

The Burden of Tobacco in Tennessee

TENNESSEE DEPARTMENT OF HEALTH

OFFICE OF POLICY, PLANNING AND ASSESSMENT
SURVEILLANCE, EPIDEMIOLOGY AND EVALUATION

June 25, 2008

Report prepared by:

Audrey M Bauer, DVM, MPH
Yinmei Li, MD, PhD

Surveillance, Epidemiology and Evaluation
Office of Policy, Planning and Assessment
Tennessee Department of Health

Report prepared for:

Tobacco Use Prevention and Control Program
Tennessee Department of Health

The authors would like to thank the Division of Health Statistics, Tennessee Department of Health for providing population, birth, death and Behavioral Risk Factor Surveillance System data.

Suggested Citation:

Office of Policy, Planning and Assessment (2008). *The Burden of Tobacco in Tennessee*. Tennessee Department of Health, Nashville, TN.

Table of Contents

Introduction.....	1
Prevalence of Tobacco Use	
Adult Tobacco Use.....	3-6
Youth Tobacco Use.....	7-9
Smoking during Pregnancy.....	10-11
Tobacco Cessation.....	12
Health and Economic Consequences of Smoking	
Smoking-attributable Mortality.....	14-16
Years of Potential Life Lost.....	17-18
Birth Outcomes and Infant Mortality.....	19
Smoking-attributable Morbidity.....	20
Secondhand Smoke.....	21
Smoking-related Fires.....	22
Smoking-attributable Costs.....	23
Tobacco Control	
Cigarette Sales and Taxes.....	25-26
Prevention and Control Spending.....	27
Smoke-free Air Laws.....	28-29
Youth Access.....	30-31
Tobacco Marketing.....	32
Summary.....	33
Technical Notes.....	34-35
References.....	36-37

Introduction

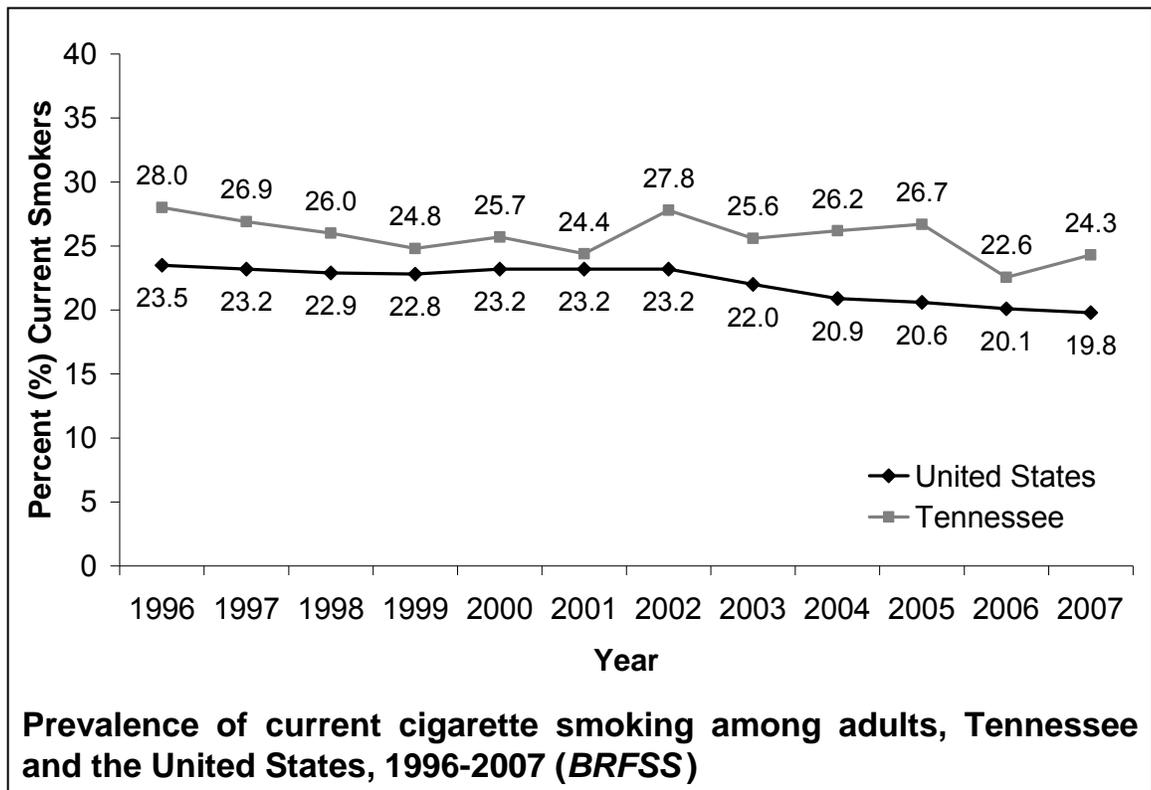
Despite declines in tobacco use over the past several decades, approximately one-quarter of Tennessee adults still smoke cigarettes – much higher than the Healthy People 2010 objective of 12%.¹ Tobacco use is the single most preventable cause of disease and death in the United States.¹ Tobacco related deaths number approximately 438,000 per year, representing 5.5 million years of potential life lost and \$167 billion in health care costs and lost productivity annually.² Smoking is associated with chronic bronchitis, emphysema, heart disease, stroke, cancer, low birth weight and sudden infant death syndrome.^{3,4} Smoking harms more than just the tobacco user – secondhand smoke causes disease and premature death in children and adults who do not smoke.⁵ Reducing the prevalence of tobacco use in the state is critical for increasing the quality and years of healthy life for all Tennesseans.

This report updates and expands on the earlier report entitled *The Prevalence of Tobacco Use in Tennessee, 1997-2007*. It provides an overview of tobacco prevalence in the state by examining tobacco use and cessation among both adults and youth. In addition, it describes the health and economic consequences of smoking, including mortality, adverse birth outcomes, the effects of exposure to secondhand smoke, and smoking-related fires. Also examined are tobacco control efforts and tobacco company marketing expenditures. This report provides a comprehensive look at the burden of tobacco in the state. This information is critical for individuals and organizations interested in tobacco control in order to build upon current efforts to reduce tobacco use, and to improve the health of the people of Tennessee.

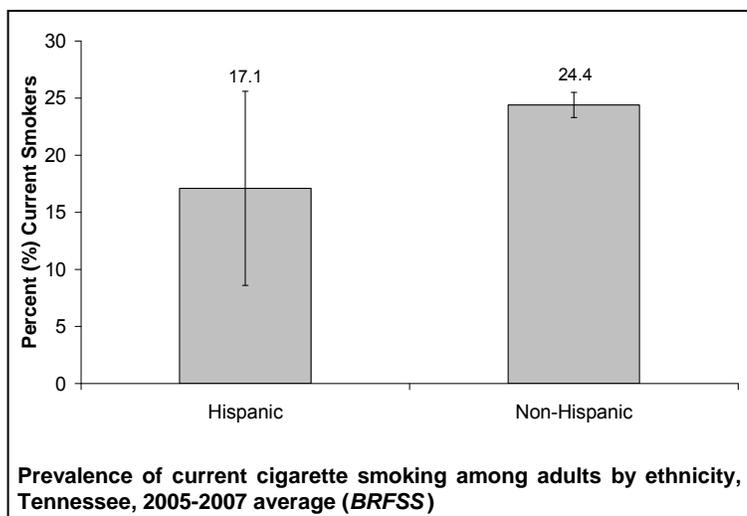
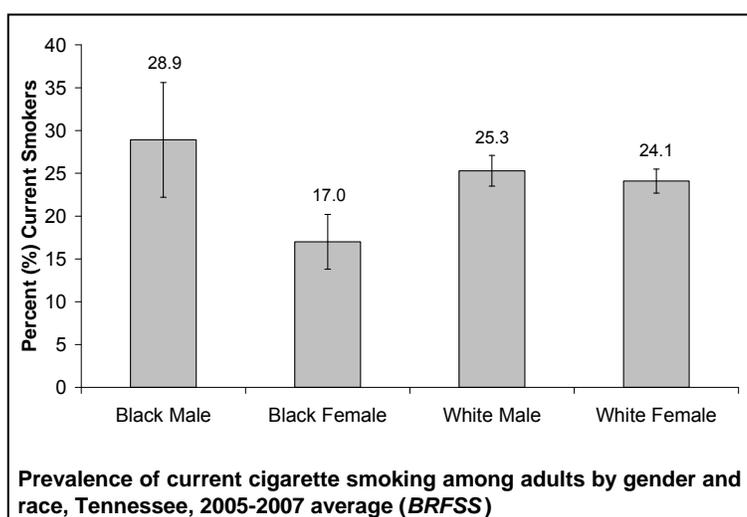
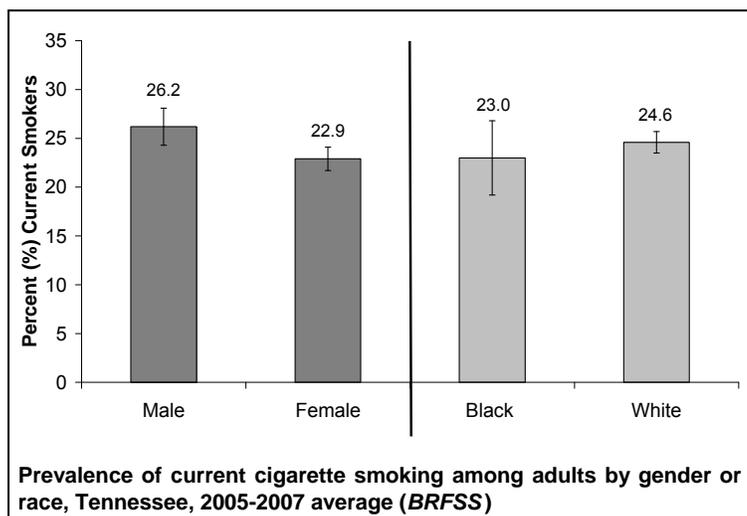
Prevalence of Tobacco Use

- **Adult Tobacco Use**
- **Youth Tobacco Use**
- **Smoking during Pregnancy**
- **Tobacco Cessation**

Adult Tobacco Use



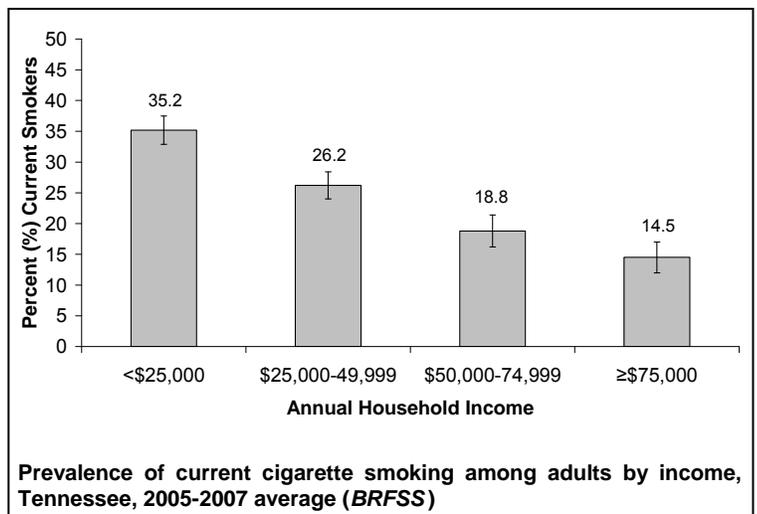
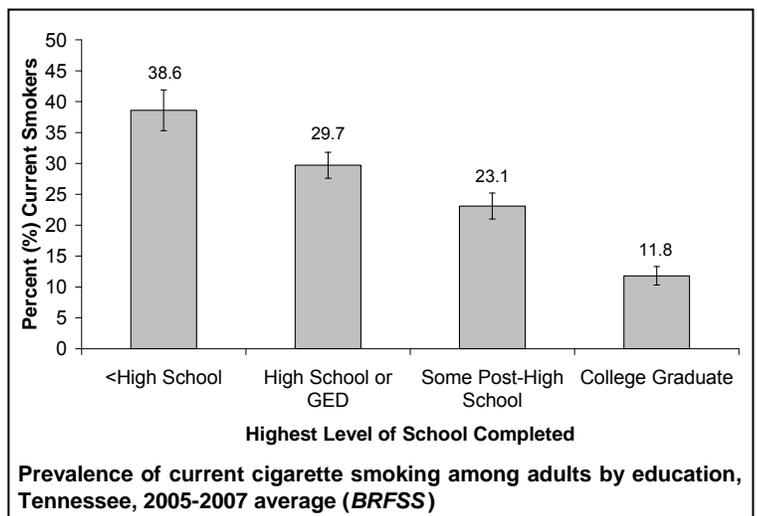
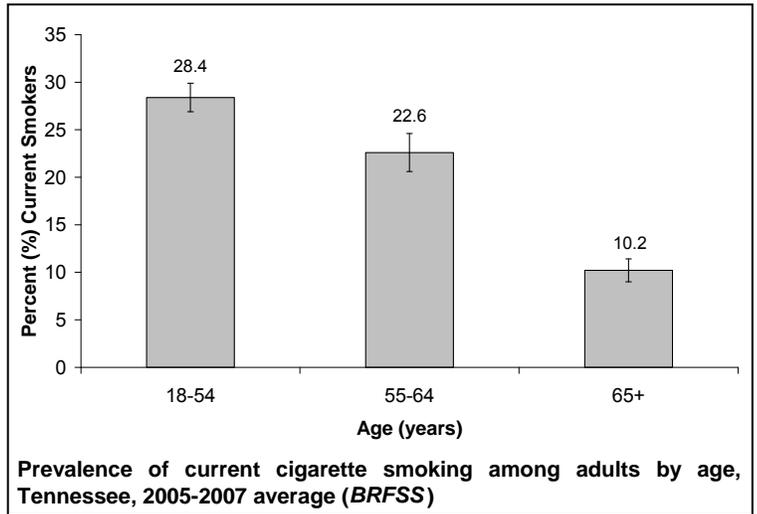
- Between 1996 and 2007, the prevalence of cigarette smoking among adults 18 years and older in the United States decreased by 15%, from 23.5% to 19.8%.⁶
- There was no statistically significant decline in smoking prevalence in Tennessee between 1996 and 2007.
- Since 1996, smoking prevalence in Tennessee has been consistently higher than that for the United States as a whole.
- In 2007, 24.3% of adult Tennesseans reported being current cigarette smokers. An additional 24.0% reported being former smokers.
- In 2007, approximately 1.1 million adults in Tennessee currently smoked cigarettes.
- Among all 50 states, the percentage of current smokers in 2007 ranged from 11.7% in Utah to 28.2% in Kentucky. Compared to other states, Tennessee had the 5th highest percentage of current smokers – an increase from the rank of 11th highest in 2006.⁶

