Pennsylvania Tobacco Facts 2008

Bureau of Health Statistics and Research

and

Division of Tobacco Prevention and Control

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Executive Summary

This report provides tobacco facts regarding rates of cigarette and other tobacco products use, resulting health and financial costs, and exposure to secondhand smoke in Pennsylvania for adults and youth of this state. Data have been gathered from surveys, vital statistics, tax receipts, and sales inspections reports (Synar) for this report. These data sources are described in detail in Appendix A.

The information included here is intended for tobacco control program staff, researchers, healthcare providers, local health departments, and community partners.

Pennsylvania Tobacco Facts supports the programmatic goals of the Pennsylvania State Tobacco Prevention and Control Program, which are to 1) prevent the initiation of tobacco use among young people, 2) promote quitting among adults and young people, 3) eliminate nonsmokers' exposure to secondhand smoke, and 4) identify and eliminate tobacco-related disparities.

Key findings for Pennsylvania from this report show the following:

- **Cigarette sales in Pennsylvania declined by 31 percent between 1997 and 2006.**
- **Between 2003 and 2006, there was a statistically significant drop in smoking prevalence among adults in Pennsylvania ($p<0.05$)*.**
- **Approximately 20,000 Pennsylvania adults die annually, at a rate of 16 percent, from smoking-related causes.**
- **Tobacco-related personal health care costs total approximately four billion dollars annually in Pennsylvania.**
- **Smoking attributable productivity losses in Pennsylvania total 4.6 billion dollars annually.**
- **Smoking attributable years of potential life lost totaled approximately 268,000 years annually for Pennsylvania adults aged 35 and older.**
- **Statistically significant ($p<0.05$)* disparities exist in smoking rates based on age (lower rates are associated with older ages), race (higher rates of smoking are shown in African Americans compared to Whites), education (increasing education is associated with lower rates of smoking), income (higher income is associated with lower smoking rates) and health care coverage (lack of coverage is associated with higher smoking rates).**
- **Youth cigarette use in both Pennsylvania middle schools and high schools dropped significantly ($p<0.05$)*, between school year 2002-2003 and 2006-2007.**
- **Rates of illegal sales of cigarettes in Pennsylvania to minors have fallen dramatically from over 50 percent in 1996 to under 10 percent in 2006.**
- **Approximately seven in ten Pennsylvania adults favor a ban on smoking in indoor work areas and shopping malls.**
- **Approximately eight in ten Pennsylvania middle school students and over seven in ten Pennsylvania high school students think smoking should never be allowed in indoor public places.**

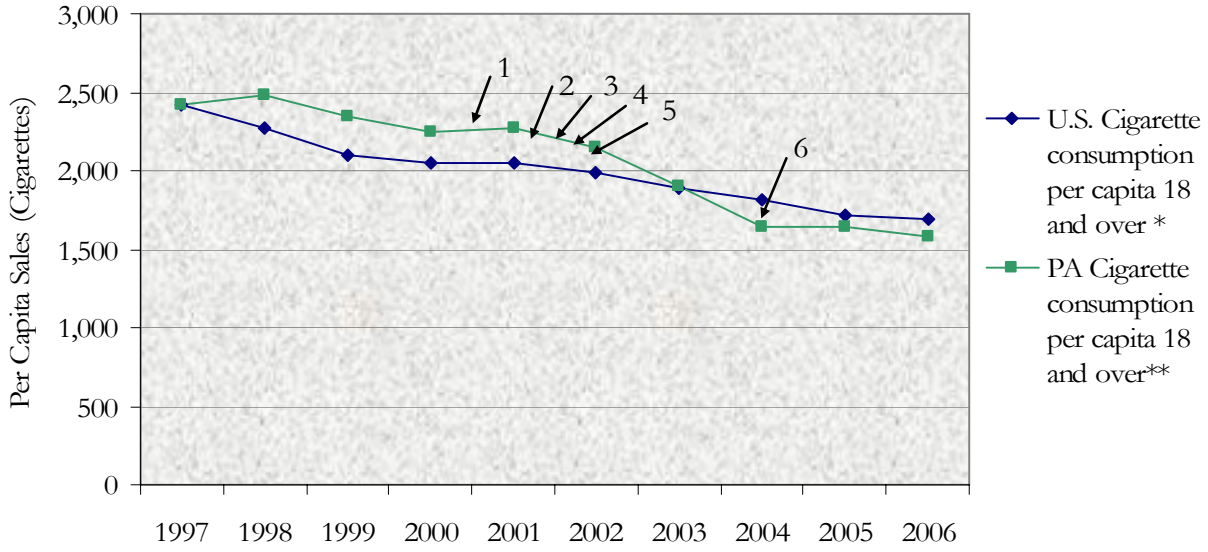
* p is the probability that a difference was found when no differences actually exist.

1. Cigarette Sales

Cigarette sales are falling in the United States as well as in Pennsylvania. The two charts on the next page show that downward trend. Chart 1-1 illustrates per capita purchases of cigarettes using population 18 years and older. The per capita sales of cigarettes in the United States started to fall below that of Pennsylvania in 1998. Pennsylvania sales dropped dramatically between 2001 and 2003 when Tobacco Settlement Act funds were distributed to counties for tobacco control and cessation programs, and after a significant increase in cigarette excise tax. In 2004, Pennsylvania per capita cigarette sales fell substantially below that of the nation, and have since remained lower.

Table 1-2 shows the total packs of cigarettes sold in Pennsylvania between 1997 and 2006, using stamp sales from the Pennsylvania Department of Revenue. Pennsylvania smokers purchased 31 percent fewer packs of cigarettes in 2006 compared to 1997. The population growth during that nine-year period accounts for an even greater drop in the per capita purchase of cigarettes (using Pennsylvania population aged 18 and over) of 35 percent. Between 1997 and 2001, per capita sales of cigarettes declined six percent. Between 2002 and 2006, when counties began offering tobacco control and prevention programs, per capita sales fell approximately 26 percent. Despite the decline in purchases of cigarettes, the amount of cigarette excise taxes collected increased due to increases in the tax rate.

***Chart 1-1*. Trends in Annual Per Capita Sales of Cigarettes Pennsylvania and the United States, 1997-2006**



Related Events Noted on Chart:

1. June 2001: Enactment of Act 77 of 2001, the Tobacco Settlement Act, established a special fund and account for money received by Pennsylvania from the Master Settlement Agreement with tobacco manufacturers
2. January 2002: $0.69 per pack cigarette excise tax increase, from $0.31 to $1.00
3. May 2002: 67 counties receive tobacco funds to establish comprehensive tobacco programs
4. June 2002: Launch of Pennsylvania Free Quitline (1-800-QUIT-NOW)
5. July 2002: Act 112 of 2002, amended Youth Access to Tobacco law
6. July 2004: $0.35 per pack cigarette excise tax increase, from $1.00 to $1.35

Sources:

* PA per capita are data from PA Department of Revenue stamp sales for each year, divided by Census Bureau population estimates for Pennsylvanians 18 and over.

**U.S. per capita data are from U.S. Department of Agriculture, Economic Research Service; The Economics of Food, Farming, Natural Resources, and Rural America. The data are provided based on per capita, using adults aged 18 and over, and in terms of total cigarettes sold. This can be found at http://www.ers.usda.gov/Briefing/Tobacco/Data/table07.pdf.

***Table 1-2*. Cigarette Sales, Pennsylvania, Change From 1997 to 2006**

	State Tax-paid Cigarette Sales	Annual PA Per Capita Cigarette Sales	Annual Cigarette Excise Tax Collected
1997	1.110 billion packs	2,420 cigarettes	$333 million
2001	1.064 billion packs	2,269 cigarettes	$311 million
Change from 1997 to 2001	46 million fewer packs sold	151 fewer cigarettes, per capita	$22 million decrease
2002	1.011 billion packs	2,144 cigarettes	$600 million
2006	761 million packs	1,584 cigarettes	$1.015 billion
Change from 2002 to 2006	250 million fewer packs sold	560 fewer cigarettes, per capita	$415 million increase

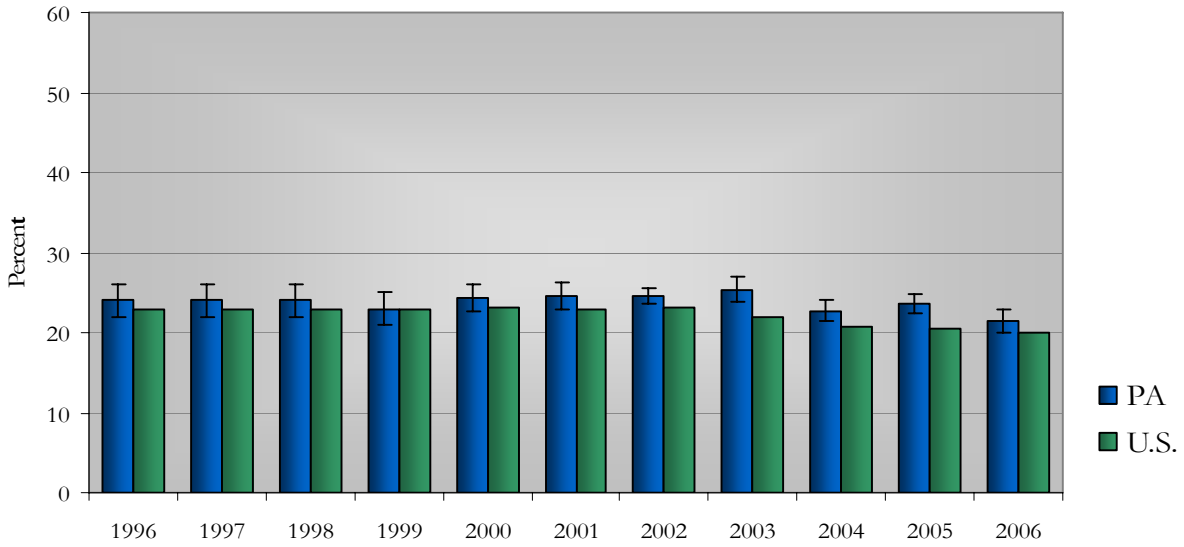
Source: PA per capita are data from PA Department of Revenue stamp sales for each year, divided by Census Bureau population estimates for Pennsylvanians 18 and over.

