

## ***The Connecticut Public Health Policy Institute***

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### **Examining Tobacco Use, Consequences and Policies in Connecticut: Smoke and Mirrors?**

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## Examining Tobacco Use, Consequences and Policies in Connecticut: Smoke and Mirrors?

In 1982, U.S. Surgeon General Dr. C. Everett Koop wrote, “Cigarette smoking is the chief single avoidable cause of death in our society and the most important public health issue of our time.”<sup>1</sup> These words are still applicable today. This issue brief begins with an overview of tobacco use nationally and in Connecticut, health and economic consequences to individuals and society, the process of nicotine dependence, and effective treatments. Next, national and Connecticut policies and programs are described, followed by specific costs and potential savings of implementing proven programs in the state. The issue brief concludes with a summary and recommendations for policymakers and legislators working toward reducing tobacco use in Connecticut.

### An Overview of Tobacco Use

*Global:* Globally, there are 1.3 billion tobacco users. Overall, 47 percent of men and 12 percent of women smoke some form of tobacco. While countries such as the United States (U.S.) have seen a reduction in the percentages of adults who smoke, in many developing countries there is actually an increase in the number of smokers. For example, smoking consumption rates are climbing 4.3 percent annually in African countries.<sup>2</sup>

*Adult Smoking Rates - U.S. and Connecticut:* In the United States, smoking rates are generally calculated based upon results of a national survey administered by the Centers for Disease Control and Prevention (CDC), known as the *Behavior Risk Factor Surveillance System* (BRFSS). BRFSS data have been collected every month via telephone survey since 1984.<sup>3</sup>

Nationally, in 2008, the percentage of adults aged 18 years and over who were current cigarette smokers was 20.5 percent.<sup>4</sup> This figure has declined from 24.7 percent in 1997 and from 42.4 percent in 1965,<sup>5</sup> the first year for which numbers are available. These sharp reductions in adult smoking rates since 1965 are likely due to improved treatments for smoking cessation, public health efforts targeting tobacco risks and tax increases. Since 2005, however, there has not been a large decrease in smoking rates nationally.<sup>5</sup> This plateau may be due to a leveling off of the number of people who start smoking and in smoking quit rates,<sup>6</sup> and rates of funding for tobacco and smoking cessation programs.

Smoking rates vary by socio-economic status, education, age, race, and presence of psychiatric illness. Specific smoking prevalence data for the U.S. and Connecticut are presented in *Table 1: Smoking Rates – U.S. and Connecticut*. Overall, smoking rates are higher in individuals with lower income and education levels, in younger adults compared to older adults, and in individuals with psychiatric and substance use diagnoses. Nationally, the prevalence of smoking is comparable in Caucasians and African-American groups, but is lower in Hispanics.<sup>5</sup> However in Connecticut smoking rates are higher among Hispanics as compared to Blacks or Whites (D. Sorosiak, personal communication, September 22, 2009).

Based on data collected between 2003-2007, overall rates of smoking are higher among military veterans (27 percent) compared to non-veterans (21 percent), and are particularly high among veterans between the ages of 20 and 34 (approximately 37 percent).<sup>7</sup>

Smoking rates also vary across states. The Connecticut Department of Public Health (DPH) and CDC define smokers as those who smoke every day or some days and have smoked at least 100 cigarettes during their lifetime. Using these definitions, Connecticut has the 3<sup>rd</sup> lowest smoking rate of all 50 states, behind Utah and California, with nearly 16 percent of adults smoking. Similar to national trends, Connecticut smoking rates are higher in groups with lower income and lower education.<sup>6</sup>

**Table 1: Smoking Rates – U.S. and Connecticut<sup>a</sup>**

	United States <sup>6</sup>	Connecticut <sup>b</sup>
<b>Percent Overall (2008)</b>	20.6	15.9
<b>Percent by Sex (2008):</b>		
Male	23.1	17.3
Female	18.3	14.7
<b>Percent by Age (2008):</b>		
18-24	21.4	20.6
25-44	23.7	20.8
45-64	22.6	14.5
65 and older	9.3	6.1
<b>Percent by Income (2000):</b>		
<\$35,000	28.6 <sup>8</sup>	24.4 <sup>8</sup>
>\$35,000	18.0 <sup>8</sup>	16.5 <sup>8</sup>
<b>Percent by Education (2008) :</b>	Age 26 or older	Age 25 or older
Less than HS degree	28.9	29.3
HS degree or GED	26.4	22.3
Some post-HS	22.8	19.2
College degree	11.4	9.1
<b>Percent by Race/Ethnicity (2008):</b>		
White, non-Hispanic	22.0	15.3
Black, non-Hispanic	21.3	14.3
Hispanic	15.8	23.2 <sup>c</sup>
Asian	9.9	3.2 <sup>d 9</sup>
Native American/Alaskan	32.4	NSD <sup>e 9</sup>

National rates of smoking are roughly comparable across the adult life span, with rates beginning to taper in older adulthood. However data from DPH (D. Sorosiak, personal communication, September 22, 2009) reveal a recent spike in smoking in Connecticut adults age 25-34 (23.8 percent) compared to all other age groups. While more males than females smoke in

<sup>a</sup> Current smokers are defined as persons who reported smoking at least 100 cigarettes during their lifetime and who, at the time of interview, reported smoking every day or some days.

<sup>b</sup> Connecticut 2008 data received from the Connecticut Department of Public Health Epidemiologist (Dawn Sorosiak, personal communication, September 22, 2009).

<sup>c</sup> The Hispanic population in the state of Connecticut is younger than the national average. As smoking rates are greater in younger populations, this figure should be interpreted with some caution (Dawn Sorosiak, personal communication, November, 6, 2009).

<sup>d</sup> Includes Native Hawaiian and Pacific Islander (2006)

<sup>e</sup> NSD (Not Sufficient Data)

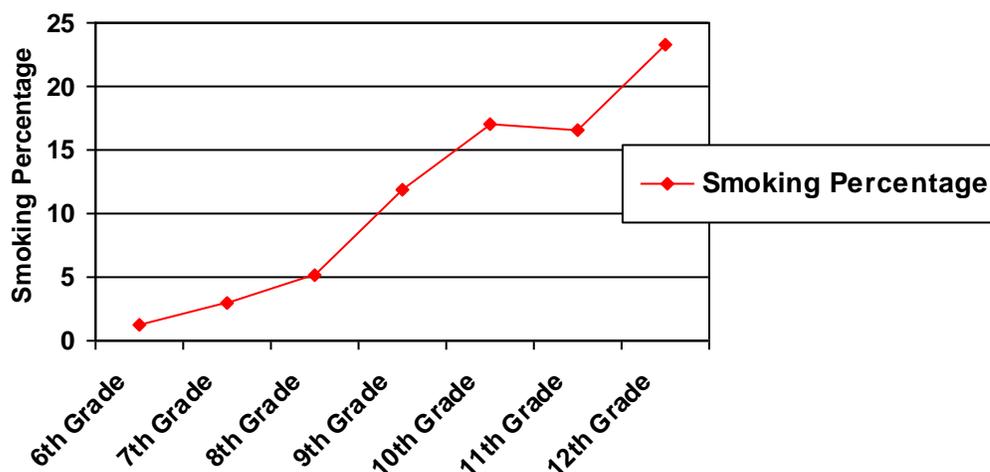
Connecticut, the difference is not great. DPH data also suggest that rates of smoking for adults 45-64 years are lower in Connecticut compared to national levels (*see Table 1: 2008 Smoking Rates – U.S. and Connecticut*).