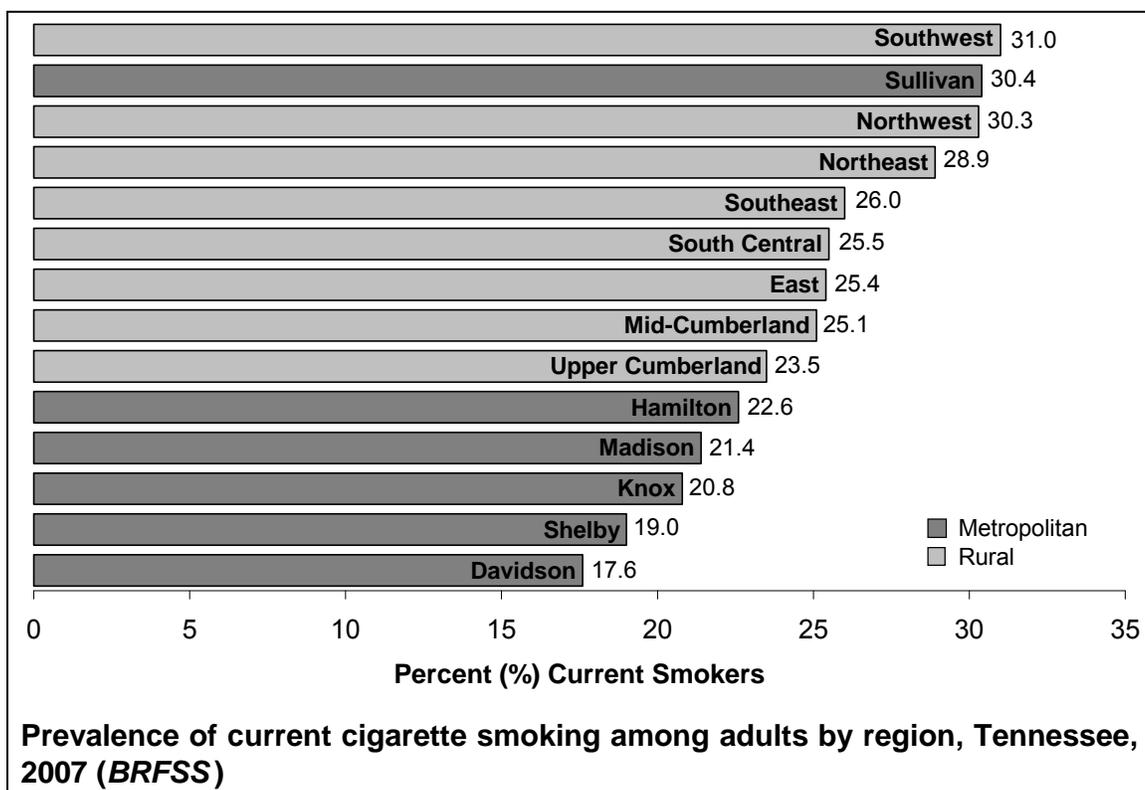


- Based on 2005-2007 BRFSS data, smoking prevalence was higher among adult males (26.2%) than adult females (22.9%).
- There was no statistically significant difference in current smoking prevalence among whites (24.6%) compared to blacks (23.0%).
- Black females had the lowest prevalence of current smoking at 17.0%.
- Though current smoking prevalence was higher among non-Hispanics than among Hispanics (24.4% vs. 17.1%), this difference was *not* statistically significant.

Adult Tobacco Use

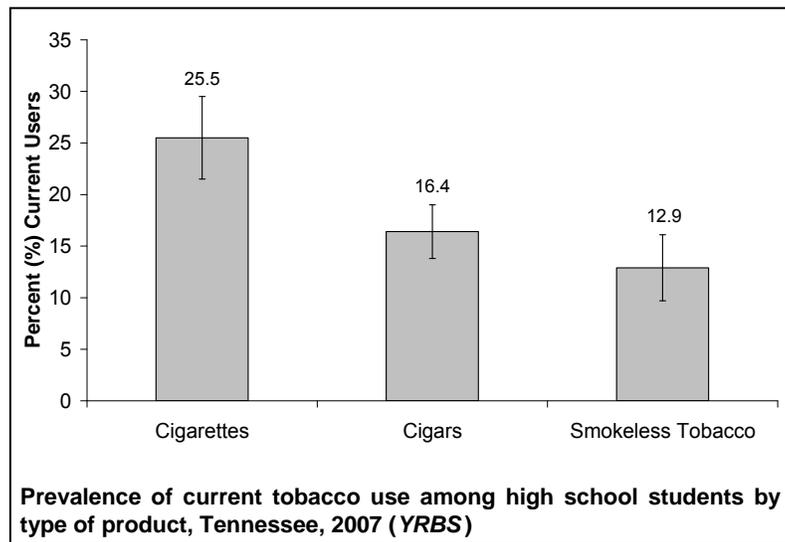
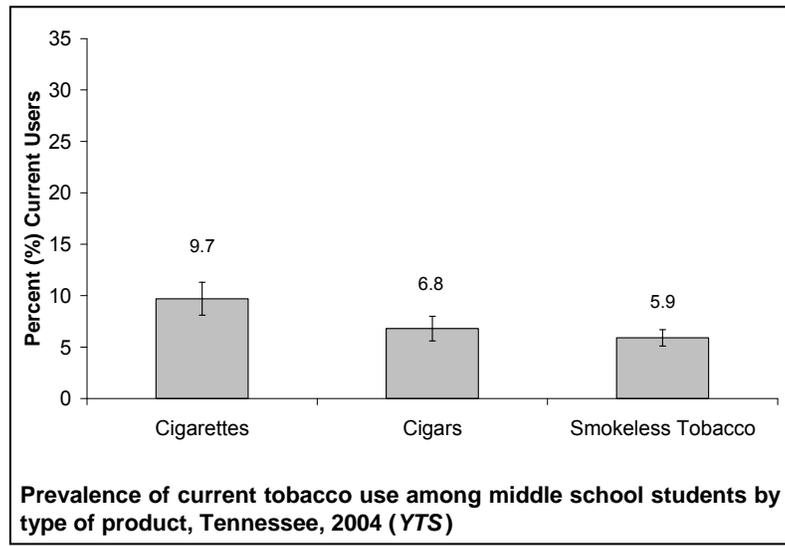
- The prevalence of smoking generally decreased with increasing age. However, there were no statistically significant differences in prevalence among the 18-24, 25-34, 35-44 and 45-54 years old age groups.
- Smoking prevalence was highest among adults aged 18-54 years (28.4%) and lowest among those 65 years and older (10.2%).
- The prevalence of smoking decreased with increasing education and income.
- Smoking prevalence was highest among those with less than a high school education (38.6%) and lowest among college graduates (11.8%).
- Adults with less than a high school education were over three times as likely to smoke cigarettes as those with a college degree.
- Smoking prevalence was highest among those with a household income of less than \$25,000 (35.2%) and lowest among those earning \$75,000 or more (14.5%).
- Adults with a household income of less than \$25,000 were almost two-and-a-half times as likely as those earning \$75,000 or more to smoke cigarettes.



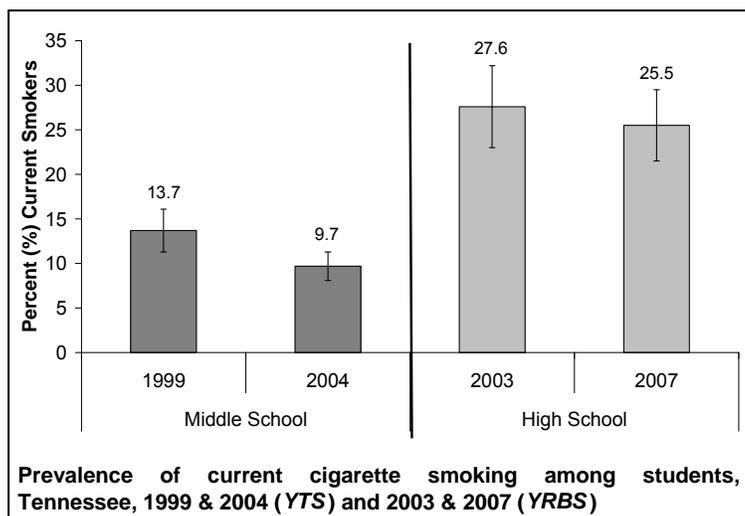


- Among Tennessee’s fourteen health department regions, the prevalence of current cigarette smoking in 2007 ranged from 17.6% in Davidson to 31.0% in Southwest.
- With the exception of Sullivan, metropolitan regions tended to have lower smoking prevalence rates compared to rural regions.
- The five lowest prevalence rates were all in metropolitan regions (Davidson, Shelby, Knox, Madison and Hamilton).

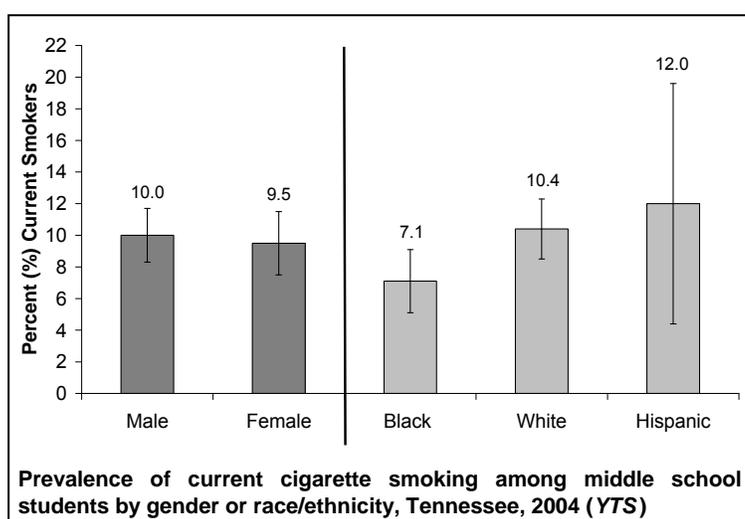
Youth Tobacco Use



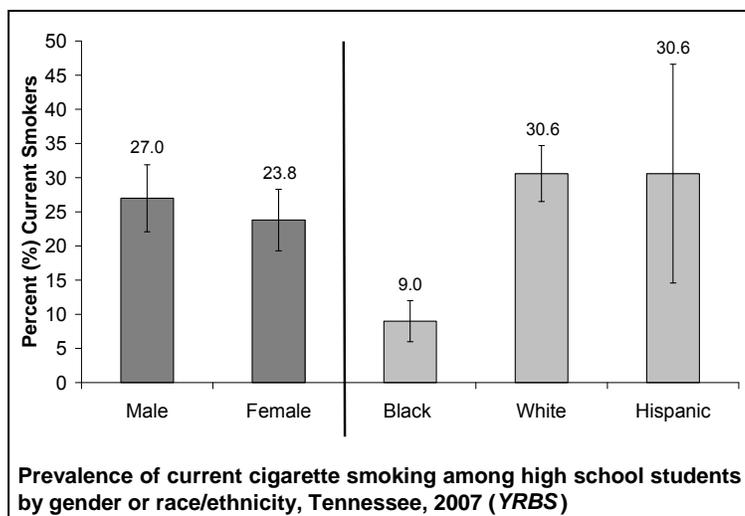
- Cigarettes were the most frequently used tobacco product by both middle school and high school students in Tennessee.
- In 2004, 9.7% of middle school students currently used cigarettes, compared to 6.8% who used cigars, cigarillos and/or little cigars and 5.9% who used smokeless tobacco (chew, snuff and/or dip).
- In 2007, 25.5% of high school students currently used cigarettes, compared to 16.4% who used cigars, cigarillos and/or little cigars and 12.9% who used smokeless tobacco (chew, snuff and/or dip).
- Prevalence of all three types of tobacco products among high school students was over twice as high as among middle school students.



- Between 1999 and 2004 there was a statistically significant decrease in the percentage of middle school students who were current cigarette smokers, from 13.7% to 9.7%.
- Between 2003 and 2007, the percentage of high school students who were current cigarette smokers decreased slightly, but the difference was not statistically significant.