2. Prevalence of Adult Tobacco Use

While cigarette sales in Pennsylvania, discussed in the previous section, have fallen steadily for many years, the prevalence of cigarette smoking in the United States and Pennsylvania has been slower to decline. Figure 2-1 illustrates the trend in Pennsylvania to have a slightly larger percentage of smokers compared to the nation's median rate of smoking among the 53 states, District of Columbia and territories. This chart also shows that since 2004 there has been a gradual, but significant, drop in prevalence of smoking both in Pennsylvania and the nation in general.

Throughout the state, there were modest differences between health districts and counties in smoking prevalence, as seen in Figure 2-2. The Southeastern Health District, with Philadelphia excluded, for example, had a slightly lower prevalence than the rest of the state, while Philadelphia itself had a higher smoking rate.

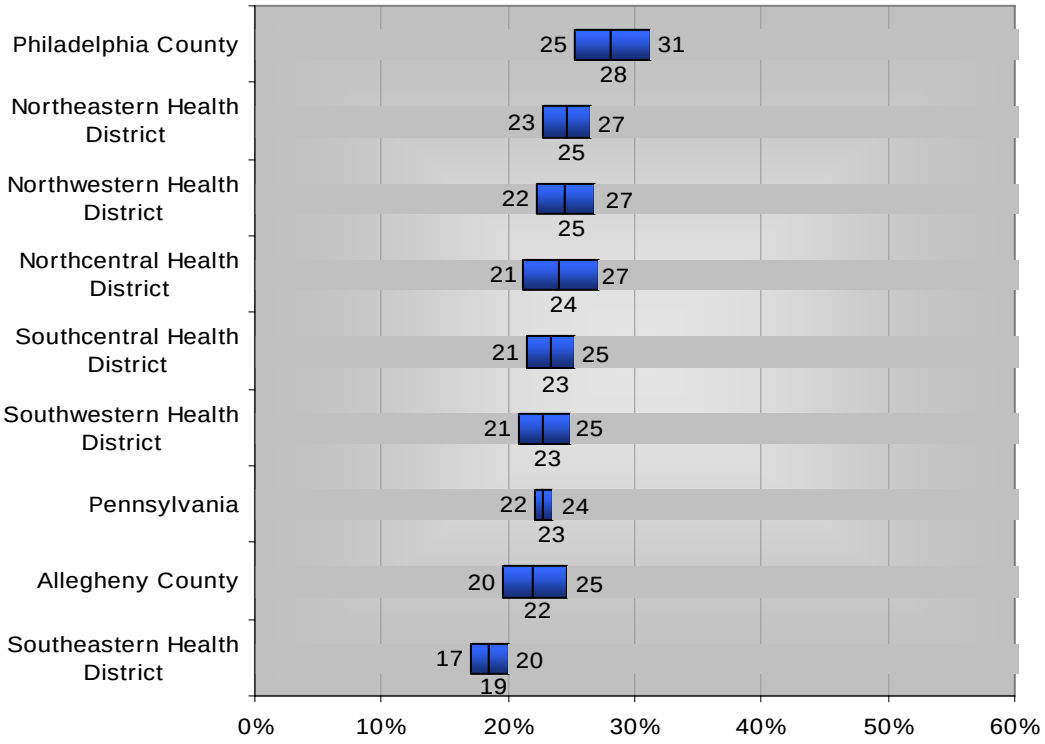
Figure 2-1. **Percentage of Adults Who Smoke, by Year, Pennsylvania vs. United States, 1996 – 2006**



Note: I represents a 95% confidence interval.

Source:
1) Current smoking prevalence, Behavioral Risk Factor Surveillance System, 1996-2006, Pennsylvania Department of Health, Bureau of Health Statistics and Research.
2) Median current smoking prevalence among 53 states, DC, and territories, Behavioral Risk Factor Surveillance System, 1996-2006, U.S. Centers for Disease Control and Prevention.

Figure 2-2. **Current Smoking Prevalence in Pennsylvania by Health District, 2004-2006**



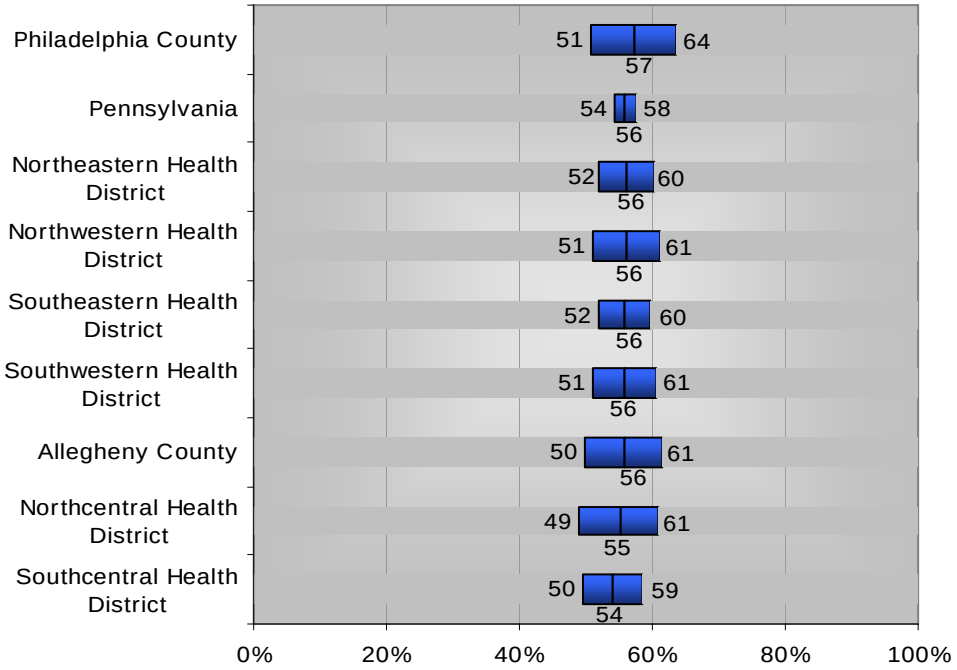
Note: The lower and upper numbers are the range of the 95% confidence interval, and the middle number is the estimated value of the prevalence of smoking in that district.

Source: Pennsylvania Behavioral Risk Surveillance Survey, aggregated data 2004, 2005 and 2006, Pennsylvania Department of Health, Bureau of Health Statistics and Research.

- Northwestern Health District includes Warren, Clearfield, Lawrence, Mercer, Venango, Forest, McKean, Elk, Erie, Cameron, Clarion, Jefferson, and Crawford counties.
- Northeastern Health District includes Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Susquehanna, Wayne, and Wyoming counties.
- Southwestern Health District includes Washington, Westmoreland, Cambria, Indiana, Armstrong, Butler, Fayette, Green, Beaver, and Somerset counties.
- Southcentral Health District includes York, Franklin, Fulton, Bedford, Adams, Perry, Lebanon, Huntington, Juniata, Cumberland, Dauphin, Blair, and Mifflin counties.
- Southeastern Health District includes Berks, Bucks, Chester, Delaware, Lancaster, Montgomery, and Schuylkill counties.
- Northcentral Health District includes Synder, Northumberland, Union, Columbia, Montour, Sullivan, Bradford, Tioga, Lycoming, Centre, Clinton, and Potter counties.

Adults around the state have tried to quit smoking. The chart below shows the geographical distribution of adults with at least one attempt to quit in the past year. There was great consistency regionally in the state in numbers of smokers who were attempting to quit.

Figure 2-3. **Percent of Smokers with One or More Attempts to Quit in Pennsylvania by Health District, 2004-2006**



Note: The lower and upper numbers are the range of the 95% confidence interval, and the middle number is the estimated value of the prevalence of at least one quit attempt in that district.

Source: Pennsylvania Behavioral Risk Surveillance Survey, aggregated data 2004, 2005 and 2006, Pennsylvania Department of Health, Bureau of Health Statistics and Research.

More than half of smokers were seriously considering quitting in the next six months, and over a quarter of adult smokers were planning to quit in the next 30 days (Table 2-4).

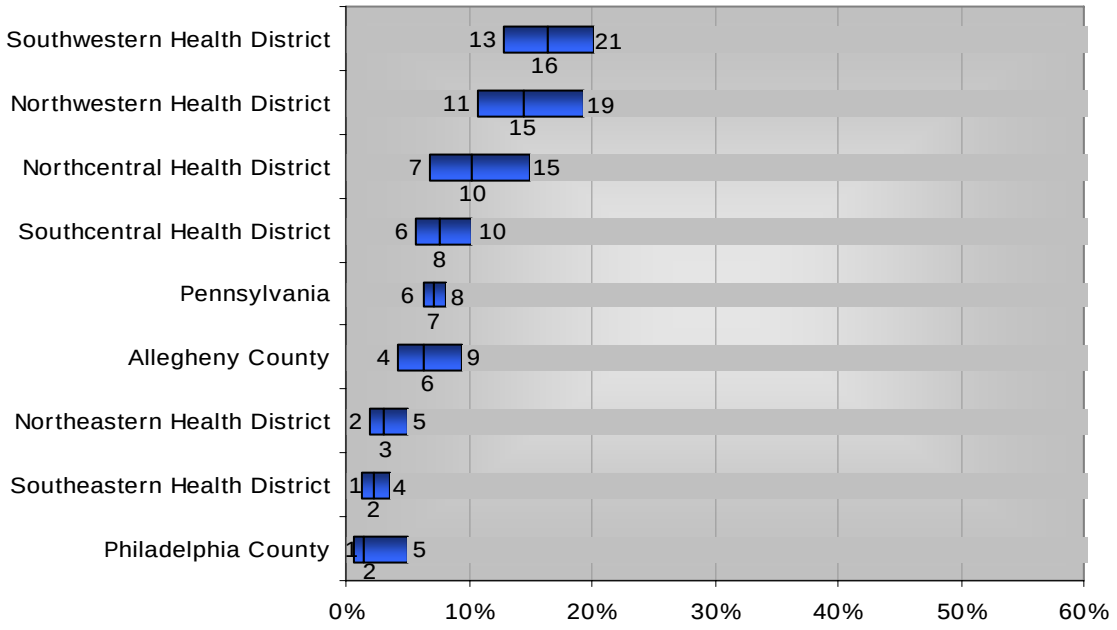
Table 2-4. **Selected Characteristics for Smokers Trying to Quit, Pennsylvania Adults, 2005**

	Percent	**95% Confidence Interval**
Current smokers who are seriously considered stopping smoking in the next six months	55%	50% - 60%
Current smokers who planned to stop smoking in the next thirty days	27%	22% - 31%
Current or former smokers who used assistance, either counseling or medication, the last time they tried to quit smoking	25%	20% - 31%

Source: Adult Tobacco Survey, 2005, Pennsylvania Department of Health, Bureau of Chronic Diseases and Injury Prevention, Division of Tobacco Prevention and Control.