*Adolescent Smoking Rates – U.S. and Connecticut:* In the U.S., approximately 6,000 people under age 18 try a cigarette every day, and every day more than 3,000 people under age 18 become daily smokers. In 1996, it was estimated that 5 million children alive at the time who were daily smokers would die from a smoking-related illness.<sup>8</sup>

Although rates of cigarette smoking continue to be high among adolescents, national rates among high school students decreased from 27.5 percent in 1991 when data were first available, to 20.0 percent in 2007. When smokeless tobacco and cigar-smoking are included, 25.7 percent of adolescents report current tobacco use, defined as having used tobacco on at least one day in the past 30. When asked about frequent smoking (defined as smoking 10 or more cigarettes on at least 20 of the past 30 days), 8.1 percent of adolescents self identified as frequent smokers.<sup>10</sup>

Similar to adults, adolescent rates of cigarette-smoking vary by age, gender, and ethnicity. Twelfth graders smoke at nearly twice the rate of 9<sup>th</sup> graders (26.5 percent vs. 14.3 percent), and males are more likely to smoke than females (21.3 percent vs. 18.7 percent). Rates of smoking are highest among white students (23.2 percent) followed by Hispanic (16.7 percent) and then black students (11.6 percent). Like adults, adolescents are also trying to quit smoking, with 49.7 percent of current cigarette smokers reporting that they had tried to quit smoking in the previous 12 months.<sup>10</sup>

**Figure 1: Percentage of Adolescent Smokers in Connecticut**

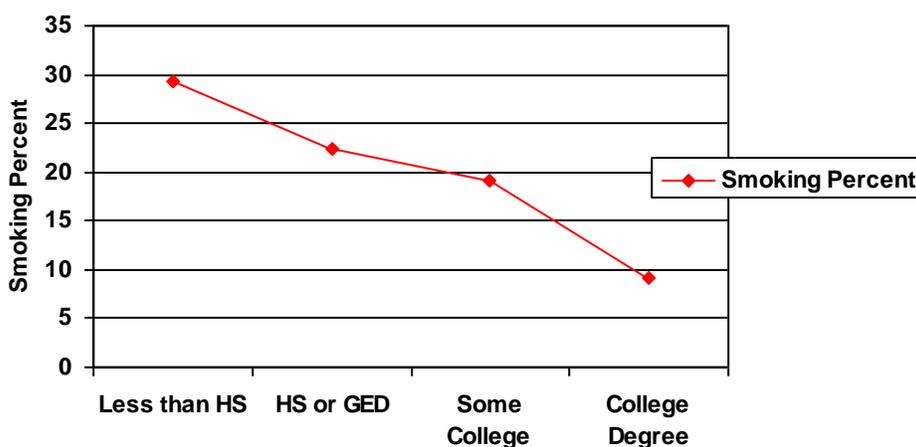


In Connecticut, cigarette smoking among high school students is slightly lower than the national average at 16.9 percent, although this difference is not statistically significant. When all forms of tobacco are included, 22.6 percent of Connecticut high school students report current use. Rates of cigarette smoking across ethnic groups are not statistically different, and rates are similar to those at the national level. Comparable to national trends, males in the state of Connecticut are more likely to smoke than females (18.6 percent vs. 15.2 percent).<sup>11</sup> Although rates of cigarette

smoking rise in high school, initiation can occur much earlier. Approximately 3.3 percent of middle school students in Connecticut smoke and 40 percent of current smokers initiated use before the age of 15.<sup>12</sup> *Figure 1: Percentage of adolescent smokers in Connecticut* provides a snapshot of increases in smoking prevalence with age.

*Smoking prevalence by Type of Health Insurance Coverage:* Prevalence of smoking is associated with type of health insurance coverage<sup>13</sup> which is also associated with level of income and education. *Figure 2: Smoking Rates by Education*, shows decreasing rates of smoking with increased education. Adults under the age of 65 with private insurance have the lowest rates of smoking (18.3 percent). Although the prevalence of tobacco use among adults in the U.S. has decreased by half since the 1960s, low-income populations, such as Medicaid enrollees, continue to smoke at substantially higher rates than the general population (36.6 percent compared to 22.6 percent for ages 18 – 65 years, respectively).<sup>14</sup> Smoking prevalence among Medicaid recipients ranges from 36 to 40 percent depending on the population surveyed<sup>15 16 17</sup> and this has not changed over the past ten years. In Connecticut there are currently about 169,500 adult Medicaid recipients<sup>18</sup> and we estimate, based upon previous surveys,<sup>15 16 17</sup> that approximately 61,000 (36 percent) of them smoke.

**Figure 2: Smoking Rates by Education**



In adults over the age of 65, 9.4 percent of those who are privately insured smoke compared to 10.4 percent of adults who are on Medicaid and Medicare.<sup>15</sup> The disparity in smoking rates has lessened as adults over the age of 65 are both more likely to have quit, or more likely to have died prematurely from smoking-related illnesses. One goal of *Healthy People 2010* is to ensure that evidence-based treatments for smokers are available through state Medicaid programs.<sup>19</sup> Furthermore, USDHHS Clinical Practice Guidelines, *Treating Tobacco Use and Dependence: 2008* recommends that evidenced based medication and behavioral smoking cessation treatments should be offered as covered services in public as well as private health insurance plans.<sup>20</sup>

*Smoking Prevalence in Pregnant Women:* Maternal smoking during pregnancy accounts for 30 percent of low birth weights, 10 percent of premature deliveries and five percent of all infant deaths in the U.S.<sup>20</sup> Estimated rates of smoking during pregnancy vary according to data collection method, but some data suggest that 16.4 percent of pregnant women smoked during

pregnancy in 2007 across the U.S.<sup>21</sup> In Connecticut, rates of smoking based on birth certificate data were 8.3 percent in 2005.<sup>22</sup> However in 2004, among the 11,007 births to mothers enrolled in Connecticut's HUSKY-A program, 16 percent smoked during pregnancy.<sup>23</sup>