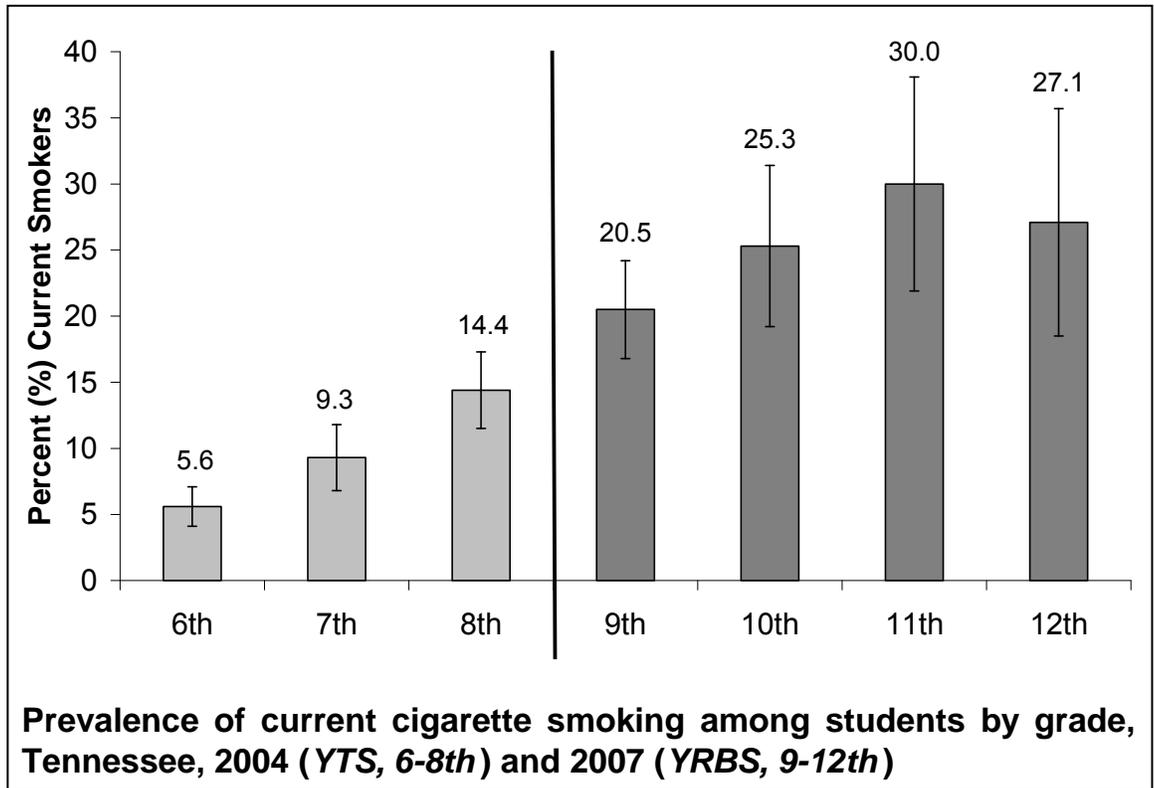


- There were no statistically significant gender differences in the prevalence of cigarette smoking among middle school or high school students.
- The prevalence of cigarette smoking was higher among white students compared to black students in both middle school and high school.



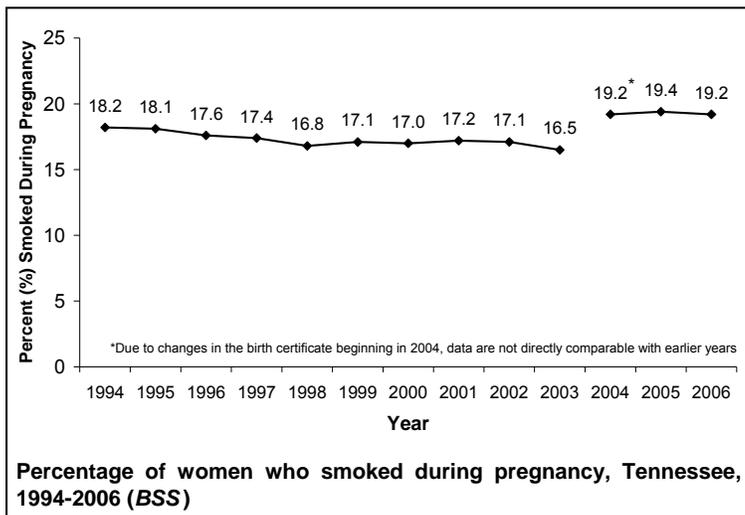
- The prevalence of cigarette smoking among white and Hispanic students was similar in both middle school and high school.

Youth Tobacco Use



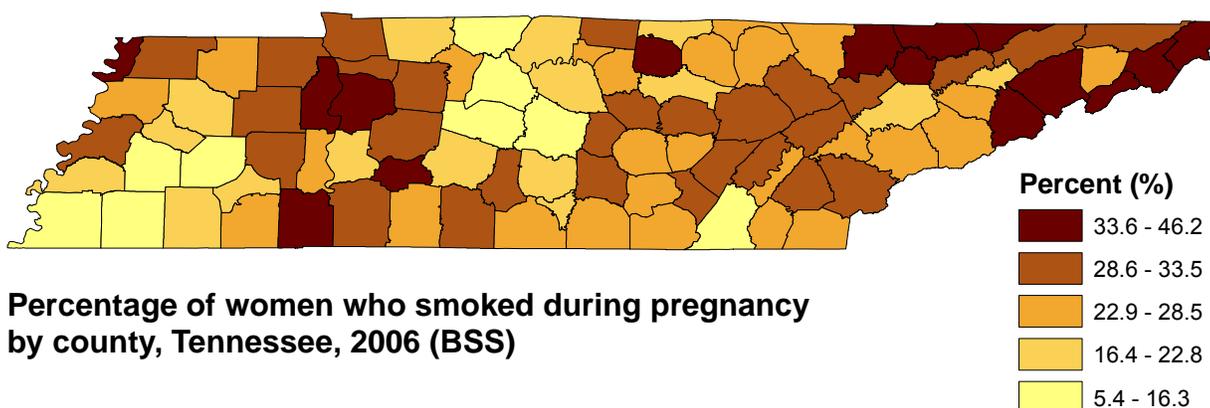
- The prevalence of current cigarette smoking increased with increasing grade level, from 5.6% among 6th graders to 27.1% among 12th graders. Although the data from middle school and high school students were from different survey years (2004 and 2007, respectively), it should be noted that there was no statistically significant change in smoking prevalence among high school students between 2003 and 2007.
- In previous YRBS surveys (2001, 2003 and 2005), prevalence of cigarette smoking was always highest among 12th graders. It is unclear why this was not the case in 2007. However, given the wide confidence intervals surrounding the 2007 prevalence estimates, these results should be interpreted with caution.

Smoking during Pregnancy

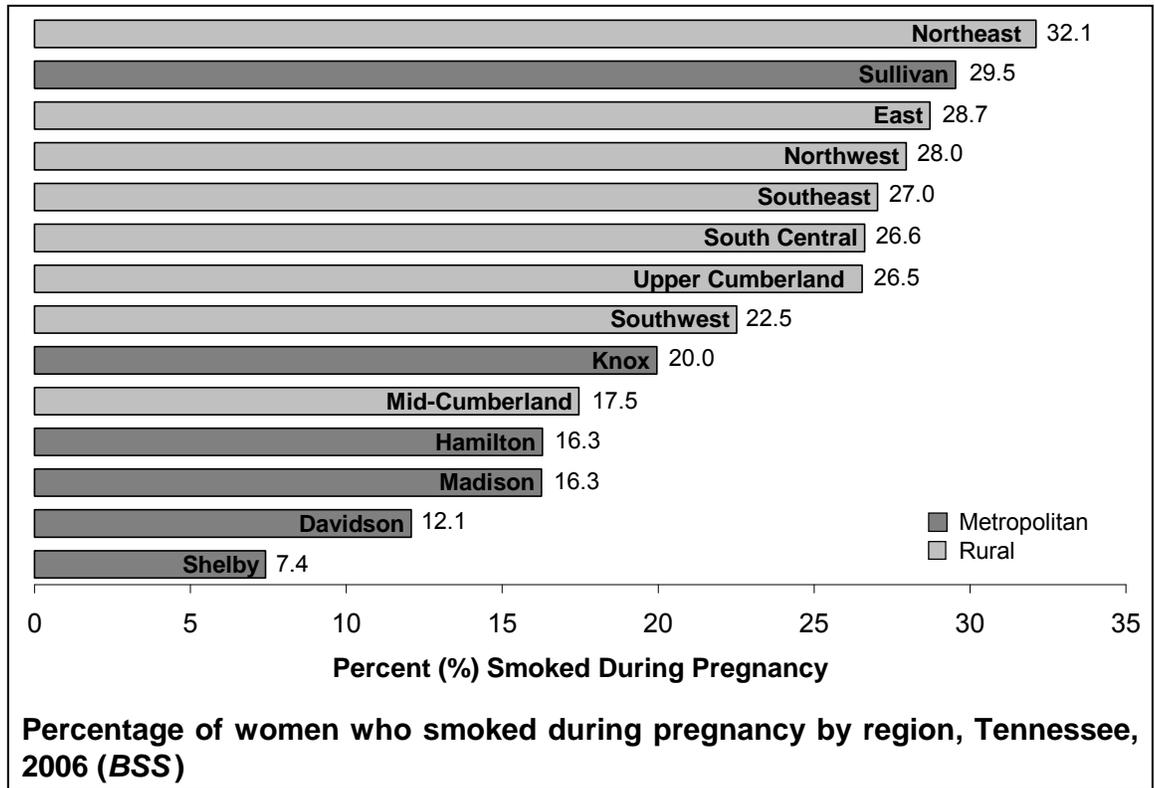


- Based on 2005-2007 BRFSS data, 14.0% [95% CI 4.8-26.1] of pregnant women reported that they were current cigarette smokers.
- Based on 2006 birth certificate data, 19.2% of women giving birth in Tennessee smoked cigarettes during their pregnancies.

- Between 1994 and 2003, the percentage of women who smoked during pregnancy decreased 9%.
- It is not possible to say if this downward trend continued after 2003. The wording of the smoking questions changed starting with the 2004 birth certificate. Thus, the later data on tobacco use are not directly comparable with earlier years.
- Between 2004 and 2006, the percentage of women who smoked during pregnancy remained steady at approximately 19%.
- In 2006, the percentage of women who smoked during pregnancy ranged from 5.4% in Williamson County to 46.2% in Hancock County.
- In 62 of Tennessee's 95 counties the percentage of women who smoked during pregnancy was greater than 25%.

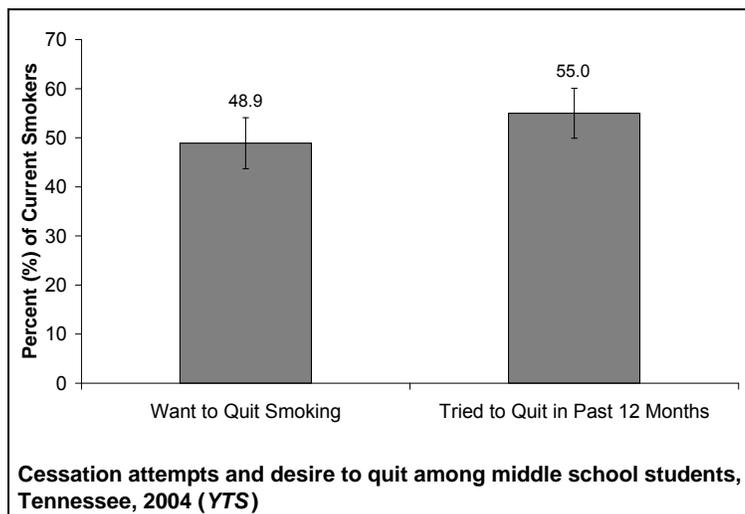
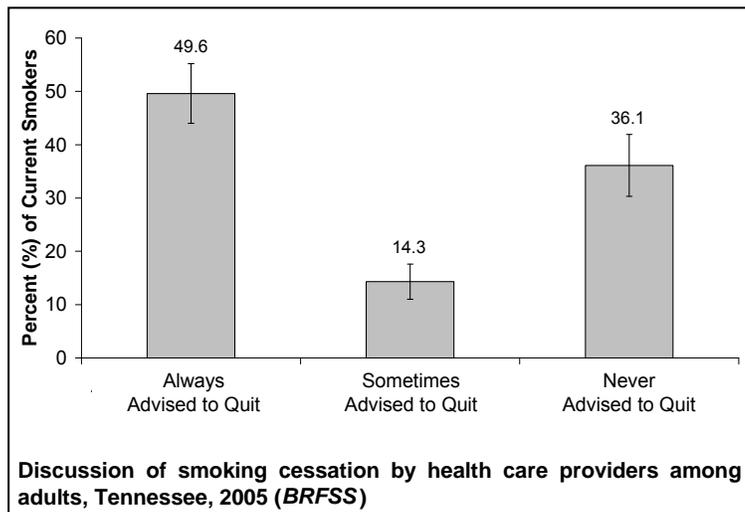


Smoking during Pregnancy



- Among Tennessee’s fourteen health department regions, the percentage of women who smoked during pregnancy in 2006 ranged from 7.4% in Shelby to 32.1% in Northeast.
- With the exception of Sullivan, metropolitan regions tended to have lower percentages of women who smoked during pregnancy than did rural regions.
- The four lowest prevalence rates of smoking during pregnancy were all in metropolitan regions (Shelby, Davidson, Madison and Hamilton).
- In 2002, 11.4% of women giving birth in the United States smoked during pregnancy, and among 49 states (California not included), the percentage of women who smoked during pregnancy ranged from 6.3% in Texas to 26.2% in West Virginia. Compared to other states, Tennessee had the 14th highest percentage of women who smoked during pregnancy (tied with Maine at 17.1%).⁷