The second most commonly used tobacco product in Pennsylvania is smokeless tobacco. Approximately seven percent of Pennsylvania adult males had used smokeless tobacco in the past 30 days. Many more males than females used smokeless tobacco and rural parts of the state had much higher rates of use compared to urban areas. Geographically, Southwestern, excluding Allegheny, and Northwestern areas had higher rates of smokeless tobacco use among males and the Northeastern and Southeastern Health Districts and Philadelphia County had lower rates than the rest of the state.

Figure 2-5. **Current Male Use of Smokeless Tobacco Prevalence in Pennsylvania by Health District, 2002-2003**



Note: The lower and upper numbers are the range of the 95% confidence interval, and the middle number is the estimated value of the prevalence of smokeless tobacco use in that district.

Source: Pennsylvania Behavioral Risk Surveillance Survey, aggregated data 2002 and 2003, Pennsylvania Department of Health, Bureau of Health Statistics and Research.

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 [1]	Smoking-Related Mortality [2]	Number All Deaths [3]	Percent Smoking-Related Deaths
Pennsylvania	25% (±1)	20,318	129,143	16%
Southeastern Health District (Excluding Philadelphia County)	23% (±2)	4,811	30,967	16%
Northeastern Health District	27% (±3)	2,658	16,656	16%
Southcentral Health District	23% (±3)	2,251	15,031	15%
Northcentral Health District	23% (±5)	1,002	6,724	15%
Northwestern Health District	28% (±4)	1,557	10,320	15%
Southwestern Health District (Excluding Allegheny County)	24% (±2)	2,830	17,743	16%
Allegheny County	25% (±3)	2,429	15,102	16%
Philadelphia County	29% (±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*[1]. 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**

Malignant Neoplasms	**Respiratory diseases**
Bladder cancer	Chronic obstructive pulmonary disease
Cervical cancer	Pneumonia
Esophageal cancer	Respiratory effects
Kidney cancer	**Other effects**
Laryngeal cancer	Cataract
Leukemia	Diminished health status/morbidity
Lung cancer	Hip fractures
Oral cancer	Low bone density
Pancreatic cancer	Peptic ulcer disease
Stomach cancer	
Cardiovascular diseases	
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**

	Smoking-Attributable Personal Health Care Expenditure
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
Total	$4,053,000,000

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**

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

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**

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

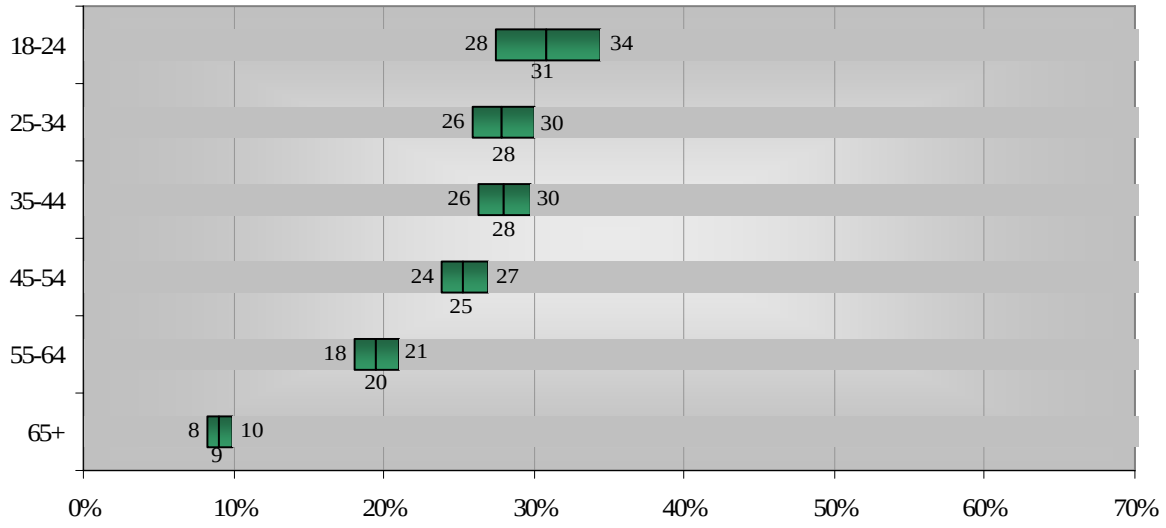
Source: Center for Disease Control and Prevention. Smoking Attributable Morbidity, Mortality and Economic Costs (SAMMEC): Adult SAMMEC software.
Note: These calculations used statewide tobacco prevalence data from BRFSS using aggregated 2002 and 2003 data, average annual deaths, based on death certificate data, 2002-2003, Division of Vital Records, Bureau of Health Statistics and Research.

4. Smoking-Related Disparities

Different population groups use and are affected by tobacco products at different rates. This disparity impacts the health and well-being of some populations substantially more than others. In order to target and deliver appropriate tobacco education and control programs, it is important to recognize the most affected groups of the population.

The charts below and on the following pages show the 95 percent confidence intervals of current cigarette use among the various populations, including age, race, education, income, and healthcare coverage. In this report, differences of prevalence are considered statistically significant when the confidence intervals do not overlap. For example, among Pennsylvania residents aged 25 to 34, based on three years (2004-2006) of BRFSS survey data, it was estimated that between 26 and 30 percent of adults were current cigarette smokers, which is statistically higher than the smoking rate estimated for either 55 to 64 year olds (18 to 21 percent) or those over 65 (8 to 10 percent), but not for those in the 45 to 54 year age group (24 to 27 percent).

***Figure 4-1*. Percentage of Current Smoking* by Age, Pennsylvania Adults, 2004-2006**

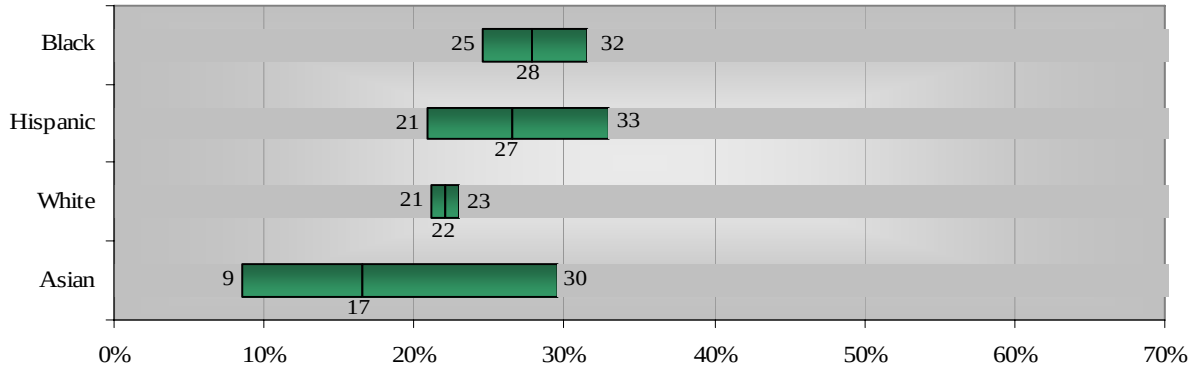


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004, 2005, and 2006, Division of Statistical Support, Bureau of Health Statistics and Research.

* Percentage of adults who smoked some days or every day of the 30 days prior to the survey, and had smoked 100 or more cigarettes in lifetime.

Black adults in Pennsylvania smoked cigarettes at significantly higher rates than Whites. The larger confidence intervals shown in Figures 4-2 and 4-3 for Hispanic and Asian populations are the result of smaller population samples, which result in larger sample errors, and less information about those populations. Because of that, no real differences were found between smoking rates among Hispanics, Asians or Whites. Figure 4-3 shows the adults who quit smoking for at least a day in the past twelve months, with no clear distinction apparent between the races and ethnicities.

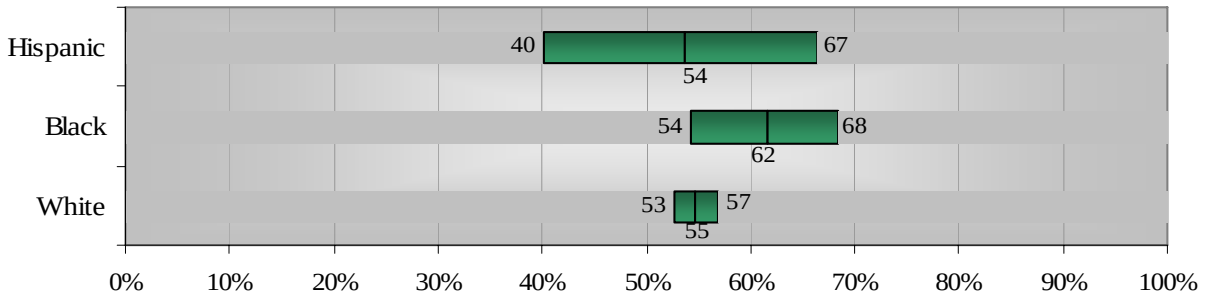
***Figure 4-2*. Percentage of Current Cigarette Smoking* by Race, Pennsylvania Adults, 2004-2006**



Source: Behavioral Risk Factor Surveillance System (BRFSS), aggregated data 2004, 2005, and 2006, Division of Statistical Support, Bureau of Health Statistics and Research.