*Smoking Prevalence in Psychiatric Populations:* Smoking rates are much higher among those with psychiatric disorders, and the greater the intensity, duration, and frequency of these disorders, the greater the rates of smoking. Results of a national survey conducted from 1992 to 2000 revealed that those with a psychiatric diagnosis (including mood, anxiety, psychosis, and substance use diagnoses) consume approximately 44 percent of all cigarettes smoked in the U.S. This same population is nearly twice as likely to smoke cigarettes (41 percent), compared to those without a psychiatric diagnosis (22.5 percent).<sup>24</sup>

Rates of smoking increase if the psychiatric disorder has been present within the past month and when multiple psychiatric diagnoses are present. Individuals with psychiatric disorders tend to be heavier smokers (smoking in excess of 25 cigarettes per day), with rates between 15 and 30 percent depending on the number of lifetime psychiatric diagnoses. In comparison, only 10 percent of persons with no history of a psychiatric diagnosis are defined as heavy smokers. These persons also tend to have lower quit-rates compared to persons with no history of a psychiatric diagnosis. In Connecticut, current smokers were twice as likely as non-smokers to have ever been diagnosed with an anxiety disorder (18.4 percent vs. 8.5 percent).<sup>25</sup>

Similarly, individuals with alcohol and drug dependence are more likely to smoke. While population studies have estimated that over 60 percent of substance abusers smoke cigarettes, studies of treated alcoholics suggest that 80-95 percent of alcoholic dependent individuals smoke cigarettes. Alcoholics tend to smoke heavily, have greater difficulty quitting, and have higher smoking related disease and mortality rates. More alcoholics die of cigarette related causes (51 percent), than of alcohol related causes (34 percent).<sup>26</sup>

**Summary:** While smoking rates nationally and in Connecticut have declined significantly since 1965, overall state and national smoking averages do not reflect large disparities which exist among some groups. Smoking rates are higher among those with less than high school education, those who earn less than \$35,000 annually, veterans, those diagnosed with mental illness and those individuals with alcohol and drug dependence.

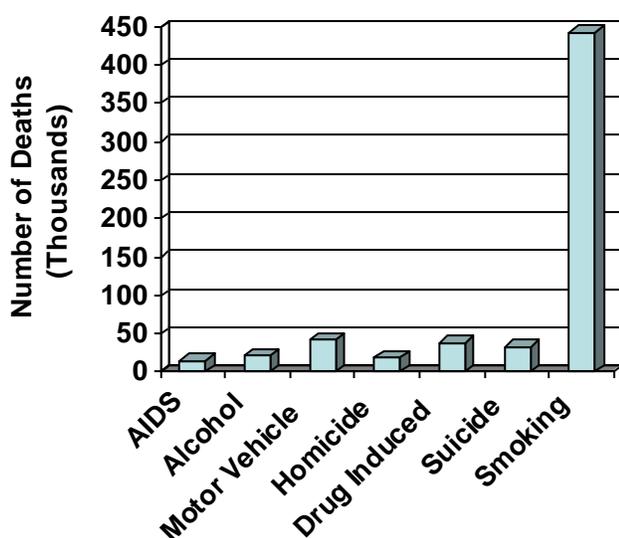
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### **Health and Economic Consequences of Smoking**

*Health Consequences:* Smoking is associated with enormous negative consequences on health and mortality. Globally, the World Health Organization (WHO) estimates that over 4 million people will die from cigarettes this year. To put this into perspective, this is comparable to twenty-seven 747 airliners filled with passengers crashing each and every day. Smoking and tobacco-related diseases claim a life every eight (8) seconds of every day. As grim as this figure is, smoking related death rates continue to rise. It is estimated that by 2030, annual worldwide smoking death rates will increase to over 10 million.<sup>27</sup>

In the U.S., cigarette smoking is responsible for 1 in 5 of all deaths, or 443,000 deaths each year.<sup>28</sup> Tobacco use is to blame for more deaths than human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined.<sup>29</sup> *Figure 3: Annual Deaths from Smoking Compared to Other Causes of Death* provides a snapshot of annual deaths, in thousands, from various causes as compared to smoking. In male smokers aged 35-70 years, the death rate may be up to three times greater than in non-smokers.<sup>30</sup> Every smoker loses an average of 14 years of life<sup>28</sup> and combined across all smokers, cigarette smoking results in 5.1 million years of potential life lost (YPLL)<sup>f</sup> in the U.S. annually.

**Figure 3: Annual Deaths from Smoking Compared to Other Causes, 2006**



Cigarettes contain an array of components that contribute to disease and death. When an individual smokes cigarettes s/he inhales more than 4,000 chemicals, including over 200 known toxins, 60 known carcinogens, and a number of agents known to cause birth defects. These toxins, which include such compounds as aluminum, ammonia, arsenic, carbon monoxide, carbon dioxide, DDT, formaldehyde, hydrogen cyanide, lead, mercury, nickel, nicotine and tar, are indigenous to the tobacco plant, or occur during processing, filtration or burning. Because smokers tend to smoke daily, and without interruption for many years (e.g. a one pack per day smoker consumes nearly 200,000 packs of cigarettes over 50 years), these chemicals accumulate to pose a severe hazard to health and bodily functions. Of these chemicals, nicotine, which is the addictive component of cigarettes, is less a direct cause of harm to health. However, as smokers become dependent on nicotine, they are then exposed to the other 4,000 toxic chemicals.<sup>31</sup>

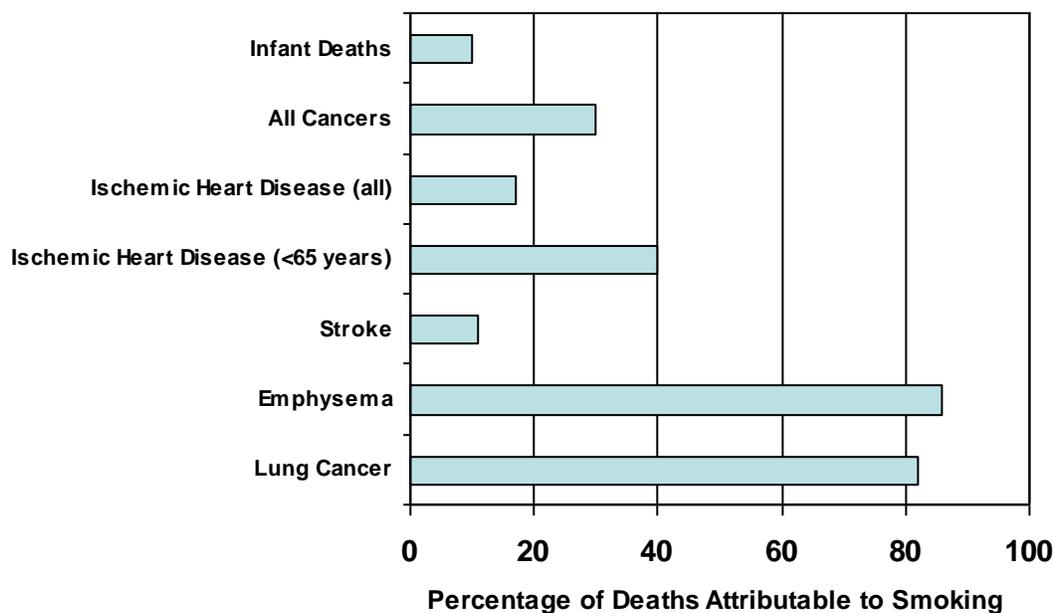
Smoking is associated with a number of diseases and conditions. Cancers of the bladder, kidney, pancreas, stomach, esophagus, larynx, lungs, throat, and mouth; chronic lung diseases; and