Tobacco Cessation



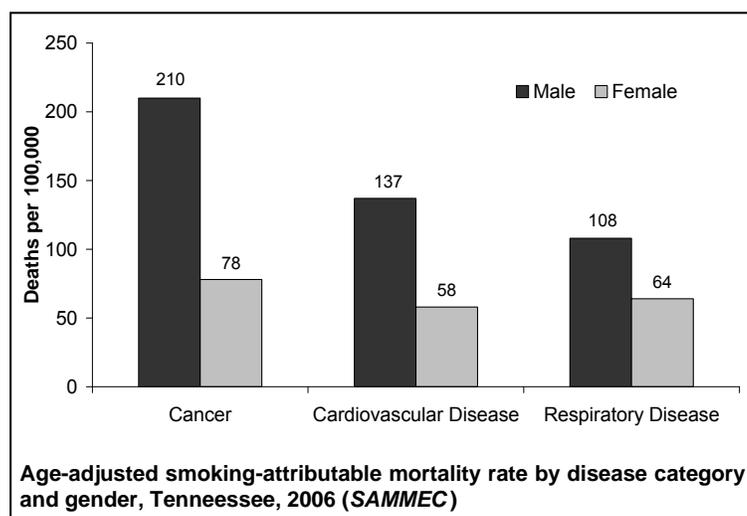
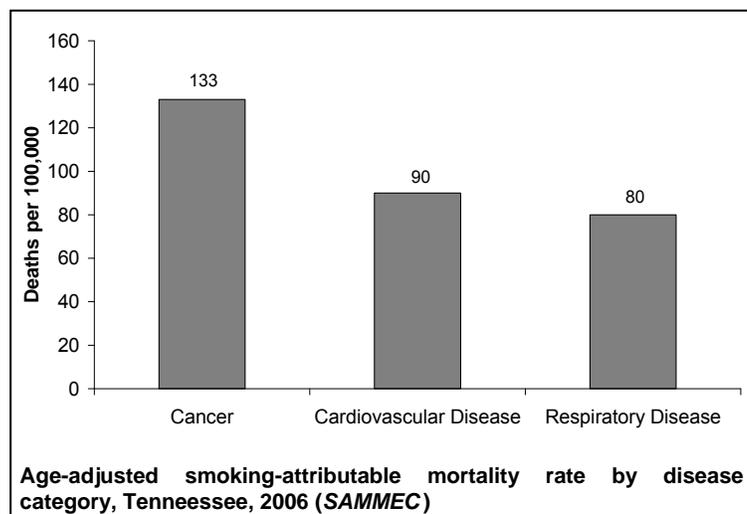
- Based on 2005-2007 BRFSS data, 56.9% [95% CI 55.3-57.7] of current adult smokers reported that they stopped smoking for at least one day or longer during the past 12 months because they were trying to quit smoking.
- Among adult smokers in 2005 who had seen a health care professional in the past 12 months, 49.6% reported being advised to quit at every health care encounter. Fourteen percent reported being advised to quit at some, but not all, health care encounters, and 36.1% reported never being advised to quit.
- Among middle school students who currently smoked cigarettes in 2004, 48.9% said they wanted to quit smoking, and 55.0% said they had tried to quit during the past 12 months.
- Among high school students who currently smoked cigarettes in 2007, 50.4% [95% CI 45.3-55.6] said they had tried to quit in the past 12 months.

Health and Economic Consequences of Smoking

- **Smoking-attributable Mortality**
- **Years of Potential Life Lost**
- **Birth Outcomes and Infant Mortality**
- **Smoking-attributable Morbidity**
- **Secondhand Smoke**
- **Smoking-related Fires**
- **Smoking-attributable Costs**

Smoking-attributable Mortality

Following is a discussion of the smoking-attributable mortality (SAM) for select forms of cancer, cardiovascular disease (CVD) and respiratory disease which have been linked to smoking.* The SAM for a given disease refers to the number or rate of deaths from that disease that were caused by smoking, and which could be prevented if exposure to smoking was eliminated. Smoking-attributable mortality data in this report are for adults aged 35 and older, and do not include deaths due to fires or secondhand smoke exposure.

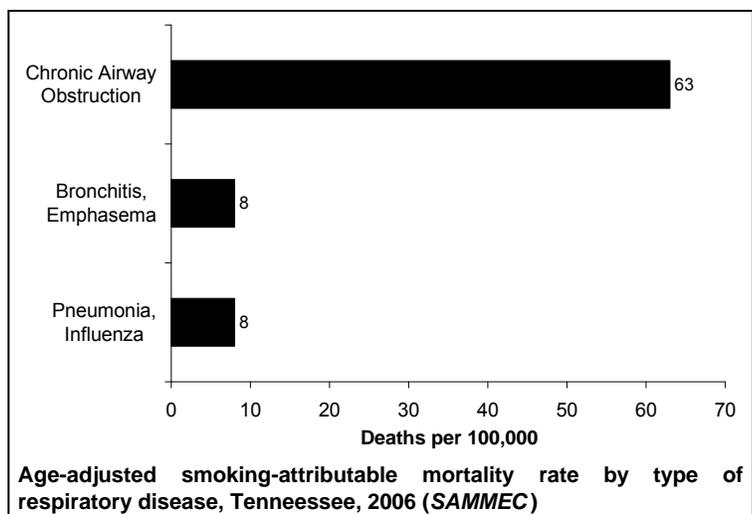
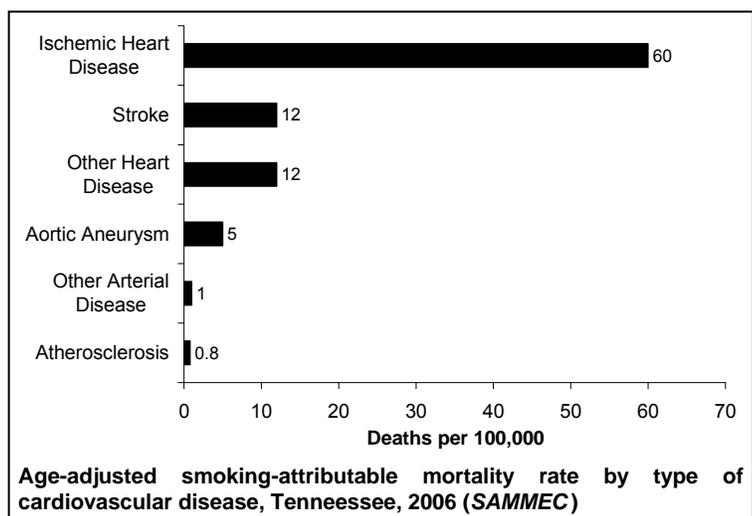
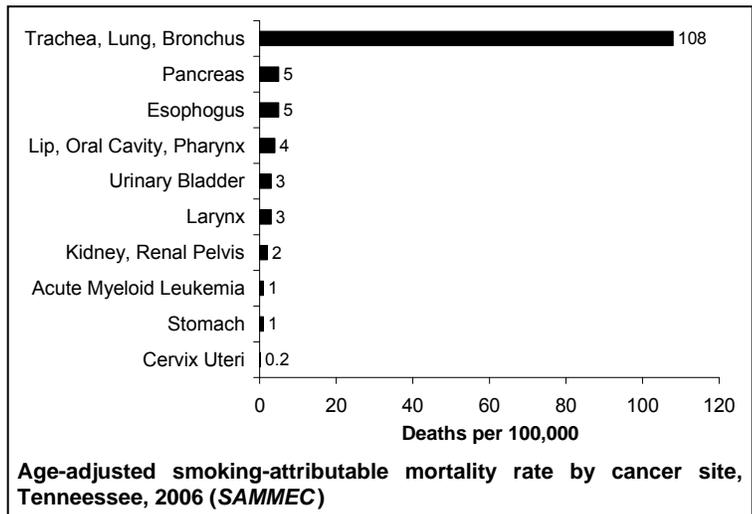


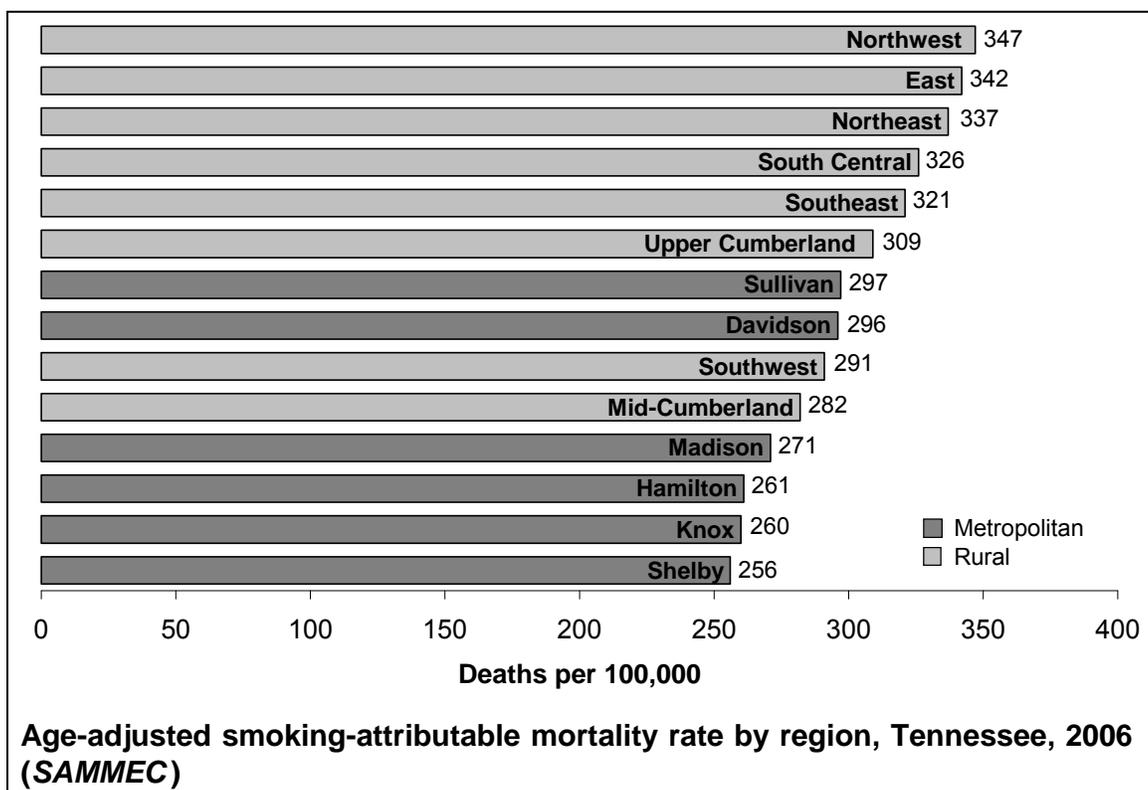
- In 2006, there were 28,308 deaths in Tennessee due to cancer, CVD and respiratory disease, among which 9,888 (35%) were due to smoking.
- This represented one smoking-related death every 53 minutes.
- The SAM rate for all three disease categories combined was 302/100,000.
- The SAM rate was highest for cancer (133/100,000), with 66% of cancer deaths attributable to smoking.
- The SAM rate for CVD was 90/100,000, with 17% of CVD deaths due to smoking.
- The SAM rate for respiratory disease was 80/100,000, with 61% of respiratory deaths due to smoking.
- SAM rates were higher for males than for females for all three disease categories.

* See Technical Notes for list of specific diseases and ICD-10 codes used in the analysis.

Smoking-attributable Mortality

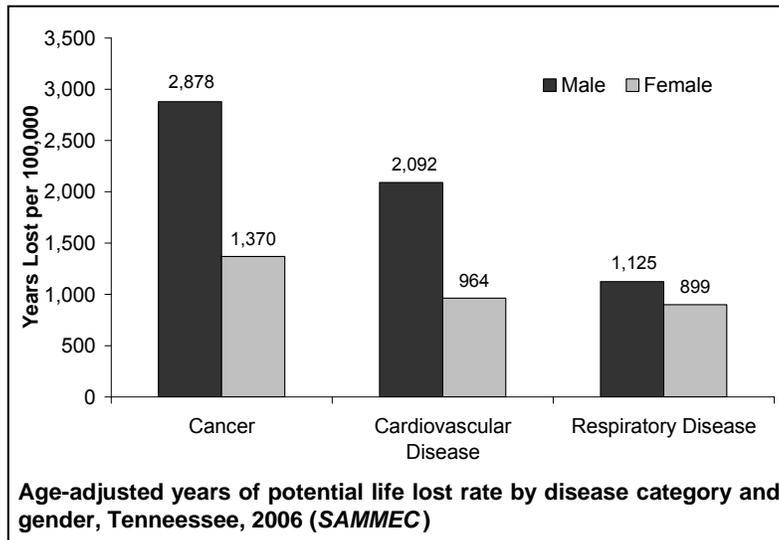
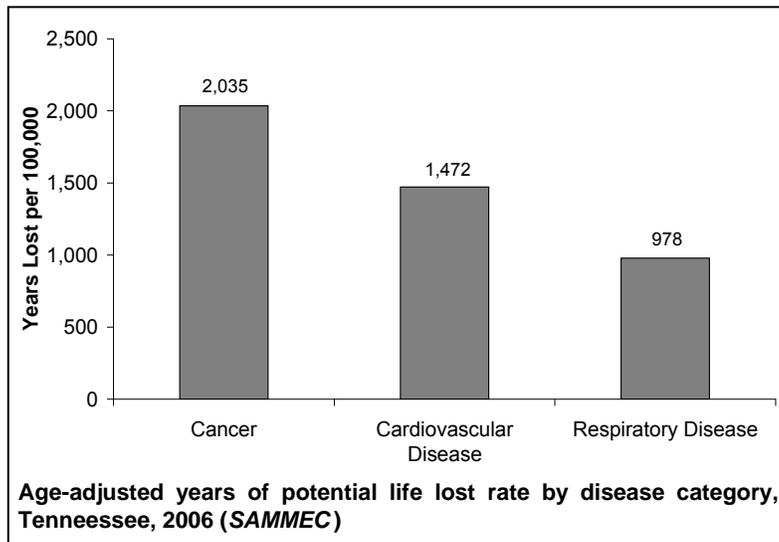
- Among the various forms of cancer caused by smoking, the SAM rate was highest for cancers of the trachea, lung and bronchus (108/100,000).
- Trachea, lung and bronchus cancer also had the highest SAM rate among all three disease categories.
- 81% of trachea, lung and bronchus cancer deaths were due to smoking.
- The highest SAM rate among cardiovascular diseases was for ischemic heart disease (60/100,000).
- 19% of ischemic heart disease deaths were due to smoking.
- The highest SAM rate among respiratory diseases was for chronic airway obstruction (63/100,000).
- 84% of chronic airway obstruction deaths were due to smoking.