* Percentage of adults who smoked some days or every day of the 30 days prior to the survey, and had smoked 100 or more cigarettes in lifetime.
Note: The racial groups of Black, White, and Asian in this chart exclude those with Hispanic ethnicity.

***Figure 4-3*. Percentage of Current Cigarette Smokers* Who Stopped Smoking One or More Times in Past 12 Months by Race, Pennsylvania Adults, 2004-2006**

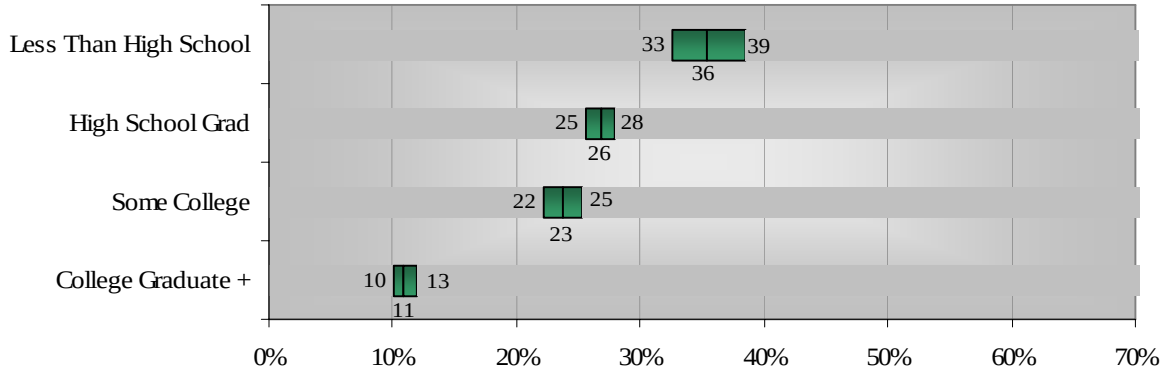


Source: Behavioral Risk Factor Surveillance System (BRFSS), aggregated data 2004, 2005, and 2006, Division of Statistical Support, Bureau of Health Statistics and Research.

* Percentage of adults who smoked some days or every day of the 30 days prior to the survey, and had smoked 100 or more cigarettes in lifetime.
Note: The racial groups of Black and White in this chart exclude those with Hispanic ethnicity.

Notable differences in smoking prevalence have also been found based on education and income. Adults who reported having less than a high school diploma had significantly higher rates of current cigarette use than those with more education. In fact, adults with less than a high school education were over three times more likely than college graduates to have been current smokers, as seen in Figure 4-4 below. As with education, when smoking prevalence is broken out by household income, there is a similar trend toward higher rates of current cigarette smoking for adults with lower incomes, and lower rates of smoking associated with higher incomes (see Figure 4-5).

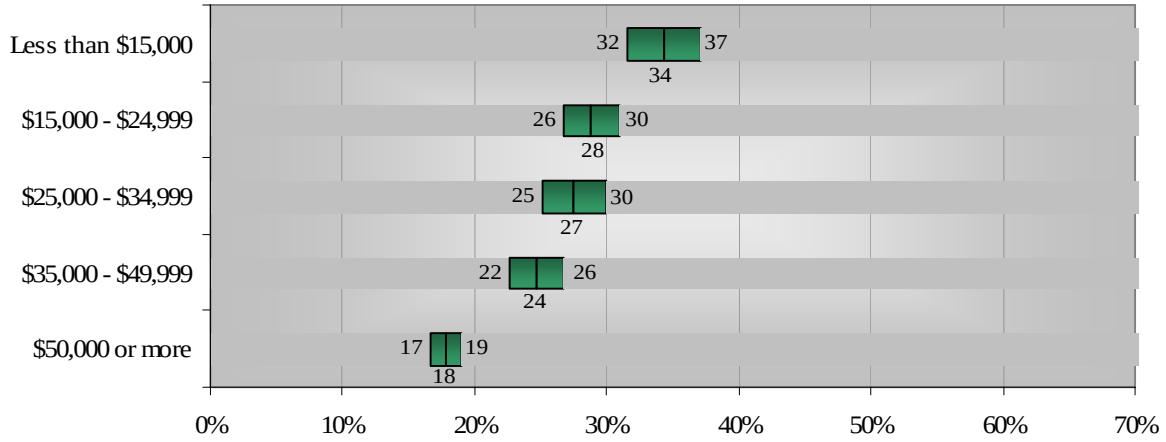
Figure 4-4. **Percentage of Current Cigarette Smoking* by Educational Status**
Pennsylvania Adults, 2004-2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), aggregated data 2004, 2005, and 2006, Division of Statistical Support, Bureau of Health Statistics and Research.

* Percentage of adults who are 25 years old or older, who smoked some days or every day of the 30 days prior to the survey, and had smoked 100 or more cigarettes in lifetime.

Figure 4-5. **Percentage of Current Cigarette Smoking* by Household Income**
Pennsylvania Adults, 2004-2006

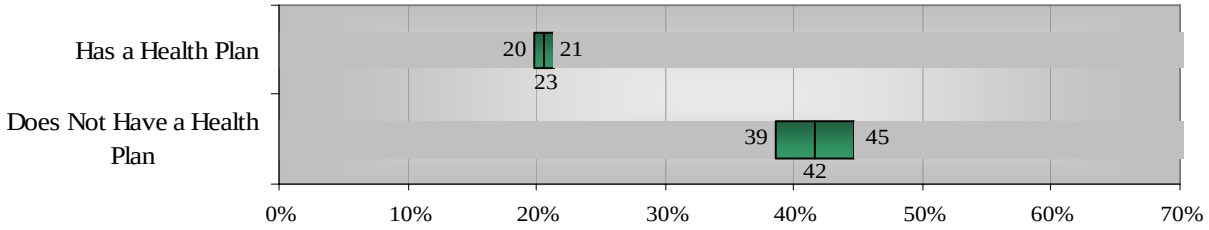


Source: Behavioral Risk Factor Surveillance System (BRFSS), aggregated data 2004, 2005, and 2006, Division of Statistical Support, Bureau of Health Statistics and Research.

* Percentage of adults who smoked some days or every day of the 30 days prior to the survey, and had smoked 100 or more cigarettes in lifetime.

One other way of looking at Pennsylvania adults is by whether or not they have a health care plan. Pennsylvanians who are not enrolled in either a private health insurance plan or in a publicly funded plan such as Medicare or Medicaid have significantly higher rates of smoking cigarettes than those who do not. The smoking prevalence of those without a health plan is higher than the lowest income adults and is also higher than the least educated adults.

Figure 4-6. **Percentage of Current Cigarette Smoking* by Healthcare Plan Status**
Pennsylvania Adults, 2004-2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), aggregated data 2004, 2005, and 2006, Division of Statistical Support, Bureau of Health Statistics and Research.

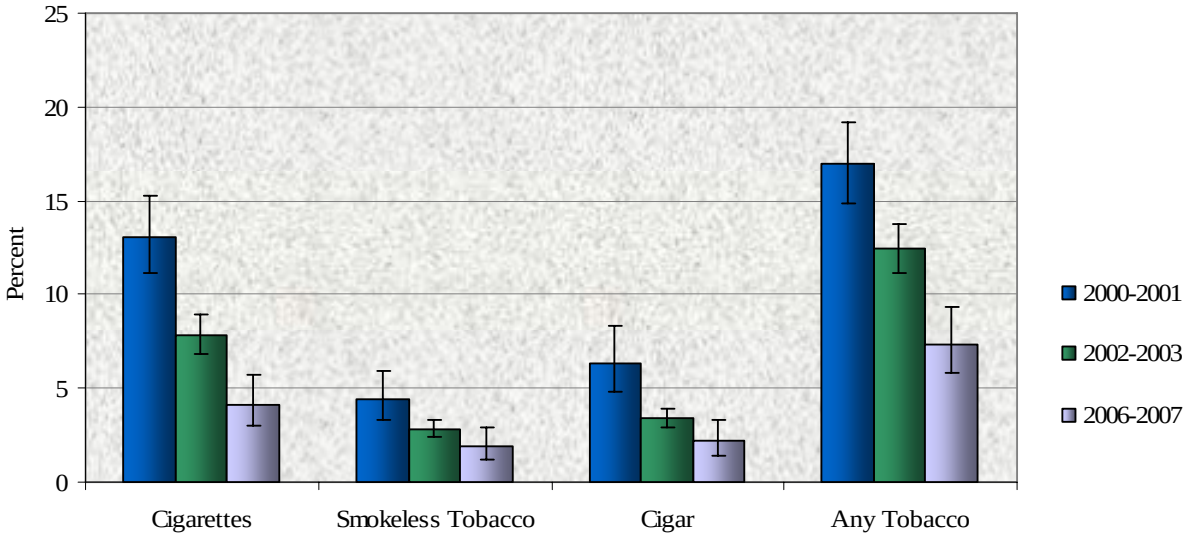
* Percentage of adults who smoked some days or every day of the 30 days prior to the survey, and had smoked 100 or more cigarettes in lifetime.

5. Youth Tobacco Use

Cigarette use among Pennsylvania students dropped significantly between the Youth Tobacco Survey of school year 2002-2003 and the subsequent survey conducted in school year 2006-2007, in both high schools and middle schools. This continues the progress seen between 2001 and 2003 of reduced student cigarette use then. The number of middle school students who used smokeless tobacco or cigars during the past month has also trended downward during this six-year period (Chart 5-1). High school students (Chart 5-2), though, are not showing as dramatic a reduction in use of other tobacco products.