<sup>f</sup> YPLL provides an estimate of the length of time a person would live had they not died prematurely; it is used to quantify the costs (social and economic) associated with premature death.

cardiovascular diseases have all been linked to smoking. The three leading causes of smoking-related death between 2000 and 2004 were lung-cancer (128,922 deaths), ischemic heart disease (126,005 deaths), and chronic obstructive pulmonary disease (92,915 deaths). Smoking is also associated with poor surgical outcomes and recovery, hip fractures and low bone density, cataracts, peptic ulcer disease, metabolic syndrome, sexual dysfunction, fertility problems, pregnancy complications, low birth weight and sudden infant death syndrome.<sup>32</sup>

Data from the Surgeon General's Report<sup>32</sup> suggest that smoking-attributable mortality rates in Connecticut are similar to national rates. In 1999, smoking in Connecticut accounted for 80.5 percent of lung-cancer deaths, 16 percent of all heart disease, ten percent of all strokes, and approximately 75 percent of all COPD-related deaths. *Figure 4: Smoking-Related Deaths in the United States*<sup>32</sup> provides a summary of the percentage of deaths attributable to smoking by cause of death. So for example, 82 percent of all lung cancer deaths and 86 percent of all deaths from emphysema are associated with smoking.

**Figure 4: Smoking Related Deaths: United States**



The majority of smoking-related deaths result from disease; however, smoking-related fires contribute to approximately 4,000 deaths every year, in which elderly and young children are at particularly high risk.<sup>33</sup> Smoking is the number one cause of residential and nursing home fires leading to one or more older adult casualties, accounting for 25 percent of these types of fires.<sup>34</sup> Smoking-related fires result in an estimated \$7 billion in annual damages. In the state of Connecticut since January 2009, careless smoking has been associated with at least two fatal residential fires, resulting in the deaths of 3 adults and a 17-year old male. However, these data likely underestimate the actual number of smoking-related fire fatalities.<sup>35</sup>

The health consequences of smoking are not limited to the smoker: the consequences of second-hand smoke are well documented. Concerns over the potential dangers of “passive-smoking” or second-hand smoke first appeared in the 1972 Surgeon General's Report.<sup>31</sup> The US Public Health

Service estimates that approximately 86 million non-smoking adults were exposed to second-hand smoke in 2000, including 22 million children ages 3-11 years. Most exposure occurs in homes and workplaces. In 2008, 7.8 percent of American non-smokers were exposed to second-hand smoke inside their homes while 8.6 percent were exposed to smoke at work.<sup>36</sup>

Rates of exposure are a little lower in Connecticut, which is likely a result of overall lower smoking rates in addition to the strong policies that ban smoking in public places. In 2008, five percent of non-smokers in Connecticut were exposed to second-hand smoke in their homes and 6.4 percent were exposed to second-hand smoke in the workplace.<sup>37</sup> Smokers in Connecticut are approximately four times more likely to believe that breathing in second-hand smoke is not harmful compared to non-smokers (12.9 percent vs. 3.6 percent).<sup>25</sup>

Second-hand smoke has been designated a known human carcinogen by the U.S. Environmental Protection Agency. Exposure to second-hand smoke at home or at work increases the risk of developing of lung cancer by 20 – 30 percent, and of heart disease by 25 – 30 percent in individuals who do not smoke cigarettes. Furthermore, second-hand smoke exposure increases a non-smoker's risk of emphysema, a chronic lung disease, by 55 percent, and doubles the risk of stroke, nearly to the level of risk experienced by a direct smoker.<sup>38</sup>

Second-hand smoke has a negative impact on the health of children. Almost 60 percent of U.S. children aged 3-11 years are exposed to secondhand smoke. As a result, they are at a greatly increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma. There is no risk-free level of exposure and conventional air-cleaning systems cannot be relied on to control health risks, as they do not remove the smaller particles found in second-hand smoke.<sup>36</sup>

*Economic Consequences:* In addition to the impact that smoking has on individual health, the economic impact is also significant, and the economic cost of smoking far exceeds the revenue generated from the sale of cigarettes. As of 2008, the average national retail price of a pack of cigarettes was \$5.15, including federal and state sales taxes. In contrast, the actual “cost” of each pack of cigarettes in the U.S. was \$15.62 when lost productivity and direct medical costs are also factored in. As of 2004, cigarette smoking was estimated to be responsible for \$193 billion in annual health-related economic losses in the U.S. (\$96 billion in direct medical costs and approximately \$97 billion in lost productivity).<sup>28</sup>

In Connecticut alone, health-care costs to treat cigarette-related diseases were estimated to be around \$1.6 billion annually in 2004. Also in 2004, it was estimated that each pack of cigarettes sold in Connecticut was associated with \$5.49 of lost productivity and \$8.81 in health care costs, with Medicaid paying \$2.32 of this amount.<sup>38</sup> Using more recent data, we estimate that health care costs associated with smoking in Connecticut in 2008 dollars was nearly \$2 billion, even without considering the costs associated with years of productive life lost. This loss in years of productive life can result in lost wages, state and federal income tax revenues, and general sales tax revenues, as discussed below in the section on the business case for smoking cessation.

**Summary:** Smoking, both for the smoker and as a result of secondhand smoke, continues to pose significant health and economic costs in the U.S. and in Connecticut. Smoking-related illness, death, lost productivity and fire contribute substantially to health care and other costs. It is estimated that more than four million people will die of cigarette smoking this year around the world, and in the U.S. smoking is linked to one in five deaths. We estimate smoking related health care costs in Connecticut at nearly \$2 billion annually.