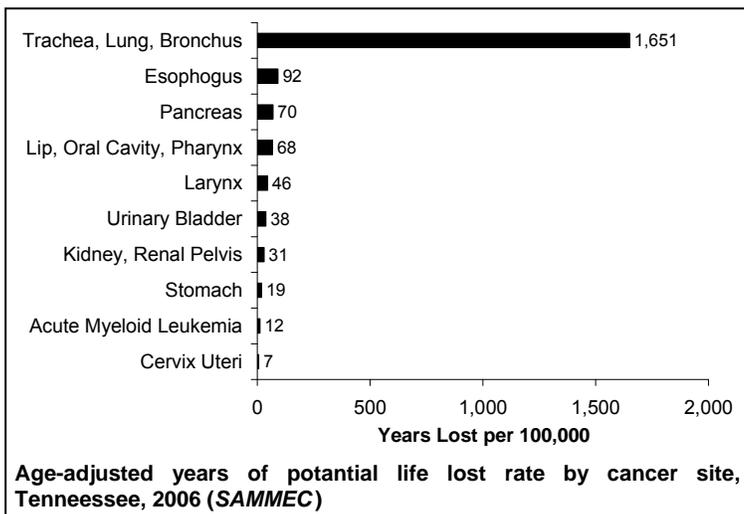
- Among Tennessee’s fourteen health department regions, the 2006 smoking-attributable mortality rate ranged from 256/100,000 in Shelby to 347/100,000 in Northwest.
- Metropolitan regions tended to have lower SAM rates compared to rural regions.
- The four lowest SAM rates were all in metropolitan regions (Shelby, Knox, Hamilton and Madison). These four regions also had the lowest prevalence rates for current cigarette smoking in 2006.

Years of Potential Life Lost

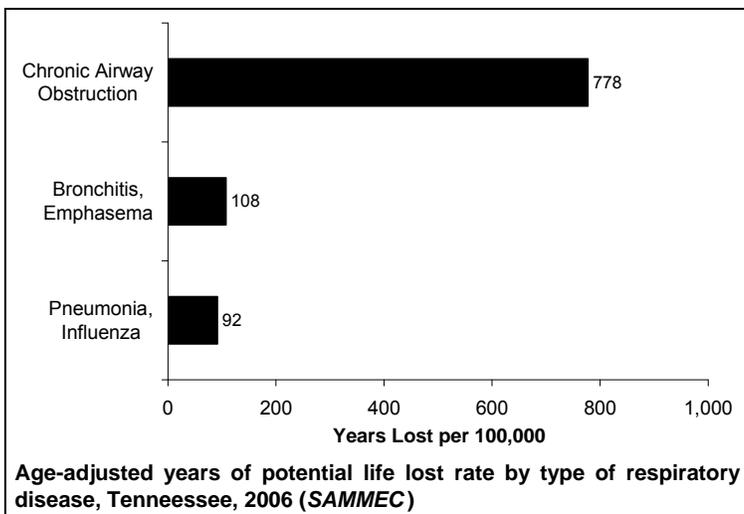
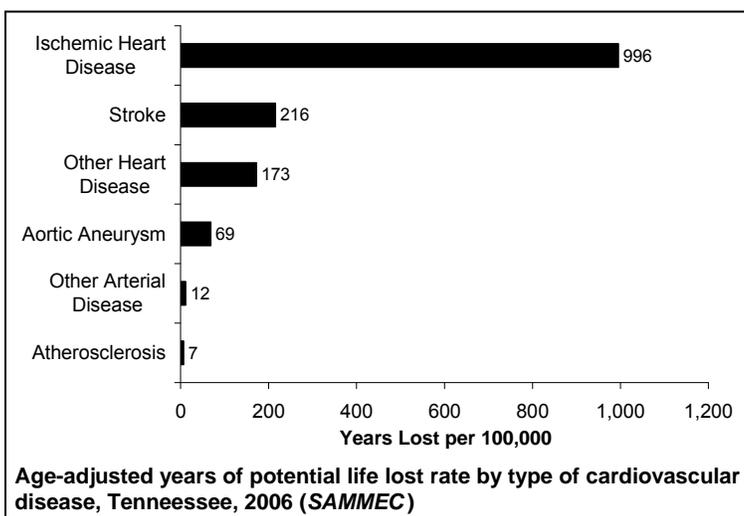


Smoking-attributable years of potential life lost (YPLL) refers to the years of life lost among persons who die prematurely due to smoking, and is a way of measuring the relative impact of smoking on society. Years of potential life lost data in this report are for adults aged 35 and older, and do not include deaths due to fires or secondhand smoke exposure.

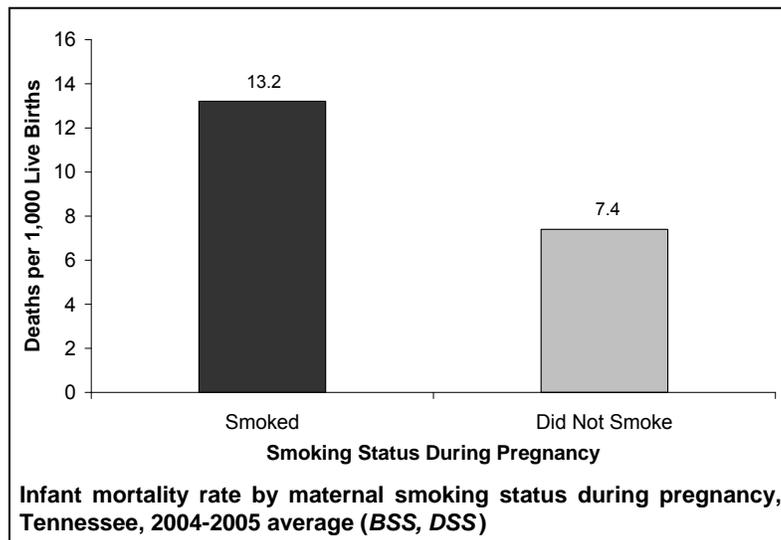
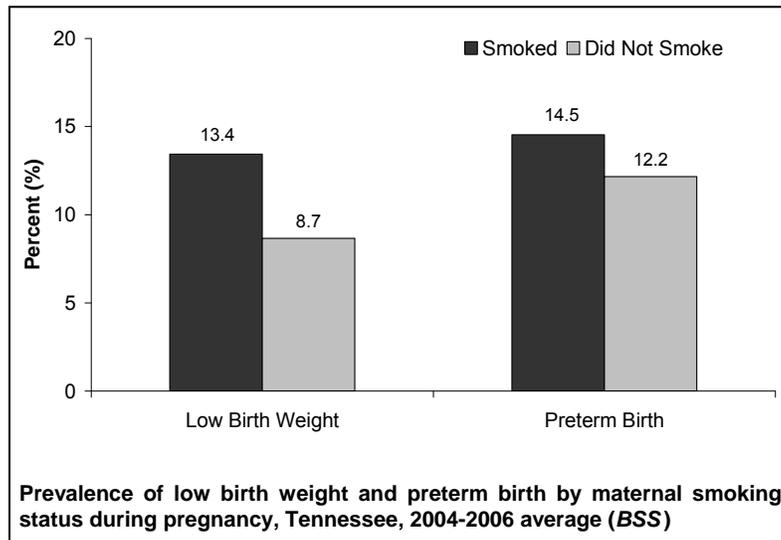
- In 2006, smoking-related illnesses were responsible for approximately 152,000 years of potential life lost in Tennessee (69,200 for cancer; 50,300 for cardiovascular disease; and 32,000 for respiratory disease).
- The YPLL rate for all three disease categories combined was 4,484/100,000.
- The YPLL rate was highest for cancer (2,025/100,000), followed by cardiovascular disease and respiratory disease (1,472 and 978/100,000, respectively).
- YPLL rates were higher for males than for females for all three disease categories.



- Among the various forms of cancer caused by smoking, the YPLL rate was highest for cancers of the trachea, lung and bronchus (1,651/100,000).
- Trachea, lung and bronchus cancer also had the highest YPLL rate among all three disease categories.
- The highest YPLL rate among cardiovascular diseases was for ischemic heart disease (996/100,000).
- The highest YPLL rate among respiratory diseases was for chronic airway obstruction (778/100,000).

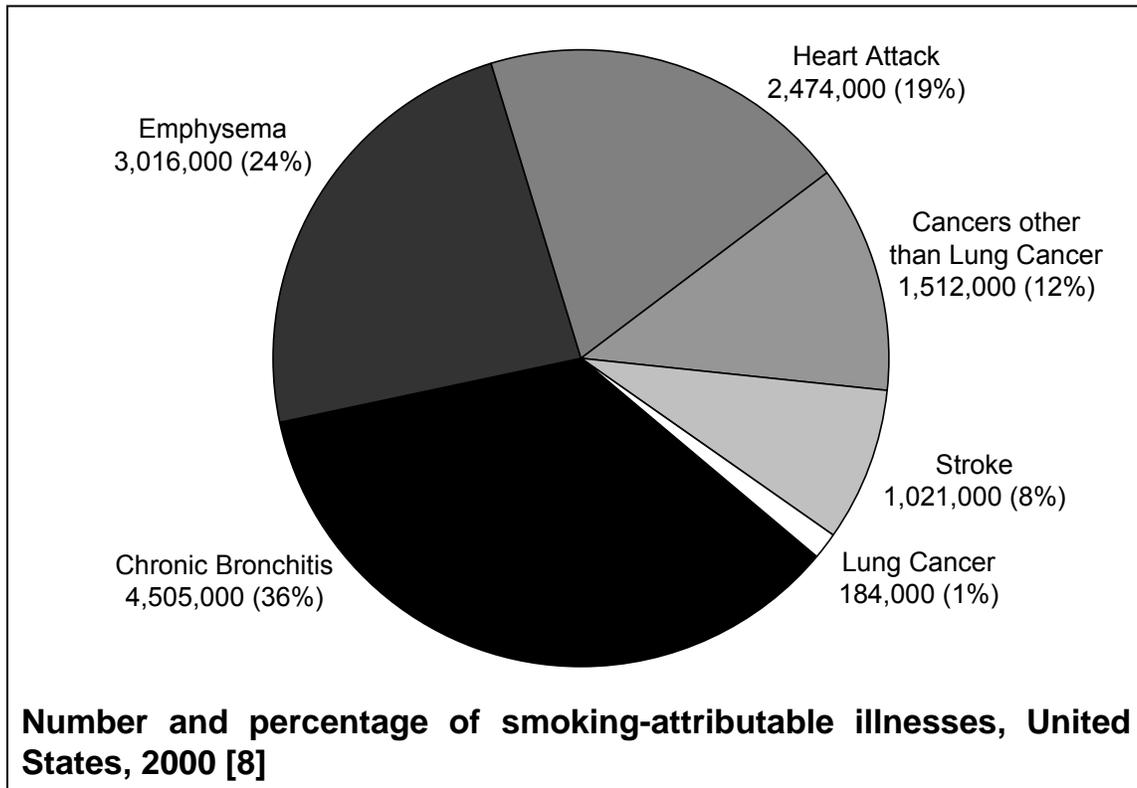


Birth Outcomes and Infant Mortality



- Between 2004 and 2006, the rate of low birthweight births was higher among women who smoked cigarettes during pregnancy (13.4%) than among those who did not smoke (8.7%).
- The rate of preterm birth was also higher among women who smoked (14.5%) than among those who did not smoke (12.2%).
- Among infants born to women who smoked cigarettes while pregnant, the mortality rate was 13.2 deaths per 1,000 live births between 2004 and 2005. Among infants born to women who did not smoke the mortality rate was 7.4/1,000.
- Fourteen percent of infant deaths due to preterm birth and low birthweight and 20% of infant deaths due to sudden infant death syndrome (SIDS) were attributable to maternal smoking during pregnancy.

