ................................. 119
Table 20. Forecast mortality rates for select causes of death, white females, ages 55 to 84 .......................... 120
Table 21. Forecast mortality rates for select causes of death, black males, ages 55 to 84 ............................ 121
Table 22. Forecast mortality rates for select causes of death, black females, ages 55 to 84 ....................... 122
Table 23. Forecast age-standardized mortality rates, based on 1980 population ........................................ 123
Table 24. Forecast age-specific lung cancer mortality rates, assuming cessation rates are doubled ........ 124

CHAPTER 4
Table 1. A 12-session life skills training program .............. 156
Table 2. A comparison of some psychosocial school-based interventions ....................................................... 157
Table 3. The stage model and smoking motives .................... 164
Table 4. A program variation of the life skills model .......... 167
Table 5. Methods used by cessation programs .................... 173

CHAPTER 5
Table 1. Examples of tobacco control activities, by channel and group responsible for performance ...................................... 219
Table 2. Survey of Minnesota 10th graders ....................... 235
Table 3. Excise taxes as percentage of cigarettes' total cost to consumers ...................................................... 241
Table 4. Age-specific estimates of the price elasticity of demand for cigarettes ........................................... 243
List of Figures

CHAPTER 1

Figure 1. Actual (1980) and projected (1985 to 2015) lung cancer death rates, ages 55 to 84 .......... 4
Figure 2. Smoking prevalence among men born from 1911 to 1920 (through 1987) ................. 8
Figure 3. Changes in smoking prevalence among U.S. males born from 1901 to 1970 (through 1987) ......................................................... 10
Figure 4. Changes in smoking prevalence among U.S. females born from 1901 to 1970 (through 1987) ......................................................... 10
Figure 5. U.S. per capita cigarette consumption for adults, aged 18 and older (1930 to 1990) .......... 11
Figure 6. Percentage of former smokers, black males born from 1901 to 1940 (through 1987) .... 13
Figure 7. Percentage of former smokers, white males born from 1901 to 1940 (through 1987) .... 13
Figure 8. Percentage of black male current smokers quitting over 5-year intervals ...................... 15
Figure 9. Percentage of white male current smokers quitting over 5-year intervals ...................... 15
Figure 10. Percentage of white female current smokers quitting over 5-year intervals .................... 16
Figure 11. Impact of California state tax increase on per capita consumption of cigarettes, adults aged 18 and over .............................................. 18
Figure 12. Smoking relapse rates, by gender and level of education (California smokers, 1990) .......... 19
Figure 13. Processes of smoking initiation and cessation .......................................................... 22
Figure 14. Forces that influence adolescent progression into adult smoking .................................. 23
Figure 15. Process of cessation ................................................................................................. 26

CHAPTER 3

Figure 1. U.S. per capita cigarette consumption for adults, aged 18 and older (1900 to 1990) ......... 75
Figure 2. Changes in prevalence of cigarette smoking among successive birth cohorts of U.S. males, 1900 to 1987 ................................................................. 82
Figure 3. Changes in prevalence of cigarette smoking among successive birth cohorts of U.S. females, 1900 to 1987 ................................................................. 83
Figure 4. Changes in prevalence of cigarette smoking among successive birth cohorts of white U.S. males, 1900 to 1987 ........................................... 84

Figure 5. Changes in prevalence of cigarette smoking among successive birth cohorts of black U.S. males, 1900 to 1987 ........................................... 84

Figure 6. Changes in prevalence of cigarette smoking among successive birth cohorts of white U.S. females, 1900 to 1987 ........................................... 87

Figure 7. Changes in prevalence of cigarette smoking among successive birth cohorts of black U.S. females, 1900 to 1987 ........................................... 87

Figure 8. Age-adjusted cancer mortality rates, all males ............................................................... 88

Figure 9. Age-adjusted cancer mortality rates, white males ............................................................ 89

Figure 10. Age-adjusted cancer mortality rates, nonwhite males .................................................... 89

Figure 11. Age-adjusted cancer mortality rates, all females ............................................................ 90

Figure 12. Age-adjusted cancer mortality rates, white females ....................................................... 91

Figure 13. Age-adjusted cancer mortality rates, nonwhite females ................................................ 91

Figure 14. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. males born 1901 to 1910 ......................................................... 98

Figure 15. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. males born 1901 to 1910 ......................................................... 98

Figure 16. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. males born 1911 to 1920 ......................................................... 99

Figure 17. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. males born 1911 to 1920 ......................................................... 99

Figure 18. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. males born 1921 to 1930 ......................................................... 100

Figure 19. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. males born 1921 to 1930 ......................................................... 100

Figure 20. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. males born 1931 to 1940 ......................................................... 101

Figure 21. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. males born 1931 to 1940 ......................................................... 101
Figure 22. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. males born 1941 to 1950 ............................................ 102

Figure 23. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. males born 1941 to 1950 ............................................ 102

Figure 24. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. females born 1901 to 1910 ............................................ 103

Figure 25. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. females born 1901 to 1910 ............................................ 103

Figure 26. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. females born 1911 to 1920 ............................................ 104

Figure 27. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. females born 1911 to 1920 ............................................ 104

Figure 28. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. females born 1921 to 1930 ............................................ 105

Figure 29. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. females born 1921 to 1930 ............................................ 105

Figure 30. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. females born 1931 to 1940 ............................................ 106

Figure 31. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. females born 1931 to 1940 ............................................ 106

Figure 32. Changes in current smokers, ever-smokers, and lung cancer deaths, for white U.S. females born 1941 to 1950 ............................................ 107

Figure 33. Changes in current smokers, ever-smokers, and lung cancer deaths, for black U.S. females born 1941 to 1950 ............................................ 107

Figure 34. Compartment model schematic of morbidity-mortality process with discrete risk states ........ 109

CHAPTER 5

Figure 1. Per capita consumption of cigarettes (18 years and older), 1925 to 1990 ....................... 204