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### Why It Is Difficult to Quit Smoking Cigarettes

Among current U.S. adult smokers, 70 percent report that they want to quit completely, and millions have attempted to quit smoking.<sup>8</sup> In 2006, 80 percent of Connecticut adults, age 35-44, reported that they were seriously thinking about quitting smoking within the next 6 months and 60 percent of current smokers aged 25-54 years made a quit attempt in the previous 12 months.<sup>25</sup> However, despite motivation, successful quitting is difficult to accomplish. Most smokers will make six to nine attempts before achieving long-term cigarette abstinence. Perhaps even more concerning is the fact that only three to five percent of smokers who stop without benefit of treatment will remain abstinent for more than six months.<sup>6 39 40</sup>

Long-term abstinence of cigarettes is difficult because tobacco use is a chronic and recurring disorder due to the addictive properties of nicotine dependence. Nicotine is a highly addictive stimulant-like drug, and cigarettes are an ideal nicotine delivery system. In cigarette smoke, nicotine is delivered very rapidly (within 7-19 seconds), to brain centers associated with reward. The absorption of nicotine quickly produces a range of physical events such as increased heart rate, metabolism, blood pressure, and release of endorphins and adrenalin. These physical events are experienced positively as pleasure, arousal, enhanced concentration and task performance, reduced hunger, and improved mood.

Although the acute effects of nicotine are experienced rapidly, nicotine is a short acting drug, losing half of its effect in approximately two hours. Smokers become physically dependent upon nicotine after several months of semi-regular exposure, and then develop a tolerance to nicotine, needing more and more nicotine to maintain the same effect. Furthermore, when acute nicotine effects wear away after several hours, smokers may experience uncomfortable withdrawal symptoms including agitation, restlessness, increased hunger (which will ultimately lead to weight gain), difficulty in concentrating, decreased task performance, and negative mood. Cigarette smoking rapidly relieves these withdrawal symptoms. Smokers then smoke to offset these negative withdrawal symptoms as well as to obtain the positive effects of acute nicotine use, and this cycle gets repeated many times throughout the day. Regular smoking at key daily events (e.g. upon awakening, with coffee, alcohol, while driving) associates these events with cigarette smoking and over time cue an individual to smoke.<sup>41 42 43</sup>

**Summary:** Cigarette smoking is both a physical addiction and a learned habit, and smoking cessation treatments are most effective if they take aim at both of these components. Evidence-based treatments that target both of these aspects are reviewed below.

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## Benefits of and Successful Treatments for Smoking Cessation

**Benefits of Smoking Cessation:** In the U.S., 21 percent of adults have successfully quit smoking, with males more likely to be former smokers compared to females (24.8 percent vs. 17.3 percent).<sup>13</sup> A total of 28.2 percent of adults in Connecticut have successfully quit smoking; rates of quitting are similar in males and females.<sup>12</sup>

The benefits of smoking cessation are evident quickly after the smoker has their last cigarette. Within 20 minutes, heart-rate and blood-pressure return to normal; within 12 hours, carbon monoxide levels in the blood return to normal; within one year of quitting, risk of heart disease is half that of a smoker; within five to fifteen years, stroke risk is reduced to that of a non-smoker; within ten years, risk of developing lung cancer is half that of a person who continues smoking; and within fifteen years, risk of developing coronary heart disease is equivalent to that of a non-smoker.<sup>44</sup> An individual who quits by age 30 eliminates almost all excess risk associated with smoking, and those who quit by age 50 cut in half their risk of dying in the next 15 years.<sup>45</sup> Pregnant women who stop smoking by 16 weeks gestation are nearly as likely to have a normal birth weight baby as women who do not smoke.<sup>22</sup> These health benefits are in addition to the many personal benefits such as improved finances, improved taste and smell, increased social acceptance, and greater stamina and endurance.

While the benefits of smoking cessation are greatest in younger age groups, cessation at any age has a positive impact. Research suggests quitting at age 40 will increase life expectancy by nine years, quitting at age 50 increases life expectancy by six years, and quitting at age 60 increases life expectancy by three years.<sup>30</sup>

**Smoking Cessation Treatments:** The *Clinical Practice Guidelines* describing the best treatment for reducing tobacco use and dependence were originally developed and published in 1996 by the U.S. Department of Health and Human Services (USDHHS).<sup>20</sup> These *Clinical Practice Guidelines* have been updated three times. The most recent edition was published in 2008 and is based upon treatment recommendations from over 8,700 research articles published between 1975 and 2007. These recommendations, addressing both clinical and systems-based interventions, were developed using the best available evidence (also known as evidence-based), and offer guidance to clinicians, as well as administrators of healthcare delivery and insurers. These guidelines view tobacco dependence as a chronic and recurring disease often requiring repeated interventions and multiple quit attempts.

The recommendations in *Clinical Practice Guidelines*<sup>20</sup> suggest that smoking status should be assessed at every clinical visit, and all smokers should be advised to quit smoking and offered evidenced-based medication and behavioral counseling. In general, while more intensive and frequent interventions result in greater smoking quit rates even a 2-minute counseling intervention doubles quit-rates compared to no counseling. Counseling and medication are both effective for treating tobacco dependence, but the combination of both counseling and medication is more effective than either alone. Therefore it is recommended that all individuals, except where contraindicated, be encouraged to use both smoking cessation medications and behavioral counseling in a quit attempt.<sup>20</sup>

Effective tobacco treatments can be administered by a variety of clinicians in a variety of formats. Smoking cessation advice and brief counseling delivered by physicians and non-physicians (e.g. nurses, dentists, psychologists, etc.) are highly effective in improving smokers' abstinence rates. While interventions delivered by smoking cessation specialty programs are effective, treatment guidelines recommend that smoking cessation interventions should be offered in any and all health care clinics in which patients receive treatment, including primary care clinics, community health centers, dental offices, mental health and substance use treatment settings, and medical and psychiatric hospitals. Interventions should also not be limited to certain groups, but are transportable among a broad range of people. However, there are specific populations where safety issues or issues related to language and culture may need to be considered.<sup>20</sup>

The *Clinical Practice Guidelines*<sup>20</sup> recommend all smokers be assessed at each encounter and offered evidence-based drug and behavioral treatment. Within a framework termed the *5A Model* for treating tobacco use and dependence, it is recommended that each clinician helps smokers through the process of quitting by *Asking* about tobacco use at every visit, *Advising* the smoker to quit, *Assessing* willingness to quit, *Assisting* by offering evidence-based behavioral treatments and smoking cessation medication, and *Arranging* for follow-up. Clinicians who are trained to use this model double the likelihood of patients quitting compared to clinicians who have not been trained to use this model. When appropriate charting (e.g. regular charting of smoking status, use of electronic reminder systems) is used, rates of patients making quit attempts may increase five-fold compared to no intervention.<sup>20</sup>