When asked about quitting, nearly 50 percent of students who smoke in both high school and middle school said that they wanted to quit. Additionally, about seven out of ten middle school students and six of ten high school students had stopped smoking one or more days in the past year because they were trying to quit. These numbers have not changed significantly during this time period.

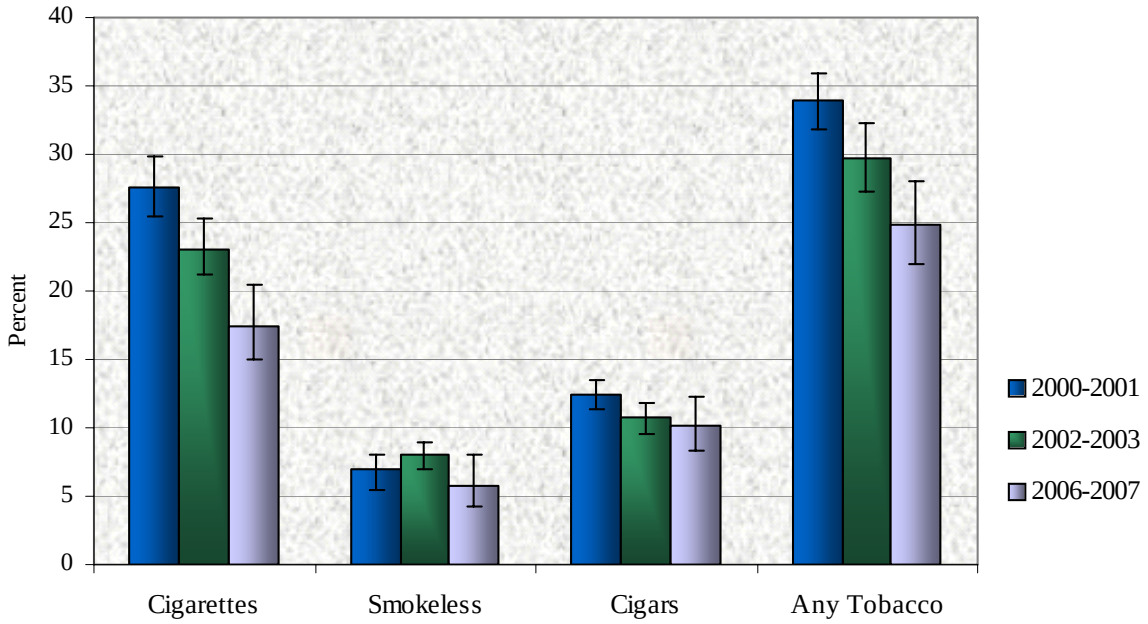
***Chart 5-1*. Percentage of Current Tobacco Use* Among Middle School Students (Grades 6-8) Pennsylvania, 2000-2001, 2002-2003, and 2006-2007**



Source: Pennsylvania Youth Tobacco Survey, 2000-2001, 2002-2003, and 2006-2007, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

* Current tobacco use is using a tobacco product on one or more days of the past 30 days prior to the survey. Any tobacco includes cigarettes, smokeless, cigars, pipes, bidis, and kreteks. I denotes 95% confidence interval.

***Chart 5-2*. Percentage of Current Tobacco Use* Among High School Students (Grades 9-12) Pennsylvania, 2000-2001, 2002-2003, and 2006-2007**



Source: Pennsylvania Youth Tobacco Survey, 2000-2001, 2002-2003, and 2006-2007, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

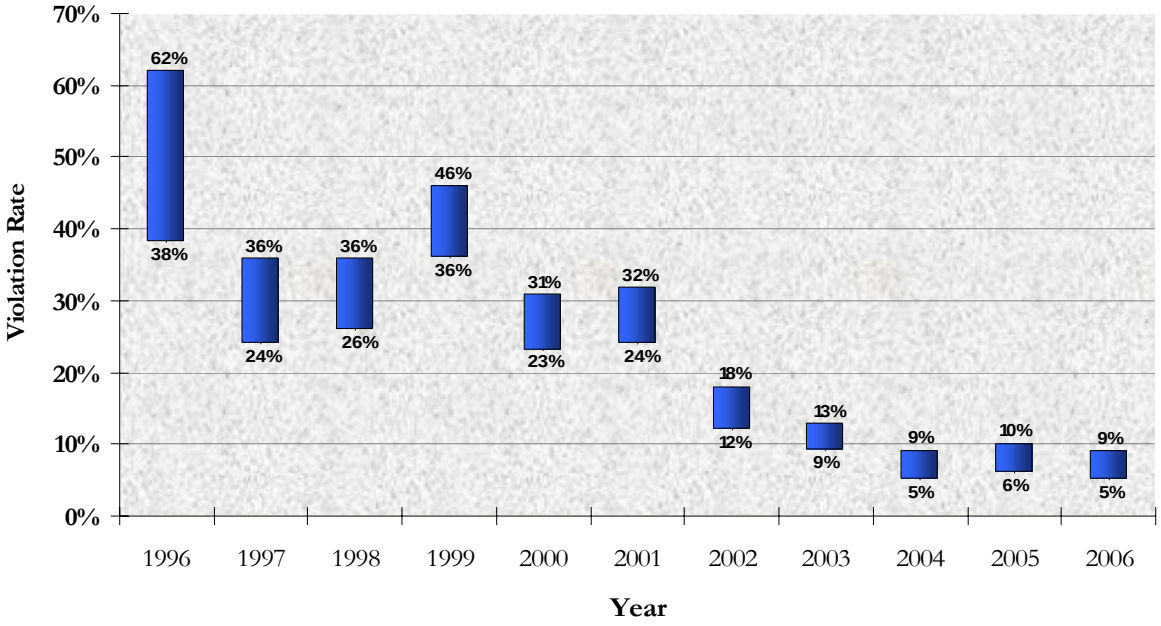
* Current tobacco use is using a tobacco product on one or more days of the past 30 days prior to the survey. Any tobacco includes cigarettes, smokeless, cigars, pipes, bidis, and kreteks. I denotes 95% confidence interval.

6. Youth Access to Tobacco

Cigarette use among youth is declining and an important reason for that drop may be that retailers are selling fewer cigarettes to minors. Chart 6-1, below, shows the dramatic drop that has been seen in illegal sales to minors between the years 1996 and 2006. The chart shows the confidence intervals of rates of illegal sales, with the 2006 violation rate of between five and nine percent.

Youth do, though, continue to obtain cigarettes. Students were asked how they got cigarettes in the Youth Tobacco Surveys conducted for school years, 2000-2001, 2002-2003, and 2006-2007. While significantly fewer students purchase from a store, there were corresponding increases in other ways students got their cigarettes, and the most common was that they gave money to another person to buy cigarettes, as shown in Chart 6-2.

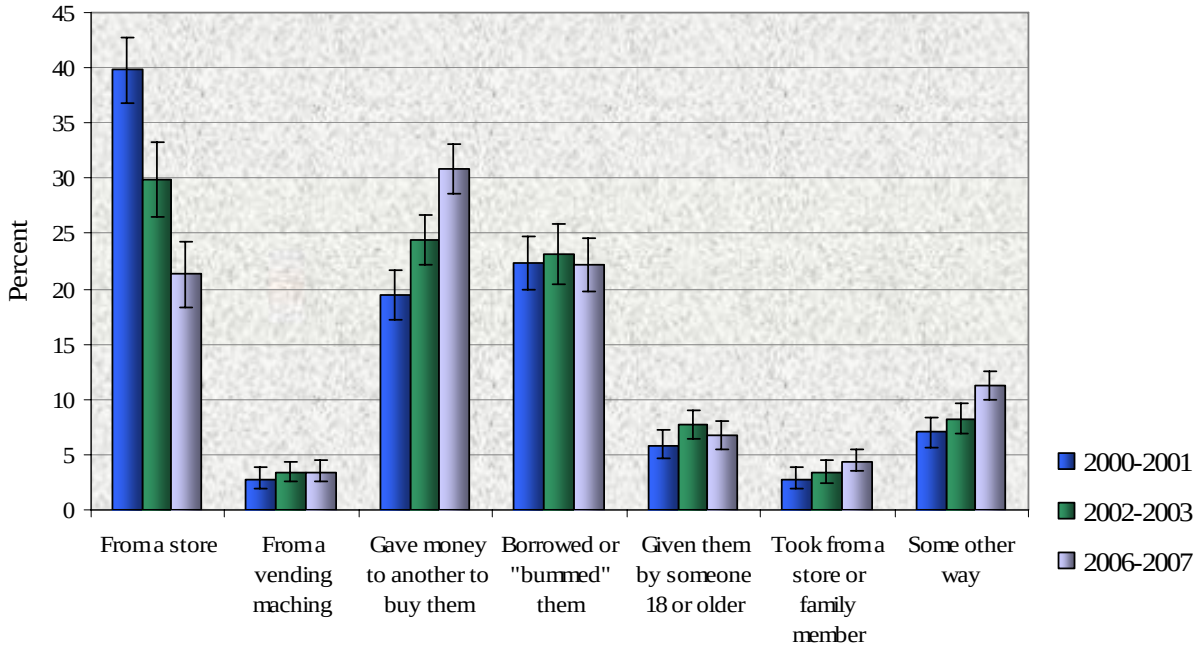
***Chart 6-1*. Results of Annual Synar* Compliance Checks of Tobacco Sales to Minors Pennsylvania, 1996-2006**



Source: Synar Survey, 1996-2006, Pennsylvania Department of Health, Bureau of Health Statistics and Research.

* The Federal Synar Regulation requires that each state annually conduct random, unannounced inspections, using hired youth inspectors, to assess their compliance with the state's access law. States are required to meet annual target inspection failure rates established by the federal government. Failure to meet requirements of the Synar Regulation can result in a penalty of 40% of a state's substance abuse prevention and treatment block grant allocation.

