

### 3. Tobacco-Related Deaths and Economic Costs

During 2002 and 2003, it is estimated that in Pennsylvania over 20,000 lives were lost because of the effects of smoking. In comparison, in 2002 there were 1,650 deaths due to motor vehicle accidents, 629 homicides, and 1,326 suicides, according to Pennsylvania Department of Health, Bureau of Health Statistics and Research. Smoking-related deaths, by far, lead the list of preventable deaths. Table 3-1 depicts the average annual number of total deaths in each health district and in Philadelphia and Allegheny counties for the years 2002 and 2003. Using those death counts along with the associated causes of death and the smoking prevalence rate for the two years, smoking-related deaths were calculated using a standard formula adopted by the Center for Disease Control and Prevention (Smoking Attributable Morbidity, Mortality and Economic Costs [SAMMEC]: Adult SAMMEC software) for the state and for the eight regions of the state. These results are for adults aged 35 and over and do not include deaths due to burns or second-hand smoke. There was only a modest geographic difference in the percent of deaths due to smoking.

**Table 3-1. Estimated Average Annual Smoking-Related Deaths by Geographic Area  
Pennsylvania, 2002-2003**

Area	Current Smoking Prevalence <sup>1</sup>	Smoking-Related Mortality <sup>2</sup>	Number All Deaths <sup>3</sup>	Percent Smoking-Related Deaths
Pennsylvania	25% ( $\pm 1$ )	20,318	129,143	16%
Southeastern Health District (Excluding Philadelphia County)	23% ( $\pm 2$ )	4,811	30,967	16%
Northeastern Health District	27% ( $\pm 3$ )	2,658	16,656	16%
Southcentral Health District	23% ( $\pm 3$ )	2,251	15,031	15%
Northcentral Health District	23% ( $\pm 5$ )	1,002	6,724	15%
Northwestern Health District	28% ( $\pm 4$ )	1,557	10,320	15%
Southwestern Health District (Excluding Allegheny County)	24% ( $\pm 2$ )	2,830	17,743	16%
Allegheny County	25% ( $\pm 3$ )	2,429	15,102	16%
Philadelphia County	29% ( $\pm 4$ )	2,784	16,600	17%

1. Current smoking prevalence, based on aggregated BRFSS, 2002 and 2003 data, Division of Statistical Support, Bureau of Health Statistics and Research, including 95% confidence interval.
2. Calculated using the Center for Disease Control and Prevention, Smoking Attributable Morbidity, Mortality and Economic Costs (SAMMEC): Adult SAMMEC software. Calculation is based on current smoking prevalence and deaths attributable to smoking-related causes.
3. Average annual deaths, based on death certificate data, 2002-2003, Division of Vital Records, Bureau of Health Statistics and Research.

Table 3-2 (on the next page) lists the diseases and other health effects that have been shown to cause death due to smoking, according to the 2004 Surgeon General's report, *The Health Consequences of Smoking*<sup>1</sup>. These health effects do not cause deaths in equal proportions. Each disease has a relative risk fraction associated that is used by the SAMMEC software formula to calculate the number of deaths.

**Table 3-2. Diseases and Other Health Effects for Which Smoking Is Identified as a Cause**

<b>Malignant Neoplasms</b>	<b>Respiratory diseases</b>
Bladder cancer	Chronic obstructive pulmonary disease
Cervical cancer	Pneumonia
Esophageal cancer	Respiratory effects
Kidney cancer	<b>Other effects</b>
Laryngeal cancer	Cataract
Leukemia	Diminished health status/morbidity
Lung cancer	Hip fractures
Oral cancer	Low bone density
Pancreatic cancer	Peptic ulcer disease
Stomach cancer	
<b>Cardiovascular diseases</b>	
Abdominal aortic aneurysm	
Atherosclerosis	
Cerebrovascular disease	
Coronary heart disease	

1. Source: U.S. Department of Health and Human Services. *The Health Consequences of Smoking: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.

The direct health care costs, shown in Table 3-3, are those personal health care costs associated with smoking-related illnesses for adults aged 35 and over, and are estimated for 1998 to be approximately four billion dollars. These direct health care costs include ambulatory care, hospital care, prescription drugs, nursing home care, and other care (such as home health, nonprescription drugs, and non-durable medical products).

**Table 3-3. Smoking-Related Personal Health Care Costs, Pennsylvania, 1998**

	<b>Smoking-Attributable Personal Health Care Expenditure</b>
Ambulatory care	\$1,231,000,000
Hospital care	\$918,000,000
Prescription Drugs	\$363,000,000
Nursing Home	\$1,311,000,000
Other	\$231,000,000
<b>Total</b>	<b>\$4,053,000,000</b>

Source: Center for Disease Control and Prevention. Smoking Attributable Morbidity, Mortality and Economic Costs (SAMMEC): Adult SAMMEC software.

In addition to direct health care costs, annual costs associated with lost productivity due to smoking-related illness are estimated for Pennsylvania to be over 4.5 billion dollars annually (see Table 3-4) for 2002 and 2003.

Smoking-attributable years of potential life lost (YPLL) is the measure of total years of life lost because of cigarette smoking. Table 3-5 lists the major smoking-related health risks, and an estimated number of years of life lost due to that smoking-related disease and the fact of smoking, including approximately 268,000 years statewide. These calculations include adults aged 35 and over and do not include deaths due to burns or second-hand smoke.

**Table 3-4. Smoking-Attributable Annual Productivity Losses by Major Illness Category Pennsylvania, 2002-2003**

<b>Disease Category</b>	<b>Productivity Loss</b>
Malignant Neoplasms	\$2,197,468,000
Cardiovascular Diseases	\$1,690,945,000
Respiratory Diseases	\$627,590,000
<b>Total</b>	<b>\$4,516,002,000</b>

Source: Center for Disease Control and Prevention. Smoking Attributable Morbidity, Mortality and Economic Costs (SAMMEC): Adult SAMMEC software.

Note: These calculations used statewide tobacco prevalence data from BRFSS using aggregated 2002 and 2003 data, average annual deaths, based on death certificate data, 2002-2003, Division of Vital Records, Bureau of Health Statistics and Research, and the 2001 Present Value of Future Earnings estimates provided by SAMMEC software.

**Table 3-5. Smoking-Attributable Annual Years of Potential Life Lost by Major Illness Category Pennsylvania, 2002-2003**

<b>Disease Category</b>	<b>Years of Productive Life Lost</b>
Malignant Neoplasms	120,423
Cardiovascular Diseases	93,680
Respiratory Diseases	53,510
<b>Total</b>	<b>267,612</b>

Source: Center for Disease Control and Prevention. Smoking Attributable Morbidity, Mortality and Economic Costs (SAMMEC): Adult SAMMEC software.

Note: These calculations used statewide tobacco prevalence data from BRFSS using aggregated 2002 and 2003 data, average annual deaths, based on death certificate data, 2002-2003, Division of Vital Records, Bureau of Health Statistics and Research.