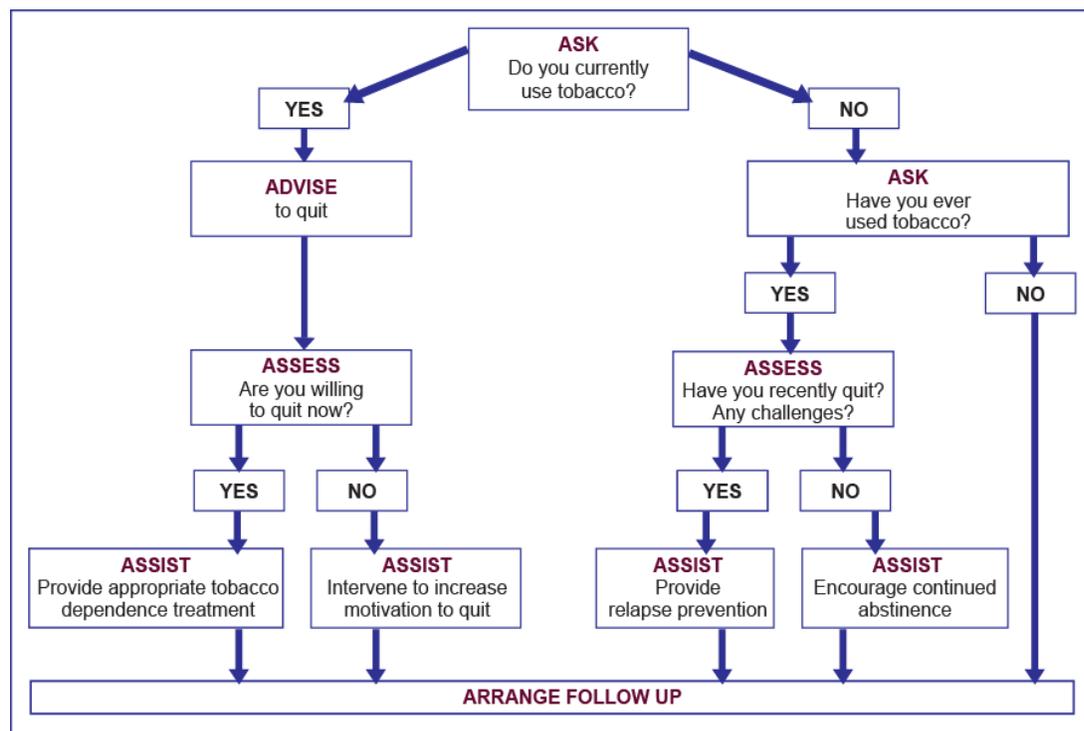
The process of the *5A Model* is shown below in *Figure 5: The 5A Model: Helping smokers through the process of quitting*.<sup>46</sup> Ongoing follow-up of all current and former smokers is a central component of the *5A Model*. Such follow-up serves to assist ex-smokers in maintaining abstinence, allows for tailoring of treatment, and helps individuals who relapsed to again engage in immediate quit attempts. Clinicians are encouraged to use motivational techniques to encourage patients who are either unwilling to quit or are ambivalent about quitting. These techniques, termed *The 5Rs* include demonstrating to the patient why quitting would be personally *Relevant* to them; helping them to identify the *Risks* of continuing to use and the *Rewards* of cessation; overcoming and identifying potential *Roadblocks*; and *Repeating* these steps each time the unmotivated patient returns for a visit.<sup>46</sup>

*Counseling*: Counseling varies by type, frequency, and technique. Proactive telephone counseling (e.g. clinician follow-up, quit-lines), group counseling, and individual counseling are effective and should be used in smoking cessation interventions. Although individual counseling appears to be the most effective, pro-active telephone counseling (e.g. quit-lines) can significantly improve abstinence rates compared to minimal interventions or self-help, which do not appear to be effective. Quit-line treatments in conjunction with medication can be more effective than medication alone, and given the potential for wide reach and easy access to quit-line treatments, this may have a large public health impact for smoking cessation.<sup>20</sup>

The more treatment formats (e.g., individual, group, quit-line) a patient utilizes, the greater the effectiveness in increasing abstinence rates. Minimal interventions lasting less than three minutes increase overall tobacco abstinence rates, and every tobacco user should be offered at least a

minimal intervention. However, abstinence rates increase with longer sessions, and it is recommended that sessions should last at least ten minutes. Abstinence rates also increase the more often the treatment is offered: at least four sessions appear to be effective, and eight or more sessions doubles quit rates compared to single session smoking treatments.<sup>20</sup>

**Figure 5: The 5A Model: Helping smokers through the process of quitting**<sup>46</sup>



Some interventions are not effective at reducing tobacco use according to the 2008 *Clinical Practice Guidelines*: acupuncture and hypnosis; tapering of cigarettes; and the use of herbal medications. Although support of friends and family can improve abstinence, interventions that attempt to enlist or increase these supports are not effective. Likewise, aversive smoking techniques, such as “rapid smoking,” do not increase rates of smoking cessation.<sup>20</sup>

*Medication:* There are a number of medications effective in treating tobacco dependence and can double tobacco quit rates as compared to placebo treatments. Five of these medications are Nicotine Replacement Therapies (NRTs) which reduce the withdrawal symptoms associated with abrupt smoking cessation. These NRTs include nicotine patch, gum, lozenge, inhaler, and nasal spray. These are available over-the-counter and improve rates of abstinence by 1.5 to greater than two times depending on the type and duration of use. NRTs are considered much safer than cigarettes as they do not contain the hundreds of other chemicals known to be carcinogenic and toxic; nicotine by itself is not considered carcinogenic or toxic.<sup>20</sup>

There are currently two FDA approved first-line medications on the market that are not NRTs and are not available over-the-counter: Bupropion (Zyban) was initially prescribed as an antidepressant under the name Wellbutrin; and Varenicline (Chantix). On their own, Bupropion

increases abstinence rates by two-fold, while Varenicline is associated with three times greater abstinence rates. Certain combinations of medications increase effectiveness. The most effective combination is long term nicotine patch with an ad lib NRT (gum, lozenge, or spray), resulting in rates of abstinence that are 3.6 times greater than placebo. Nicotine patch in combination with nicotine inhaler or Bupropion results in abstinence rates greater than twice that of placebo.<sup>20</sup>

Second-line medications for smoking cessation that have demonstrated effectiveness are Nortriptyline (an antidepressant), and Clonidine (used to treat high blood pressure). These medications are considered second-line because they have not yet been FDA approved for smoking cessation and there are concerns about potential side effects. Decisions regarding use of these medications should be made under a physician's supervision on a case-by-case basis. Other medication interventions being studied but not yet approved include the nicotine vaccine (NicVAX), Naltrexone, Ramonibant, Selegiline, and Topirimate.<sup>20</sup>

Given that nicotine dependence is a chronic and recurring disorder, smokers may require a range of medication options to succeed in smoking cessation. Furthermore, specific groups of smokers may respond better to certain smoking cessation medications compared to others. The *Clinical Practice Guidelines*<sup>20</sup> offer guidance on selecting appropriate evidence-based medications for specific smokers needs. Therefore, smokers should have insurance coverage that allows them access to the range of evidence-based medications.