Chart 6-2. **Percentage of Methods High School Students Used to Obtain Cigarettes Pennsylvania, 2000-2001, 2002-2003 and 2006-2007**



Source: Pennsylvania Youth Tobacco Survey, 2000-2001, 2002-2003, and 2006-2007, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

I denotes 95% confidence interval.

7. Secondhand Smoke

The Pennsylvania Adult Tobacco Survey results indicate that Pennsylvanians want restrictions on indoor smoking. Nearly all adults, nonsmokers as well as smokers, favor having restrictions on indoor smoking in work areas, dining areas of restaurants, and indoor shopping malls, as shown in Table 7-1. Nearly seven of every ten Pennsylvanians favor a complete ban on smoking in indoor work areas and indoor shopping malls.

***Table 7-1*. Public Attitudes Regarding Secondhand Smoke, Pennsylvania, 2005**

Site	Favor Some Restriction on Smoking (%) *	Favor Ban on Smoking (%) **
Indoor Work Areas	97 (C.I.:96 – 98)	71 (C.I.:69 – 73)
Dining Area of Restaurant	99 (C.I.:98 – 99)	54 (C.I.:52 – 56)
Indoor Shopping Malls	98 (C.I.:97 – 99)	68 (C.I.:66 – 70)

Source: Pennsylvania Adult Tobacco Survey, 2005, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

* Includes PA adults who answered a telephone survey and responded that smoking should not be allowed in any area in that site, or that it should be restricted in some areas of that site and 95% confidence interval (C.I.).
** Includes PA adults who answered a telephone survey and responded that smoking should not be allowed in any area of that site and 95% confidence interval (C.I.).

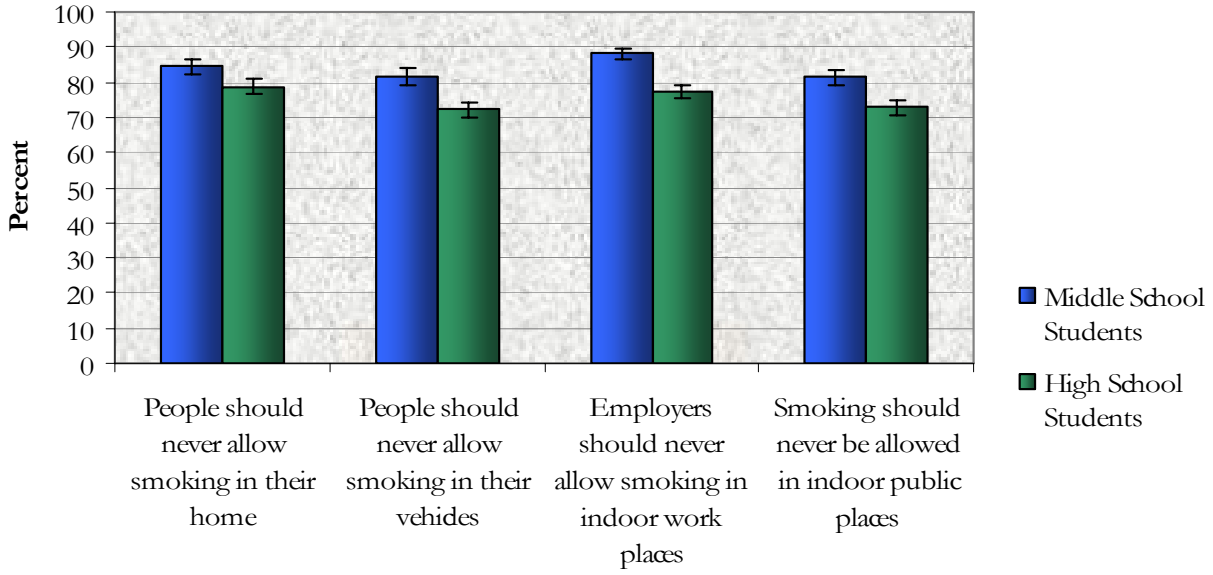
Secondhand Smoke in the Home and the Workplace:

- 71 percent (C.I.:69% – 73%) of Pennsylvania adults surveyed in 2005 prohibited smoking in their home
- In 2005, among Pennsylvania adults with children under the age of 18 at home, 25 percent (C.I.:22% – 28%) allowed smoking in some or all areas of the home.
- Among Pennsylvania adults who work indoors, 92 percent (C.I.:90% – 94%) have restrictions on smoking in at least some areas, and 77 percent (C.I.:74% – 80%) cannot smoke in any work area.

Source: Pennsylvania Adult Tobacco Survey, 2005, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

Several new questions were added to the Youth Tobacco Survey for the 2006-2007 school year. Students were asked about their beliefs regarding allowing smoking in indoor places or vehicles. Approximately 85 percent of middle school students and almost 80 percent of high school students thought that smoking should not be allowed in their homes. Regarding smoking in public places, such as malls, movie theatres, clubs or restaurants, over eight out of ten middle school students and over seven out of ten high school students thought smoking should not be permitted.

***Chart 7-2*. Students' Beliefs about Smoking Indoors or in Vehicles Pennsylvania, 2006-2007**

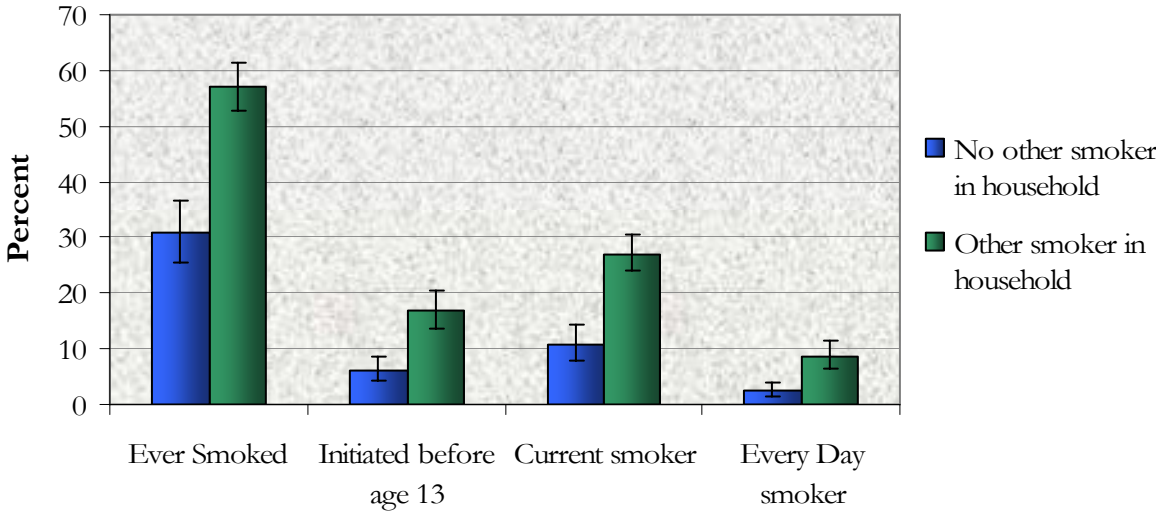


Source: Pennsylvania Youth Tobacco Survey, 2006-2007, Pennsylvania Department of Health, Division of Tobacco Control and Prevention.

I denotes 95% confidence interval.

The presence of others in the household who smoke has a tremendous effect on youth's cigarette use. High school students who participated in the Youth Tobacco Survey were asked if there were other smokers in their home. Students who lived with another smoker were over twice as likely to smoke, as shown in the chart below. The presence of other smokers in the household was associated with much higher percentages of ever having tried a cigarette; these students were more than twice as likely to have started smoking before thirteen years old; and, they were over three times as likely to be every day smokers.

***Chart 7-3*. Effects on High School Students of Other Smokers in the Household Pennsylvania, 2006-2007**



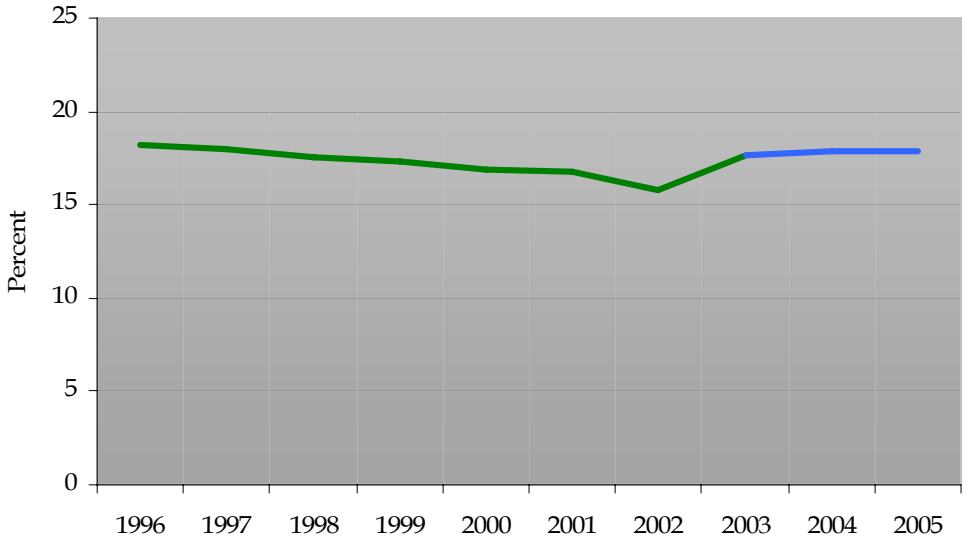
Source: Pennsylvania Youth Tobacco Survey, 2006-2007, Pennsylvania Department of Health, Division of Tobacco Control and Prevention.
I denotes 95% confidence interval.

8. Tobacco Use During Pregnancy

The rate of cigarette use among women giving birth is only slightly lower than that of the general population. In 2005 about 18 percent of Pennsylvania resident women who gave birth had smoked during their pregnancy. The chart below shows the rate of smoking among women who gave birth between 1996 and 2005. Maternal smoking fell slowly between 1996 and 2002. In 2003 the method of collecting smoking information on the birth certificate changed, which may or may not account for the slight increase shown in 2003.