Smoking-attributable Morbidity



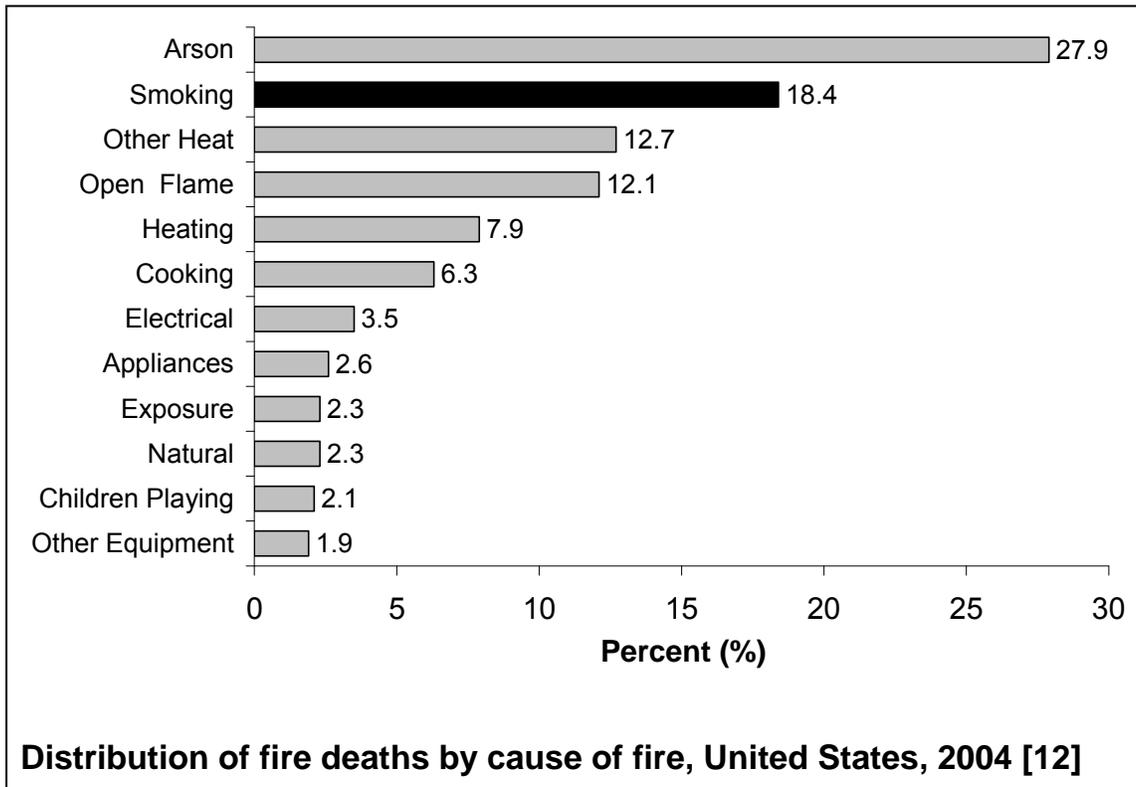
- In 2000, as estimated 8.6 million persons in the United States had an estimated 12.7 million smoking-attributable chronic illnesses.⁸
- In Tennessee, there were an estimated 178,100 persons with an estimated 257,300 smoking-attributable chronic illnesses.⁹
- Chronic bronchitis and emphysema were the most common conditions, together accounting for 60% of all smoking-attributable illnesses.⁸
- For every tobacco-attributable death that occurs, there are approximately 20 people alive who are suffering from a serious, chronic disease that is attributable to smoking.⁹
- Based on 2005-2007 BRFSS data, 24.9% of current smokers reported their general health as fair or poor, compared to just 17.9% of nonsmokers.

Secondhand Smoke

State-specific data on morbidity and mortality resulting from exposure to secondhand smoke are not available. However, a recent report by the U.S. Surgeon General summarizes the health consequences of secondhand smoke exposure and includes some national estimates. Findings from that and several other reports are listed below and should serve as a reminder of the potential impact of secondhand smoke on the health of Tennesseans. It is important to keep in mind that the morbidity and mortality burden of tobacco in the state extends beyond that quantified elsewhere in this report.

- Secondhand smoke exposure causes heart disease and lung cancer in nonsmoking adults.⁵
- Nonsmokers who are exposed to secondhand smoke at home or work increase their heart disease risk 25-30% and their lung cancer risk 20-30%.⁵
- It is estimated that secondhand smoke exposure is responsible for 3,400 lung cancer deaths and 22,700 to 69,600 heart disease deaths annually among adult nonsmokers in the United States.¹⁰
- Secondhand smoke slows lung growth and adversely affects lung function in children.⁵
- Secondhand smoke causes low birth weight, sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more frequent and severe asthma attacks in children.⁵
- Each year in the United States, secondhand smoke exposure is responsible for 150,000 to 300,000 new cases of bronchitis and pneumonia in children aged less than 18 months.¹¹

Smoking-related Fires



- In 2004, there were 3,993 civilian fire deaths in the United States, and the national fire mortality rate was 13.6 per million.¹²
- Tennessee had the 3rd highest fire mortality rate (26.7 per million) among the 50 states.¹²
- Smoking was the second leading cause of fire deaths in the United States in 2004. Although smoking materials were responsible for just 4% of fires, they were responsible for 18% of fire deaths.¹²
- State-specific data on the cause of fire deaths were not available. However, based on national data, we can estimate that 28 out of 157 fire deaths in Tennessee in 2004 were due to smoking.

Smoking-attributable Costs

- In 2004, direct medical expenses due to smoking totaled approximately \$2.2 billion dollars in Tennessee, \$680 million of which was covered by state and federal Medicaid. This does not include health costs due to secondhand smoke, smoking-caused fires, smokeless tobacco use or cigar and pipe smoking. It also excludes expenditures for health and developmental problems of infants and children caused by mothers smoking during pregnancy or being exposed to secondhand smoke during pregnancy, or by children being exposed to parents smoking after birth.^{13,14}
- The cost of lost productivity due to smoking was approximately \$2.7 billion. This only includes costs from productive work lives shortened by smoking-caused death. It does not include costs from smoking-caused disability during work lives, smoking-caused sick days or smoking-caused productivity declines when on the job.^{13,14}
- The annual state and federal tax burden of Tennessee residents from smoking-caused government expenses was approximately \$1.4 billion or \$614 per household.^{13,15}

2004 Smoking-attributable Monetary Costs in Tennessee^{13,14,15}

Medical expenses directly caused by smoking	\$2.2 billion
– Portion covered by Medicaid	\$680 million
Smoking caused productivity losses	\$2.7 billion
Resident’s state and federal tax burden from smoking-caused government expenditures	\$1.4 billion

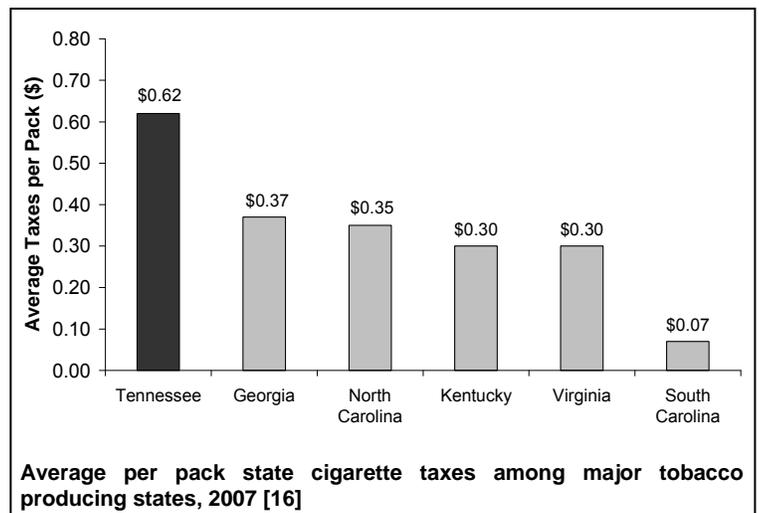
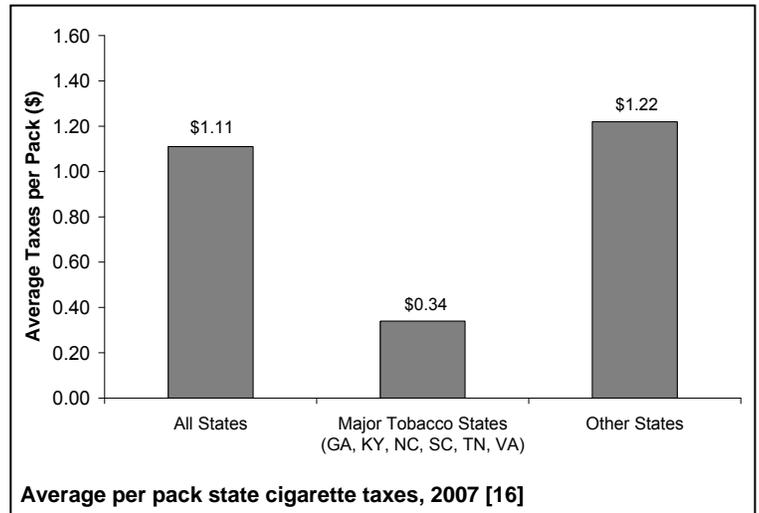
Tobacco Control

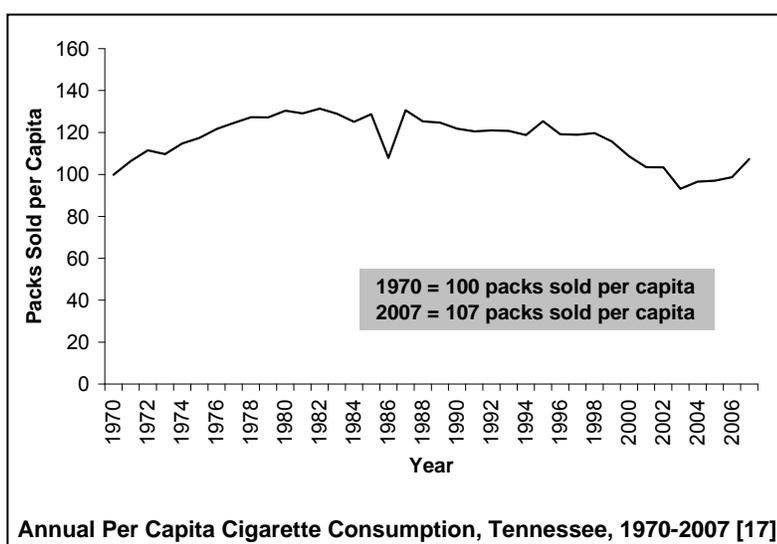
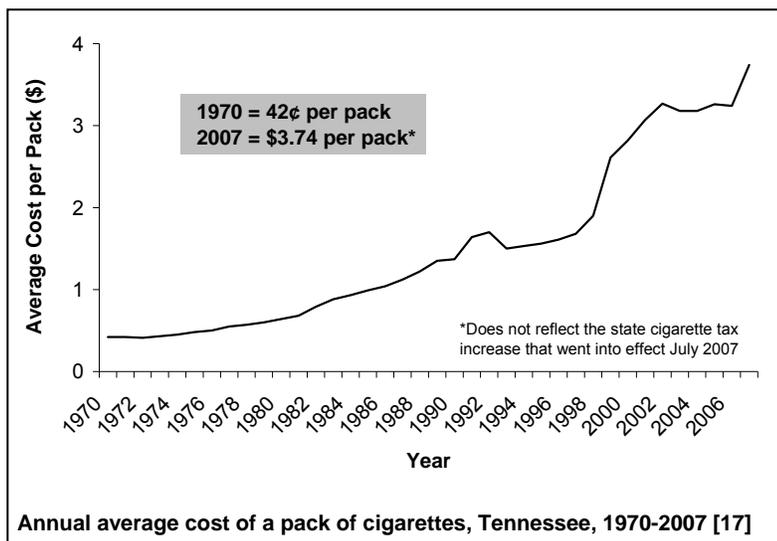
- **Cigarette Taxes and Sales**
- **Prevention and Control Spending**
- **Smoke-free Air Laws**
- **Youth Access**
- **Tobacco Marketing**

Cigarette Taxes and Sales

Each year the American Lung Association (ALA) publishes a report that evaluates federal and state tobacco control laws and assigns letter grades (A, B, C, D or F) to represent each state's performance. The report focuses on four areas: cigarette taxes, tobacco prevention and control spending, smoke-free air and youth access. Following is a summary of the findings of the ALA's 2007 report, along with supplemental information regarding the state of tobacco control in Tennessee.

- The state cigarette tax in Tennessee remained at \$0.13 per pack from 1970 to 2002. It was raised to \$0.20 in 2003 and again to \$0.62 in 2007.¹⁶
- Among the 50 states, cigarette taxes in 2007 ranged from \$0.07 in South Carolina to \$2.58 in New Jersey.¹⁶
- Average cigarette taxes were much lower in the major tobacco producing states (GA, KY, NC, SC, TN, VA) (\$0.34) compared to other states (\$1.22).¹⁶
- In 2007, Tennessee had the highest cigarette taxes among the major tobacco producing states.¹⁶
- However, cigarette taxes in Tennessee were lower than the national average of \$1.11 and received a grade of D from the American Lung Association.¹⁶





- The average cost of a pack of cigarettes in Tennessee increased from \$0.42 per pack in 1970 to \$3.74 per pack in 2007 (note: this price does not reflect the state cigarette tax increase that went into effect July 2007).¹⁷
- Among the 50 states, the average cost of cigarettes in 2007 ranged from \$3.26 per pack in South Carolina to \$6.35 in Alaska. Compared to other states, the cost of cigarettes in Tennessee was the 12th lowest.¹⁷
- In 2004, each pack of cigarettes sold in Tennessee cost an estimated \$8.70 in direct medical expenses and lost productivity attributable to smoking.¹⁸ The average retail cost of a pack of cigarettes that year was \$3.18.¹⁷
- In 2007, 107 packs of cigarettes were sold per capita in Tennessee.¹⁷
- Cigarette consumption in the state reached its lowest level in 2003 at 93 packs per capita, but has continued to increase since that time.¹⁷

Prevention and Control Spending

- In 2007, Tennessee allocated a total of approximately \$11.6 million for tobacco prevention and control.
- In 2007, the Tennessee General Assembly appropriated funding (\$10 million) for tobacco prevention and cessation programs for the first time ever. This made up the bulk of the money allocated for such programs in the state. The remaining funding came from the Centers for Disease Control and Prevention.¹⁶
- Tennessee did not allocate any money from taxes or from the Tobacco Master Settlement Agreement towards tobacco programs in 2007.¹⁶
- Between 2000 and 2006, Tennessee received over 1 billion dollars from the Master Settlement Agreement (an annual average of approximately \$166.5 million).¹⁷ None of the money received has been specifically allocated for tobacco prevention and control programs.
- Among the 50 states, the amount allocated for tobacco programs in 2007 ranged from \$1.1 million in Connecticut to \$87.5 million in New York.¹⁶
- The Centers for Disease Control and Prevention makes recommendations for the amount states should spend funding comprehensive tobacco programs. In 2007, only 9 states funded their programs at 90% or more of the CDC recommended minimal funding level.¹⁶
- For Tennessee, the CDC recommended an annual investment of \$71.7 million in 2007, with a minimum of \$51.8 million. With only \$11.6 million allocated to tobacco prevention and control, Tennessee only met 22% of the recommended minimum amount and received a grade of F from the American Lung Association.^{16,19}
- The \$71.7 million dollars recommended by the CDC for tobacco control represents approximately 27% of the state's 2006 revenue from tobacco taxes and from the Master Settlement Agreement.¹⁹