*Special Populations:* Interventions identified as effective in the *Clinical Practice Guidelines* are recommended for all individuals who use tobacco, except when medication is contraindicated or has not been shown to be effective. Groups in which medications are contraindicated for reasons related to safety or effectiveness include pregnant women, smokeless tobacco users, light smokers, and adolescents. There are a number of other special populations which may have less access overall to healthcare, and where tobacco interventions may need to be tailored because of differences in language, culture, or presence of other diseases. These may include smokers who are HIV-positive, hospitalized, lesbian/gay/bisexual/transgender, of low socioeconomic status and/or with limited formal education, older smokers, smokers with medical or psychiatric diagnoses, racial and ethnic minorities, and women.<sup>20</sup>

Women smokers represent the largest minority of smokers, and present with unique issues related to consequences and treatment, including consideration of reproductive and fetal-health. The use of NRTs is also currently contraindicated in pregnant women due to concerns about effects on the developing fetus. Women may also present with greater barriers to quitting due to greater likelihood of depression and greater weight control concerns. There is also some evidence that NRTs are less effective in women in the long-run<sup>47</sup> so that non-NRT medication such as varenicline or bupropion in conjunction with counseling may be beneficial. Interventions may also need to be tailored to specifically address mood or weight concerns.

**Summary:** Smoking cessation has immediate, measurable benefits. The most effective smoking cessation treatment encompasses both medication and counseling. Evidence-based smoking cessation treatments are widely available and their effectiveness is well documented.

### The Current Landscape: Policies, Programs, Interventions

Two events have had a major impact on policies, programs and interventions aimed at reducing tobacco use and its consequences. First was a societal shift in how smoking was perceived. Second was the unprecedented Master Tobacco Settlement in 1998 between the four major tobacco companies and the state's Attorneys General, which provides payments to the states in perpetuity.<sup>48</sup> The purpose of the Master Tobacco Settlement was to reimburse states for the costs incurred of treating smokers enrolled in Medicaid. The confluence of political will and resources has spurred many states to act aggressively to implement tobacco control programs that have been enormously successful.

States investing in tobacco control programs according to the CDC guidelines could achieve lower rates of adult<sup>49</sup> and youth smoking.<sup>50</sup> Even though this investment in public health is so successful, *The Campaign for Tobacco-Free Kids* reported that only North Dakota funded tobacco cessation programs at the level recommended by the CDC, and only nine states (Alaska, Delaware, Montana, Wyoming, Maine, Hawaii, Vermont, Arkansas and South Dakota) funded tobacco cessation programs at half the level recommended by the CDC in 2009. During this same period of time, states received \$25.1 billion in tobacco settlement money and cigarette taxes in 2009. The CDC recommends that Connecticut spend \$12.54 per person (\$43 million) annually to fund comprehensive tobacco control programs: currently Connecticut spends less than 17 percent (\$7.2 million) of that amount.<sup>51</sup>

*National:* The CDC published a document on *Best Practices for Comprehensive Tobacco Control Programs* in August of 1999, shortly after states reached a settlement agreement with the tobacco industry; an updated edition was released in October, 2007.<sup>52</sup> This comprehensive approach includes not only clinical interventions, but also economic, policy, and social strategies aimed at reducing the health and economic consequences of tobacco use. The CDC recommends that state and community interventions, effective health communications, smoking cessation, surveillance and evaluation as well as administration and management should be included in tobacco control programs if they are to be effective.

In the community it is important to focus on preventing smoking among youth and young adults, and supporting quitting among adults and youth. Effective programs require that tobacco-related disparities are identified and for all communities, eliminating exposure to secondhand smoke is critical. Health communication can be extremely effective at reducing smoking rates or preventing smoking initiation, and in changing social norms about tobacco use. In fact, health communication and 'counter-marketing' strategies that employ TV, radio, print, billboard, web-based advertising and on-line networking have been quite effective in changing attitudes and beliefs about smoking.<sup>53</sup>

The CDC also provides a number of guidelines for states, individuals, agencies and businesses to reduce tobacco use.<sup>53</sup> While state policies and programs are important, national efforts to reduce tobacco use may be necessary in the long run to achieving overall reductions smoking rates.<sup>54</sup>

Telephone quit-lines are one cost-effective way to disseminate population- and evidence-based smoking cessation programs to communities, particularly when they combine behavioral

counseling and NRT. In 2004, an expert panel recommended funding a national telephone quit-line as a means of reaching more smokers, achieving an additional 5 million quitters per year, and saving 3 million lives over the next two decades.<sup>55</sup> In response, DHHS established a national quit-line network in 2004 that increased funding to states for quit-lines and offered grants and counselors to states for creating quit-lines.<sup>56</sup>

*States:* As of January 10, 2010, 21 states had laws banning smoking in all workplaces, restaurants and bars, and public places.<sup>57</sup> These smoking bans, in addition to possibly reducing rates of smoking among adults,<sup>54</sup> appear to be associated with reduced hospitalizations for heart attack<sup>58</sup> and possibly a number of other health benefits as well.<sup>59</sup>

Of all the 50 states, 46 provide some type of coverage for smoking cessation as part of their Medicaid programs.<sup>60</sup> Most state Medicaid programs cover smoking cessation on a fee-for-service basis. However, many states place restrictions on services, including limiting duration of treatment, requiring prior authorization, and making behavioral treatment programs prerequisites for pharmacological treatments. New Jersey and New Mexico are currently the only states without restrictions on smoking cessation services for Medicaid beneficiaries.<sup>15</sup>

Since 2006, smoking cessation benefits have been provided to all Medicaid recipients in Massachusetts. The Massachusetts Tobacco Cessation and Prevention Program (MTCP) includes counseling, NRT and minimal co-pays. The Massachusetts Department of Public Health (MDPH) recently released a report on the successes of the MTCP: smoking rates among Medicaid (MassHealth) recipients have fallen by 26 percent since 2006 or ten percent per year; rates of heart attack among users of the MTCP program declined 38 percent; and fewer pregnancy complications and lower rates of asthma-related emergency room visits have been documented.<sup>59</sup>

*Connecticut Policies:* Connecticut, Missouri, Georgia and Tennessee are the only four states not providing any smoking cessation services recommended in the 2000 *Clinical Practice Guidelines* for Medicaid recipients.<sup>60</sup> This is despite the \$180 million in Medicaid expenditures attributed to tobacco-related healthcare costs in this state<sup>61</sup> and despite 2005 legislation authorizing such coverage. Currently smoking cessation coverage is provided to state employees and lawmakers but not to Medicaid recipients.