Prior to 2003, women were asked if they smoked during their pregnancy. Starting in 2003, women were asked more specifically if they smoked in the three months prior and each of the three trimesters of the pregnancy. For the past three years, women who smoked in any of the three trimesters of pregnancy would be considered to have smoked during the pregnancy, even if they quit at some point. Since that birth certificate change, the rate of smoking among women who gave birth has held steady.

***Chart 8-1*. Percentage of Live Births to Mothers Who Smoked During Pregnancy Pennsylvania Residents, 1996 through 2005**



Source: Pennsylvania Certificate of Live Birth, Pennsylvania Department of Health, Bureau of Health Statistics and Research, Division of Statistical Support, 1996-2005.
Notes: Unknowns are excluded from calculations. Data prior to 2003 is not directly comparable to 2003 data and later.

The table below shows the total number of births to mothers who smoked, and what percent those smokers represent of all births with a known smoking status, by age, marital status, race and ethnicity, education, and trimester that prenatal care began. The percentage of women who smoked follows the same pattern as for the general population. Older people smoked less than younger, more educated adults smoked less than less educated.

For more information about the changes in the birth certificate, see Pennsylvania Vital Statistics Technical Notes, found at the PA Department of Health website.

***Table 8-2*. Number and Percentage of Live Births to Mothers Who Smoked During Pregnancy By Maternal Characteristics, Pennsylvania Residents, 1996, 2002, and 2005**

	1996		2002		2005	
Characteristic	**# smokers**	**% smokers**	**# smokers**	**% smokers**	**# smokers**	**% smokers**
Age						
<20	3,741	24	3,065	24	3,383	27
20-24	7,622	25	7,633	25	9,056	29
25-29	7,081	17	5,080	14	6,527	17
30-34	5,189	14	3,736	10	3,621	10
35-39	2,411	14	1,848	11	1,881	10
40+	346	12	418	11	423	11
Marital Status						
Married	10,902	11	8,060	9	7,966	9
Unmarried	15,447	33	13,720	30	16,945	33
Race/Ethnicity						
American Indian	60	28	46	14	62	30
Asian	82	3	85	2	111	2
Black	4,117	20	2,777	14	3,275	17
Hispanic	922	14	949	11	1,394	12
White	22,035	18	18,519	17	20,308	19
Education						
< High school	7,255	33	6,009	29	6,534	29
HS graduate	13,272	24	10,345	23	10,920	29
Some college	3,979	14	3,613	13	6,170	17
College graduate +	1,287	4	1,118	3	1,168	3
Prenatal Care Began						
1st Trimester	19,606	16	16,122	15	15,233	16
2nd Trimester	4,336	25	3,242	21	3,832	23
3rd Trimester	1,040	28	696	20	857	23
No Prenatal Care	677	47	356	35	528	37
Total	**26,391**	**18**	**21,780**	**16**	**24,911**	**18**

Source: Pennsylvania Certificate of Live Birth, Pennsylvania Department of Health, Bureau of Health Statistics and Research, Division of Statistical Support, 1996-2005.
Notes: 1) Hispanics can be of any race. 2) Percents may not compute with numbers on chart due to rounding. 3) Starting with 2003, the collection process for education data and smoking status has changed. Some data may not be comparable to previous years.

The table below depicts the rate of smoking among women who gave birth during 2005 by eight health regions in Pennsylvania. These health regions are described in Chapter 2 of this report.

***Table 8-3*. Percent of Live Births to Women who Smoked During Pregnancy by Health Region, Pennsylvania Residents, 2005**

	Percent	95% Lower Confidence Interval	95% Upper Confidence Interval
SouthEast Health Region	12	12	13
NorthEast Health Region	21	20	22
SouthCentral Health Region	20	19	20
NorthCentral Health Region	22	21	23
NorthWest Health Region	28	27	29
SouthWest Health Region	24	23	25
Allegheny County	18	17	19
Philadelphia County	15	15	16

Source: Pennsylvania Certificate of Live Birth, Pennsylvania Department of Health, Bureau of Health Statistics and Research, Division of Statistical Support, 2005.

Women who reported smoking one or more cigarettes during pregnancy had a greater likelihood of having babies born with low birth weight. Low birth weight is defined as a baby weighing less than 2500 grams. Of births to Pennsylvania residents with a known smoking status in 2005, approximately 12 percent of mothers who smoked during pregnancy gave birth to a baby less than 2500 grams, compared with 7 percent of mothers who did not smoke.

***Table 8-4*. Maternal Smoking and Low Birth Weight by Year, Pennsylvania 1996 - 2005**

Year	Births to Mothers Who Smoked Cigarettes During Pregnancy			Births to Mothers Who Did Not Smoke Cigarettes During Pregnancy		
	# Births	# of Low Birth weight births	% Low Birth weight births	# Births	# of Low Birth weight births	% Low Birth weight births
1996	26,391	3,277	12	118,397	7,600	6
1997	25,278	3,100	12	115,391	7,544	7
1998	24,915	2,949	12	117,112	7,805	7
1999	24,413	2,987	12	116,938	8,111	7
2000	23,955	2,817	12	117,984	7,998	7
2001	23,358	2,798	12	115,576	8,066	7
2002	21,780	2,736	13	116,328	8,427	7
2003	24,722	2,913	12	115,183	8,220	7
2004	24,760	3,009	12	113,419	8,079	7
2005	24,911	3,081	12	114,207	8,322	7

Source: Pennsylvania Certificate of Live Birth, Pennsylvania Department of Health, Bureau of Health Statistics and Research, Division of Statistical Support, 1996-2005.

Appendix A: Data Sources

I. Survey Data

Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing random-digit dialed telephone survey of adults concerning health-related behaviors. The BRFSS was developed and is funded by the Centers for Disease Control and Prevention (CDC) and is conducted in all states in the U.S. The sample data were weighted to reflect unequal probabilities of selection. Post-stratification weights were computed to adjust for over and under-representation of certain population subgroups in the samples. Confidence intervals at the 95% level were also calculated using SAS/SUDAAN and shown as percentages to provide a basis for quality analysis and comparability.

Adult Tobacco Survey

The Pennsylvania Adult Tobacco Survey (ATS) is a point-in-time random-digit dialed telephone survey of adults in Pennsylvania concerning tobacco use and related behaviors and attitudes. The ATS was developed by CDC and conducted in spring of 2005. A total of 2,919 adults were interviewed for this survey. The sample data were weighted to reflect unequal probabilities of selection. Post-stratification weights were computed to adjust for over and under-representation of certain population subgroups in the samples. Confidence intervals at the 95% level were also calculated using SAS/SUDAAN and shown as percentages to provide a basis for quality analysis and comparability.

Youth Tobacco Survey

The Youth Tobacco Survey (YTS) was developed by CDC and was conducted in the 2000-2001 Pennsylvania school year, in 2002-2003, and in 2006-2007. The sample consisted of a two-stage cluster design, of middle school students and high school students. In both 2000 and 2002, 25 high schools and 25 middle schools were sampled in each of the six state health districts, and another 50 non-public high schools and 50 non-public middle schools were selected, for a total of 400 randomly selected survey schools. Of those 400 schools, 281 participated in 2000 and 325 participated in 2002.

In 2006-2007, no health district stratum were used. Statewide, 59 public high schools were sampled and 45 participated for a school participation rate of 76 percent. There were 1706 of the 2032 students chosen who participated for a student participation rate of 84 percent, and an overall high school participation rate of 64 percent. For public middle schools, 60 schools were selected and 44 participated, for a school participation rate of 73 percent. There were 1486 students of the eligible 1619 who participated, giving a student participation rate of 92 percent, and an overall middle school participation rate of 67 percent.

Generally, second period classes at each school were randomly selected, so that each student had an equal chance of selection. The sample data were weighted for calculating percentages, in order to adjust for under-representation of certain population subgroups in the sample. Confidence intervals at the 95% level were also calculated using SAS/SUDAAN and shown as percentages to provide a basis for quality analysis and comparability.

Synar

The Federal Synar Regulation requires that each state annually conduct random, unannounced inspections, using hired youth inspectors, to assess their compliance with the state's access law. States are required to meet annual target inspection failure rates established by the federal government. Failure to meet requirements of the Synar Regulation can result in a penalty of 40% of a state's substance abuse prevention and treatment block grant allocation. Pennsylvania has conducted these inspections annually since 1996. The survey used a complex sample design incorporating stratification, clustering, and random sampling. The sampling frame was created from the Department of Revenue's cigarette license file, and did not include vending machines in 2005 or 2006.

II. Vital Statistics Data

The Pennsylvania Department of Health's vital statistics registration system was the source for the birth and death statistics that are used in this report. The calculation of tobacco-related deaths used the vital records death certificate data, aggregating the years 2002 and 2003, which were the two most recent years available. The data were stratified by cause of death, and by sex, and summed in that form for use in calculations.

Birth certificate data were used to analyze tobacco use during pregnancy. In 2003 changes were made in the birth certificate, including the way the tobacco use question was asked. Now mothers are asked whether they smoked in the three months prior to pregnancy and each of the three trimesters, rather than whether they used tobacco during pregnancy. This difference in the way the question is asked causes some concern about the comparability of the resulting data. Also prior to 2003, mothers were asked to report the highest grade completed. The 2003 certificate includes a series of check boxes to report the highest level of education completed at the time of delivery. The check boxes include degrees completed rather than years of schooling. This change also leads to concern about comparability between the affected years of data.

III. Other

Pennsylvania Department of Revenue Cigarette Tax Receipts

Data on the per capita cigarette sales rate for Pennsylvania were calculated using tobacco cigarette stamp sales and tax revenue collected by the Pennsylvania Department of Revenue. Cigarettes purchased per capita were calculated by dividing the stamp sales for the calendar year by the estimated population, aged 18 and over, of the state.