Smoke-free Air Laws

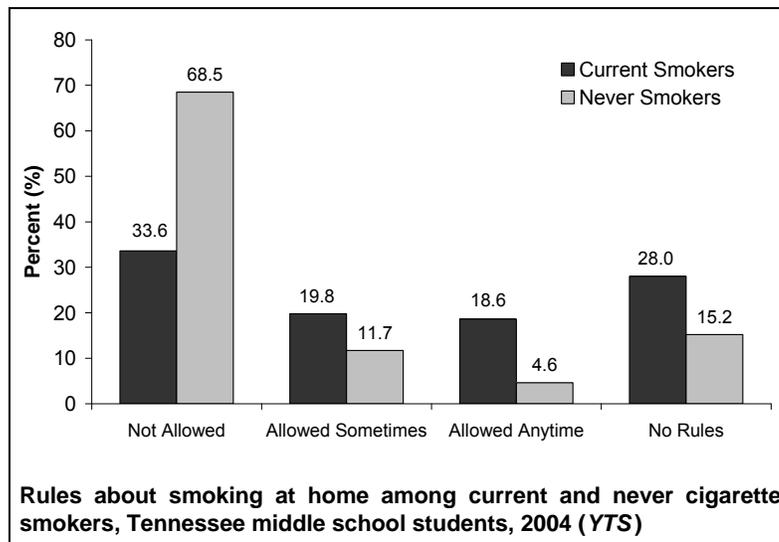
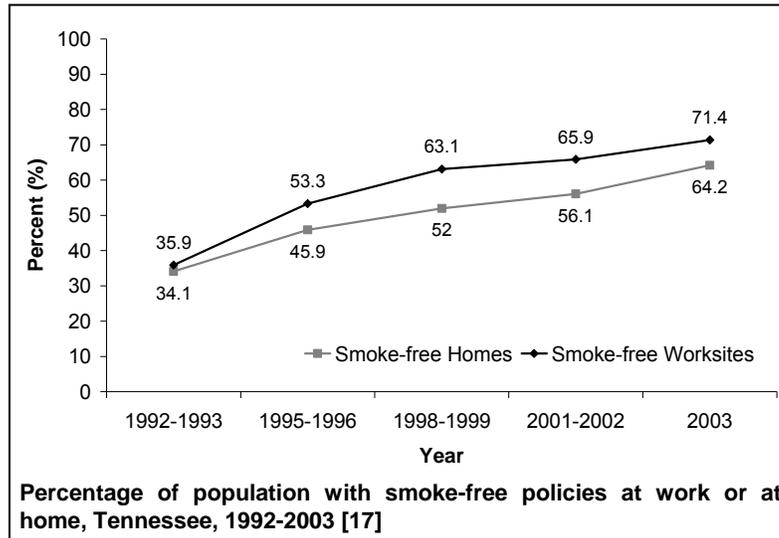
The American Lung Association assesses smoke-free air laws based on nine categories. States receive points for laws restricting smoking in seven specific locations (government worksites, private worksites, schools, childcare facilities, restaurants/bars, retail stores and recreational/cultural facilities), for penalizing those violating smoke-free air laws, and for designating an enforcement authority.¹⁶ In 2006, Tennessee's smoke-free air laws received a grade of F from the American Lung Association. However, following the passage in 2007 of the Non-smokers Protection Act (which prohibits smoking in most public places and worksites) Tennessee's grade was raised to a B.

Overview of Tennessee's Smoke-free Air Laws¹⁶

Government Worksites	Smoking banned
Private Worksites	Smoking restricted*
Schools	Smoking banned
Childcare Facilities	Smoking banned
Restaurants/Bars	Smoking restricted in restaurants*
Retail Stores	Smoking banned
Recreational/Cultural Facilities	Smoking banned
Penalties	Yes
Enforcement Authority	Yes
Preemption	Yes*

*Tennessee's grade of B reflects the fact that the Non-smokers Protection Act includes several major exclusions: smoking is still permitted in bars with access to persons 21 and older at all times, in private clubs, in businesses with three or fewer employees and in establishments with at least one completely open garage-type door on one or more sides. In addition, Tennessee has a policy that allows the state to preempt stricter local ordinances. States with preemption policies are penalized in the ALA's grading system.

Smoke-free Air Laws



- In 1992-1993, approximately one-third of Tennesseans aged 15 and older reported living in homes with smoking bans or working in places with smoking bans.¹⁷
- By 2003, the percentage that reported smoke-free rules at home increased to 64.2% and the percentage that reported smoke-free worksites increased to 71.4%.¹⁷
- Although more recent data are not available, it is reasonable to assume that passage of the Non-smokers Protection Act in 2007 will increase the percentage of persons working in smoke-free environments.
- In 2004, 60.6% of middle school students in Tennessee reported that smoking was not allowed anywhere inside their home.
- Students who had never smoked cigarettes (68.5%) were more likely than current cigarette smokers (33.6%) to say that smoking was banned inside their home.

Youth Access

The American Lung Association assesses laws regarding youth access to tobacco based on nine categories: minimum age, packaging, clerk intervention, photographic ID requirement, vending machines, free distribution/samples, graduated penalties, random inspections and statewide enforcement.¹⁶ In 2007, Tennessee’s youth access laws received a grade of B from the American Lung Association.

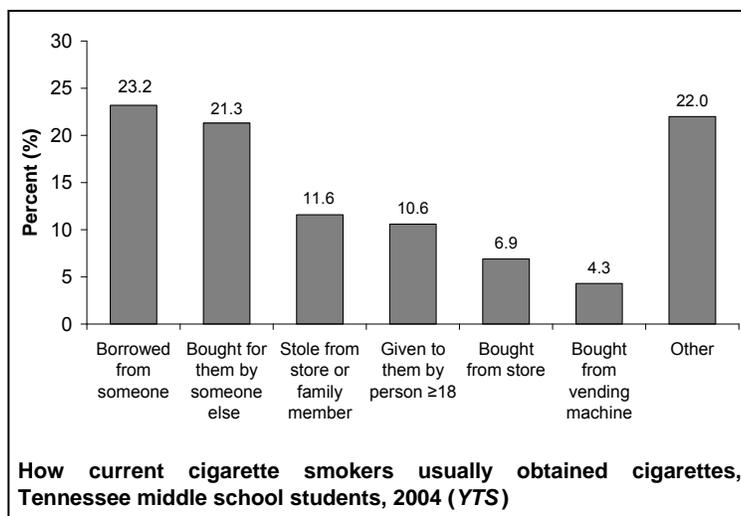
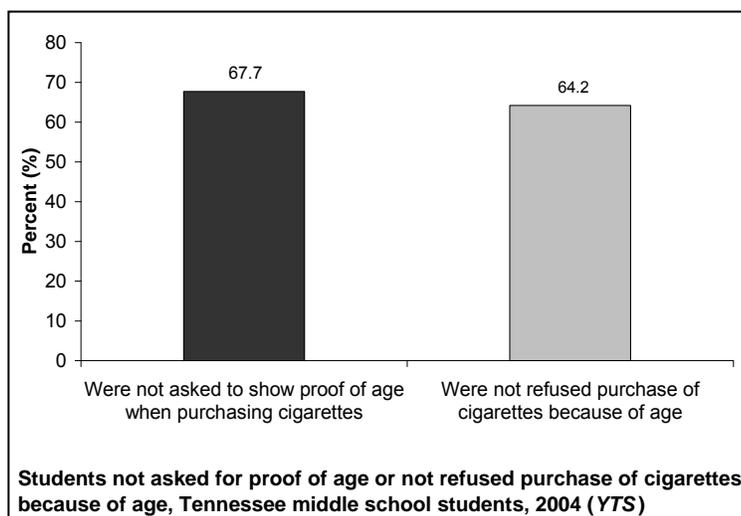
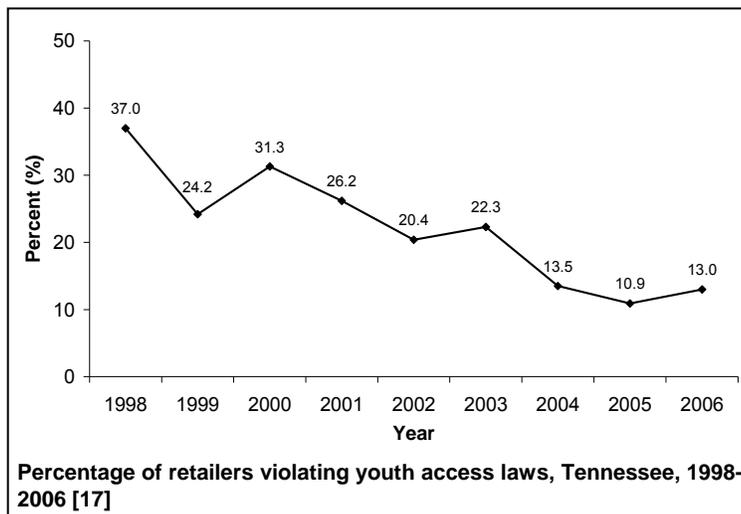
Overview of Tennessee’s Youth Access Laws¹⁶

Minimum Age Requirement	Yes (18 yrs)
Packaging <i>(prohibits all cigarette sales other than in sealed packages conforming to federal labeling)</i>	Yes
Clerk Intervention <i>(prohibits access to or purchase of tobacco products without the intervention of a sales clerk)</i>	No provision*
Photographic ID Requirement <i>(requires merchants to request photographic ID for customers who appear under 21 years of age)</i>	Yes
Vending Machines	Restricts*
Free Distribution/Samples	Restricts*
Graduated Penalties	Yes*
Random Inspections	Yes
Statewide Enforcement Agency	Yes
Preemption	Yes*

*Tennessee’s grade of B reflects exemptions to clerk intervention requirements, vending machine bans, and bans on free distribution of tobacco, as well as less strict penalties for violation of youth access laws. In addition, Tennessee has a policy that allows the state to preempt stricter local ordinances. States with preemption policies are penalized in the ALA’s grading system.

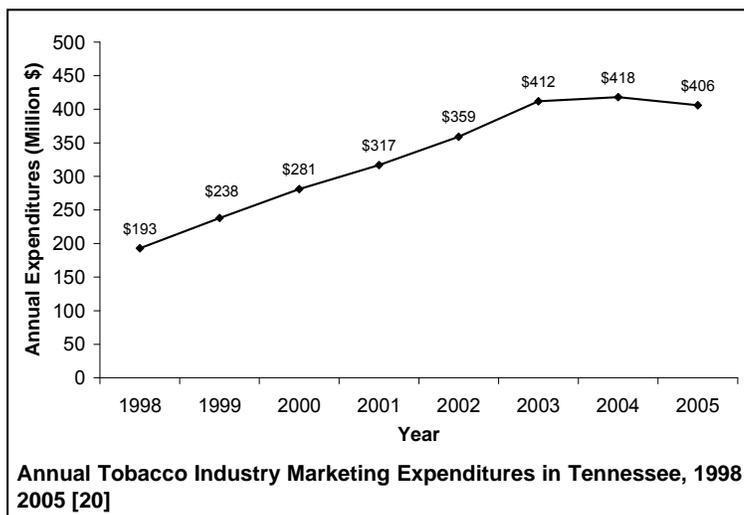
Youth Access

- Between 1998 and 2006, the percentage of Tennessee retailers caught violating youth access laws decreased from 37.0% to 13.0%.¹⁷
- Tennessee has met the retailer violation target rate of 20% or less since 2004.[†]
- In 2004, 67.7% of middle school students who purchased or attempted to purchase cigarettes from a store in the past 30 days reported that they were not asked for proof of age.
- A similar percentage (64.2%) reported that they were not refused purchase of cigarettes because of their age.
- The percentage of students not asked for proof of age decreased from 84.5% in 1999 to 67.7% in 2004.
- It should be noted, however, that only 6.9% of students reported that they usually got their cigarettes at a store. The majority (44.5%) usually borrowed cigarettes from someone else or had someone else buy them.

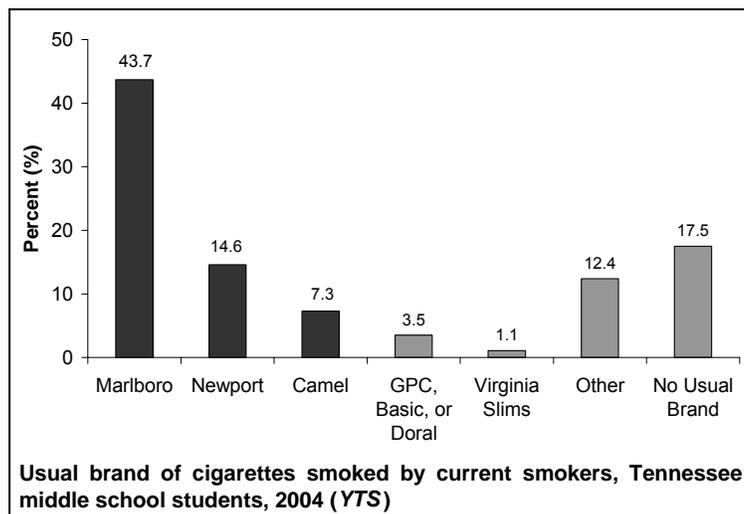


[†] This target rate is set forth in the Synar Amendment which requires states to have and effectively enforce laws prohibiting tobacco access to persons less than 18 years old.

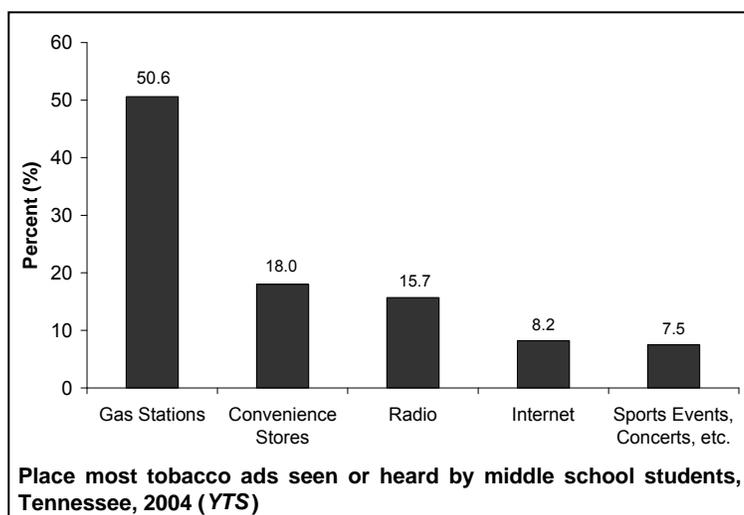
Tobacco Marketing



- In 2005, cigarette companies spent \$13.4 billion on advertising and promotional expenses in the U.S. – more than \$36 million a day.²⁰
- In 2005, the amount spent in Tennessee totaled \$406 million. This was a slight decrease from 2004 expenditures. However, it was more than double the amount spent in 1998.²⁰



- The majority of U.S. marketing expenditures (\$12.5 billion or 95%) were directly linked to individual pack sales through promotional allowances to retailers and wholesalers, price discounts, coupons and sales-related bonus items. An additional \$182 million were spent on point-of-sale advertising.²¹



- In 2004, the three most popular cigarette brands smoked by middle school students in Tennessee (Marlborough, Newport and Camel) were also the most heavily advertised brands in the United States.²²
- Together, gas stations and convenience stores (68.6%) were the most common places students said they saw or heard advertisements for tobacco.

Summary

Between 1999 and 2004, the prevalence of cigarette smoking among Tennessee middle school students decreased by approximately 30%. This is encouraging given that nearly all first use of tobacco occurs during adolescence.²³ However, a similar decrease was not observed among high school students. Approximately one-quarter of Tennessee adults (over one million people) currently smoke cigarettes and smoking prevalence among adults has not decreased significantly since 1996. In addition, almost 20% of Tennessee women giving birth smoked during their pregnancies. Over 50% of current adult and youth smokers reported attempting to quit during the past 12 months. In other words, over one-half of smokers had been unsuccessful in their past attempts to quit.

In 2006, smoking-related cancer, cardiovascular disease and respiratory disease resulted in almost 10,000 deaths in Tennessee and more than 150,000 years of potential life lost. However, these estimates are only for adults aged 35 and older who actively smoked cigarettes. If one considers the health effects among persons of all ages of both the active use of all forms of tobacco and of passive smoke exposure, the toll of tobacco among Tennesseans is even greater. There are an estimated 178,100 persons in Tennessee living with a smoking-attributable chronic illness – almost 20 individuals for every smoking-attributable death that occurs in the state. Secondhand smoke also causes illness and death in persons who do not smoke, including infants and children. Between 2004 and 2005, the infant mortality rate among babies born to women who smoked during pregnancy was almost double that of babies born to non-smoking mothers. These illnesses and deaths are costly not only in terms of personal suffering, but also monetarily. Smoking-attributable medical expenses and productivity losses in Tennessee totaled almost \$5 billion in 2004.

Tennessee has made important progress in controlling tobacco use in recent years. The American Lung Association's 2007 report on the state of tobacco control recognized Tennessee for passing the Non-smokers Protection Act prohibiting smoking in most public places, for increasing its cigarette tax by \$0.42 to \$0.62 per pack and for increasing funding for its tobacco control program. However, the cigarette tax rate in Tennessee is still below the national average and the money allocated for tobacco prevention and control is still far below the CDC-recommended minimum. Despite recent progress regarding tobacco control in the state, the findings of this report indicate that continued efforts are still needed.

The mission of the Tennessee Tobacco Use Prevention and Control Program is to improve the quality of life for all Tennesseans by preventing and reducing disease, disability, and death caused by tobacco use. The program provides the citizens of Tennessee with information, assistance and community interventions for tobacco use prevention through both community-based and statewide programs that seek to prevent people from beginning to use tobacco, encourage people to stop tobacco use, eliminate exposure of non-tobacco users to secondhand smoke and identify and eliminate tobacco related health disparities. The efforts of the program, as well as the ongoing work of other individuals and organizations interested in tobacco control and the health of the people of Tennessee are critical for ensuring fewer lives are adversely affected by tobacco.

Technical Notes

Data Sources

Behavioral Risk Factor Surveillance System (BRFSS): The BRFSS is an annual, CDC-funded, state-administered, random-digit-dialed telephone survey of the U.S. non-institutionalized population, 18 years of age and older, which gathers self-reported data on certain health conditions and behavioral risk factors. For BRFSS data, the terms “white” and “black” refer to persons of non-Hispanic origin only, and the terms “Hispanic” and “non-Hispanic” refer to ethnicity regardless of race. The BRFSS defines current smoking as individuals who have smoked at least 100 cigarettes in their lifetime and who now smoke everyday or some days. Time trends in prevalence rates were analyzed using linear regression and two-way comparisons of prevalence rates (e.g. male vs. female) were tested for significance using a chi-square test. *P*-values of less than 0.05 were considered significant. Unless otherwise indicated, trends and differences noted in the text were statistically significant. Ninety-five percent confidence intervals are provided in the graphs.

Youth Tobacco Survey (YTS): The Tennessee YTS collects self-reported data on tobacco use, attitudes and related behaviors among Tennessee public middle school students (grades 6 through 8). A detailed description of the survey and additional survey results can be found in the *2004 Tennessee Youth Tobacco Survey Summary* (<http://hit.state.tn.us/Reports.aspx>). For YTS data, the terms “white” and “black” refer to persons of non-Hispanic origin, and the term “Hispanic” refers to ethnicity regardless of race. The YTS defines current smoking as having smoked on one or more of the 30 days preceding the survey. Two-way comparisons of prevalence rates (e.g. male vs. female) were tested for statistical significance using a chi-square test. *P*-values of less than 0.05 were considered significant. Unless otherwise indicated differences noted in the text were statistically significant. Ninety-five percent confidence intervals are provided in the graphs.

Youth Risk Behavior Survey (YRBS): The Tennessee YRBS collects self-reported data on tobacco use and other behaviors related to leading causes of morbidity and mortality among Tennessee public high school students (grades 9 through 12). A detailed description of the survey and additional survey results can be found at <http://www.k-12.state.tn.us/yrbs/> and at <http://www.cdc.gov/HealthyYouth/yrbs/index.htm>. For YRBS data, the terms “white” and “black” refer to persons of non-Hispanic origin, and the term “Hispanic” refers to ethnicity regardless of race. The YRBS defines current smoking as having smoked on one or more of the 30 days preceding the survey. Two-way comparisons of prevalence rates (e.g. male vs. female) were tested for statistical significance using a chi-square test. *P*-values of less than 0.05 were considered significant. Unless otherwise indicated differences noted in the text were statistically significant. Ninety-five percent confidence intervals are provided in the graphs.

Birth Statistical System (BSS): The BSS is an annual state-based compilation of birth certificate data. All data are for resident births that occurred in and out of state. Data were collected on the 1989 Revision of the Tennessee version of the U.S. Standard Certificate of Live Birth for 2003 and earlier. Beginning in 2004, data were collected on the 2003 revision of the Tennessee version of the U.S. Standard Certificate of Live Birth. The questions used to

obtain mother’s smoking status in 2004 and after were modified from the questions used to gather the same information in 2003 and earlier. Therefore data from these two time periods are not comparable. Time trends in rates were analyzed using linear regression and two-way comparisons were tested for statistical significance using a chi-square test. *P*-values of less than 0.05 were considered significant. Unless otherwise indicated differences noted in the text were statistically significant.

Death Statistical System (DSS): The DSS is an annual, state-based compilation of death certificate data. Although 2006 birth and death data files were each available at the time this report was written, linked birth and death files (which are needed to calculate infant mortality rates by maternal smoking status) were only available through 2005. Infant mortality data by maternal smoking status are only presented for 2004-2005 due to comparability issues with earlier data on maternal smoking status (see above discussion of the Birth Statistical System). Infant mortality is defined as the number of deaths among infants less than 1 year old per 1,000 live births in the population. Two-way comparisons were tested for statistical significance using a chi-square test with *p*-values less than 0.05 considered significant. Unless otherwise indicated differences noted in the text were statistically significant.

Smoking-Attributable Mortality, Morbidity and Economic Costs (SAMMEC): The Centers for Disease Control and Prevention’s SAMMEC software program is an online application that allows users to estimate the disease impact of cigarette smoking among adults and infants in the United States, individual states and other large populations. SAMMEC allows users to edit the data elements used by the program. For this report, 2006 Tennessee population, death, birth and BRFSS data were used to calculate smoking-attributable fractions, mortality and years of potential life lost. A detailed description of the methodology used by SAMMEC to calculate these measures is available on the SAMMEC website (<http://apps.nccd.cdc.gov/sammec/index.asp>). Comparisons between groups (e.g. males vs. females) were not tested for statistical significance.

ICD-10 Codes Used in SAMMEC Calculations

Cancer		Cardiovascular Diseases	
Lip, Oral cavity, Pharynx	C00–C14	Ischemic Heart Disease	I20–I25
Esophagus	C15	Other Heart Disease	I00–I09, I26–I51
Stomach	C16	Cerebrovascular Disease	I60–I69
Pancreas	C25	Atherosclerosis	I70
Larynx	C32	Aortic Aneurysm	I71
Trachea, Lung, Bronchus	C33–C34	Other Arterial Disease	I72–I78
Cervix Uteri	C53	Respiratory Diseases	
Kidney and Renal Pelvis	C64–C65	Pneumonia, Influenza	J10–J18
Urinary Bladder	C67	Bronchitis, Emphysema	J40–J42, J43
Acute Myeloid Leukemia	C92.0	Chronic Airways Obstruction	J44

References

1. U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office, 2000.
2. Centers for Disease Control and Prevention. Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses – United States, 1997-2001. *MMWR* 2005; 54(25):625-628.
3. Centers for Disease Control and Prevention. Cigarette Smoking-Attributable Morbidity – United States, 2000. *MMWR* 2003; 52(35):842-844.
4. Centers for Disease Control and Prevention. *The Health Consequences of Smoking, A Report of the Surgeon General*. Atlanta, Georgia: U.S. Department of Health and Human Services, 2004.
5. U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Center for Chronic Disease Prevention and Health Promotion, Office on Smoking Health, 2006.
6. Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 1997-2006.
7. Centers for Disease Control and Prevention. Smoking During Pregnancy – United States, 1990-2002. *MMWR* 2004; 53(39): 911-915.
8. Centers for Disease Control and Prevention. Cigarette Smoking-Attributable Morbidity – United States, 2000. *MMWR* 2003; 52(35):842-844.
9. Hyland A, Li Q, Bauer J, Giovino GA, Yang J, Cummings KM. Cigarette Smoking-Attributable Morbidity by State. Accessed 11 April 2008 at http://roswell.tobaccodocuments.org/morbidity/morbidity_by_state.htm.
10. California Environmental Protection Agency: Air Resources Board, "Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant" (June 24, 2005). Accessed 11 April 2008 at <http://repositories.cdlib.org/tc/surveys/CALEPA2005>.
11. National Institutes of Health. National Cancer Institute. Respiratory Health Effects of Passive Smoking: Lung Cancer and other Disorders: The Report of the U.S. Environmental Protection Agency. Smoking and Tobacco Control Monograph No. 4. NIH Publication No. 93-3605, Washington, D.C., August 1993.
12. U.S. Fire Administration. *Fire in the United States 1995 - 2004*. Emmitsburg (MD); 2007.
13. Campaign for Tobacco Free Kids. *State Tobacco-related Costs and Revenues*. Accessed 21 April 2008 at <http://tobaccofreekids.org/>.
14. Campaign for Tobacco Free Kids. *Toll of Tobacco in the United States of America*. Accessed 21 April 2008 at <http://tobaccofreekids.org/>.

15. Campaign for Tobacco Free Kids. *Toll of Tobacco in Tennessee*. Accessed 21 April 2008 at <http://tobaccofreekids.org/>.
16. American Lung Association. *State of Tobacco Control: 2007*. Accessed 18 January 2007 at www.stateoftobaccocontrol.org.
17. Centers for Disease Control and Prevention. State Tobacco Activities Tracking and Evaluation (STATE) System. Accessed 15 April 2008 at <http://www.cdc.gov/tobacco/statesystem>.
18. Centers for Disease Control and Prevention. *Sustaining State Programs for Tobacco Control: Data Highlights, 2006*. Accessed 15 April 2008 at http://www.cdc.gov/tobacco/data_statistics/state_data/data_highlights/2006/index.htm.
19. Centers for Disease Control and Prevention. *Best Practices for Comprehensive Tobacco Control Programs – 2007*. Atlanta: 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; October 2007.
20. Campaign for Tobacco Free Kids. *State Specific Tobacco Company Marketing Expenditures 1998-2005*. Accessed 21 April 2008 at <http://tobaccofreekids.org/>.
21. Campaign for Tobacco Free Kids. *Allocations of U.S. Cigarette Company Marketing Expenditures since 1998*. Accessed 21 April 2008 at <http://tobaccofreekids.org/>.
22. Centers for Disease Control and Prevention. *Tobacco Industry Marketing Fact Sheet*. Accessed 21 April 2008 at www.cdc.gov/tobacco.
23. Centers for Disease Control and Prevention. *Preventing Tobacco Use among Young People, A Report of the Surgeon General*. Atlanta, Georgia: U.S. Department of Health and Human Services, 1994.