Smoking-Attributable Morbidity, Mortality, and Economic Costs (SAMMEC)

SAMMEC software was developed by CDC. Adult SAMMEC calculates annual smoking-attributable deaths, years of potential life lost, smoking-attributable expenditures, and productivity losses for adults in the United States, individual states, and user-defined populations. The following data items were computed and entered into the SAMMEC software to calculate smoking attributable deaths: smoker and former smoker prevalence, by sex and by age for each state health district, and death counts per area by smoking related cause and age. These same data items, smoking prevalence and numbers of deaths, were used with SAMMEC to compute the years of potential life lost.

Appendix B: Tables with Confidence Intervals

Table B-1. **Percentage of Adults Who Smoke, Pennsylvania vs. United States, 1996-2006**

	PA Smoking Prevalence	PA Smoking 95% Confidence Intervals	U.S. Median Smoking Prevalence
1996	24	22-26	23
1997	24	22-26	23
1998	24	22-26	23
1999	23	21-25	23
2000	24	22-26	23
2001	25	23-27	23
2002	25	24-26	23
2003	25	23-27	22
2004	23	22-24	21
2005	24	23-25	21
2006	22	20-23	20

Sources:
Behavioral Risk Factor Surveillance System, 1996-2006, Pennsylvania Department of Health, Bureau of Health Statistics and Research

U.S. Centers for Disease Control and Prevention, 1996-2006, www.cdc.gov/brfss.

***Table B-2*. Current Tobacco Use Among Middle School Students (Grades 6-8) Pennsylvania, 2000-2001, 2002-2003, and 2006-2007**

	Cigarette Use (%)		Smokeless Tobacco (%)		Cigar Use (%)		Any Tobacco Use (%)	
	%	95% C.I.	%	95% C.I.	%	95% C.I.	%	95% C.I.
PA 2000-2001	13.1	± 2.1	4.4	± 1.1	6.3	± 2.0	16.9	± 2.2
Male	13.4	± 1.9	6.8	± 2.2	8.9	± 3.6	19.3	± 2.6
Female	12.7	± 2.8	1.8	± 1.2	3.5	± 1.4	14.3	± 2.2
PA 2002-2003	7.8	±1.1	2.8	± 0.5	3.4	± 1.5	12.4	± 1.3
Male	7.5	±1.3	4.5	± 0.9	4.5	± 0.8	13.2	± 1.5
Female	8.0	±1.3	1.0	± 0.5	2.2	± 0.7	11.4	± 1.5
PA 2006-2007	4.1	±1.6	1.9	±1.0	2.2	±1.1	7.3	±2.0
Male	4.0	±2.2	3.1	±2.1	2.2	±2.0	8.1	±3.4
Female	4.3	±2.2	0.7	±1.0	2.2	±1.6	6.3	±1.9
U.S. 2000-2001	11.0	± 1.2	3.6	± 0.9	7.1	± 1.0	15.1	± 1.5
Male	11.7	± 1.7	5.7	± 1.8	9.7	± 1.5	17.6	± 2.2
Female	10.2	± 1.3	1.5	± 0.3	4.6	± 0.8	12.7	± 1.5
U.S. 2002-2003	10.1	± 1.2	3.7	± 0.8	6.0	± 0.7	13.3	± 1.4
Male	10.2	± 1.3	5.6	± 1.3	7.9	± 1.1	14.8	± 1.6
Female	10.0	± 1.4	1.8	± 0.4	4.1	± 0.7	11.8	± 1.4

Sources:
Pennsylvania Youth Tobacco Survey, 2000-2001, 2002-2003, and 2006-2007, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

U.S. Centers for Disease Control and Prevention. CDC Surveillance Summaries, November 14, 2003. MMWR 2003; 52(45);1096-1098.

Note: Current tobacco use is defined as using cigarettes, smokeless tobacco, cigars, or other tobacco products on one or more days of the past 30 days prior to the survey. Any tobacco includes cigarettes, smokeless, cigars, pipes, bidis, and kreteks. Prevalence and confidence intervals were rounded to the nearest tenth.

***Table B-3*. Current Tobacco Use Among High School Students (Grades 9-12)**
Pennsylvania, 2000-2001, 2002-2003, and 2006-2007

	Cigarette Use (%)		Smokeless Tobacco (%)		Cigar Use (%)		Any Tobacco Use (%)	
	%	95% C.I.	%	95% C.I.	%	95% C.I.	%	95% C.I.
PA 2000-2001	27.6	± 2.2	6.8	± 1.5	12.4	± 1.1	33.9	± 2.1
Male	26.9	± 2.5	12.3	± 2.4	17.6	± 1.9	36.8	± 2.6
Female	28.3	± 2.8	1.3	± 0.6	7.0	± 1.5	31.0	± 2.5
PA 2002-2003	23.1	±2.2	7.9	± 1.1	10.7	± 1.1	29.7	± 2.5
Male	22.4	±2.5	13.8	± 1.6	15.9	± 1.8	32.9	± 3.3
Female	23.8	±2.5	1.9	± 0.8	5.2	± 0.8	26.3	± 2.3
PA 2006-2007	17.5	±2.9	5.8	±2.2	10.1	±2.1	24.8	±3.2
Male	17.7	±4.3	10.3	±4.4	13.8	±3.6	29.0	±4.8
Female	17.3	±3.5	1.2	±1.5	6.3	±2.2	20.4	±3.4
U.S. 2000	28.0	± 1.7	6.6	± 0.9	14.8	± 1.1	34.5	± 1.9
Male	28.8	± 1.9	11.8	± 1.7	22.0	± 1.5	39.1	± 2.2
Female	27.3	± 2.0	1.4	± 0.4	7.3	± 0.9	29.8	± 1.9
U.S. 2002	22.9	± 1.6	6.1	± 1.1	11.6	± 0.9	28.4	± 1.7
Male	24.6	± 2.1	10.8	± 2.0	16.9	± 1.4	32.9	± 2.3
Female	21.2	± 1.8	1.4	± 0.4	6.2	± 0.9	23.9	± 1.8

Sources:
Pennsylvania Youth Tobacco Survey, 2000-2001, 2002-2003, and 2006-2007, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

U.S. Centers for Disease Control and Prevention. CDC Surveillance Summaries, November 14, 2003. MMWR 2003; 52(45);1096-1098.

Note: Current tobacco use is defined as using cigarettes, smokeless tobacco, cigars, or other tobacco products on one or more days of the past 30 days prior to the survey. Any tobacco includes cigarettes, smokeless, cigars, pipes, bidis, and kreteks. Prevalence and confidence intervals were rounded to the nearest tenth.

***Table B-4*. Results of Annual Synar* Compliance Checks of Tobacco Sales to Minors Pennsylvania, 1996-2006**

	Illegal Sales Percent	95% Confidence Interval
1996	56%	38-62
1997	30%	24-36
1998	32%	26-36
1999	41%	36-46
2000	27%	23-31
2001	28%	24-32
2002	15%	12-18
2003	11%	9-13
2004	7%	5-9
2005	8%	6-10
2006	7%	5-9

Source: Synar Survey, 1996-2006, Pennsylvania Department of Health, Bureau of Health Statistics and Research.

* The Federal Synar Regulation requires that each state annually conduct random, unannounced inspections, using hired youth inspectors, to assess their compliance with the state's access law. States are required to meet annual target inspection failure rates established by the federal government. Failure to meet requirements of the Synar Regulation can result in a penalty of 40% of a state's substance abuse prevention and treatment block grant allocation.

***Table B-5*. Methods High School Students Used to Obtain Cigarettes Pennsylvania, 2000-2001, 2002-2003, 2006-2007**

Method Used	2000-2001 (%)	2000-2001 95% C.I.	2002-2003 (%)	2002-2003 95% C.I.	2006-2007 (%)	2006-2007 95% C.I.
From a store	39.8%	±3.0	29.9%	±3.4	21.3%	±5.3
From a vending machine	2.8%	±1.1	3.4%	±1.0	3.6%	±2.5
Gave money to another to buy them	19.5%	±2.2	24.4%	±2.2	31.1%	±5.5
Borrowed or "bummed" them	22.4%	±2.4	23.2%	±2.7	21.9%	±4.9
Given them by someone 18 or older	5.8%	±1.4	7.7%	±1.3	6.7%	±3.7
Took from a store or family member	2.8%	±1.1	3.3%	±1.2	4.3%	±3.0
Some other way	7%	±1.4	8.2%	±1.5	11.1%	±4.4

Source: Pennsylvania Youth Tobacco Survey, 2000-2001, 2002-2003, and 2006-2007, Pennsylvania Department of Health, Division of Tobacco Prevention and Control.

Table B-6. **Students Beliefs about Smoking Indoors or in Vehicles Pennsylvania, 2006-2007**

	Middle School Students	M.S. 95% Confidence Interval.	High School Students	H.S. 95% Confidence Interval
Think people should never allow smoking in their home	84.7%	82.4-86.7%	78.8%	76.8-80.6%
Think people should never allow smoking in their vehicles	81.7%	79.4-83.9%	72.4%	68.9-75.6%
Think employers should never allow smoking places where people work	88.2%	86.6-89.7%	77.5%	74.9-79.8%
Think smoking should never be allowed in indoor public places	81.5%	79.3-83.4%	72.7%	69.5-75.7%

Source: Pennsylvania Youth Tobacco Survey, 2006-2007, Pennsylvania Department of Health, Division of Tobacco Control and Prevention.

Table B-7. **Effects on High School Students of Other Smokers in the Household, Pennsylvania, 2006-2007**

	No other smoker in household	95% Confidence Interval	Other smoker in household	95% Confidence Interval
Ever Smoked	30.9%	±5.8	57.2%	±4.5
Initiated before age 13	6.2%	±2.4	16.7%	±3.8
Current smoker	10.7%	±3.8	27.2%	±3.3
Every Day smoker	2.4%	±1.4	8.7%	±2.7

Source: Pennsylvania Youth Tobacco Survey, 2006-2007, Pennsylvania Department of Health, Division of Tobacco Control and Prevention.