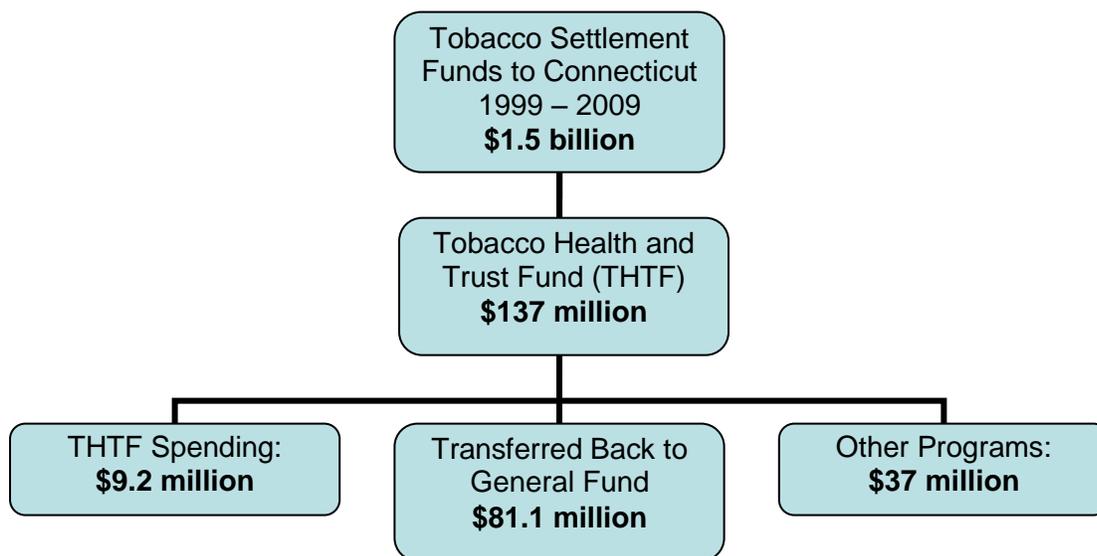
In 2003 smoking in workplaces and public spaces was banned in Connecticut, and by 2004 bars were added to this list. The smoking ban, however, does not apply to correctional facilities, designated smoking areas in psychiatric facilities, public housing projects, workplaces with fewer than five employees, private clubs and casinos.<sup>62</sup> The CDC 2008 *Behavioral Risk Factor Surveillance System* (BRFSS) survey reports that 6.4 percent of Connecticut respondents were exposed to second hand smoke at their indoor workplace. The results showed wide variation among states: indoor workplace exposure ranged from 3.2 percent in Arizona, where there is a 100 percent smoke-free workplace law in effect, to 10.6 percent in West Virginia, where no smoke-free workplace law currently exists.<sup>63</sup>

*The Tobacco Settlement Funds and Programs in Connecticut:* In 1998 Connecticut was one of 46 states to settle lawsuits against the four major tobacco companies. Under this agreement states

will receive annual payments in-perpetuity. In the first twenty-five years alone states will receive \$246 billion from the settlement; Connecticut's portion is estimated at \$3.6 to \$5 billion (approximately \$175 million per year). At the time the settlement was reached, public health advocates and the Attorneys General expected a substantial portion of these funds would be used for tobacco prevention and treatment programs. Since FY2000, Connecticut has received about \$1.3 billion from the tobacco settlement, but less than two percent of that money has been used for programs aimed at reducing smoking or targeted toward anti-tobacco advertising and other efforts. Instead, 86 percent of the Tobacco Settlement funds (\$1.1 billion) have been used for unrestricted spending in the General Fund.<sup>64 65</sup>

In 1999 the Connecticut legislature established the Tobacco and Health Trust Fund (THTF) and created a Board of Trustees in 2000. The purpose of the THTF is "... to create a continuing, significant source of funds to encourage the development of programs to reduce tobacco abuse... reduce substance abuse... and meet the unmet physical and mental health needs of state residents."<sup>66</sup> The legislature also created a Biomedical Research Trust Fund in 2001 that may make grants to eligible institutions performing biomedical research in the areas of heart disease, cancer and other tobacco-related diseases. This fund receives \$4 million from the tobacco settlement annually.<sup>65</sup>

**Figure 6: Connecticut THTF Fund Disbursements, FY01 – FY09**<sup>67</sup>



Initially, the THTF Board was only authorized to recommend expenditure of the interest earned on the fund principal but by 2008 had amended the authority of the THTF Board to allocate half (up to \$6 million) of the previous year's transfer from the Master Settlement to the THTF.<sup>67</sup> Since its inception through FY2011, the THTF will have received \$153 million. A total of \$114 million was transferred out: the legislature transferred \$81.1 million back into the General Fund and another \$38 million to other programs and services.<sup>64</sup>

The THTF Board of Trustees has been allowed to spend \$9.2 million from the fund on tobacco prevention and control programs. *Figure 6: Settlement Transfers to THTF and Fund Disbursements, FY01 – FY10* shows how the tobacco settlement funds have been disbursed in Connecticut to date and *Table 2: Tobacco and HealthTrust Fund Board Disbursements FY03 – FY09* provides a summary of fund allocation since 2003. The THTF balance will be \$5.2 million after FY10 allocations. The current budget calls for additional transfers out of the fund and it is likely the THTF will be extinguished by the end of the biennium. The THTF disbursements represent nearly all funds supporting anti-tobacco activities in Connecticut.<sup>64</sup>

**Table 2: Tobacco and HealthTrust Fund Board Disbursements FY03 – FY09<sup>64</sup>**

Category	FY03- FY08	FY09	FY10	Total
Counter Marketing	\$450,000	\$2,000,000	\$1,650,000	\$4,100,000
Website Development	\$50,000			\$50,000
Cessation Programs (Community-Based)	\$1,500,000	\$412,456	\$750,000	\$2,662,456
Cessation for Mentally Ill		\$1,200,000	\$800,000	\$2,000,000
Quit-line	\$287,100	\$2,000,000	\$1,650,000	\$3,937,100
School-Based		\$500,000	\$500,000	\$1,000,000
Lung Cancer Pilot		\$250,000	\$250,000	\$500,000
Evaluation		\$500,000	\$300,000	\$800,000
Innovative Programs			\$477,745	\$477,745
<b>Total</b>	<b>\$2,287,100</b>	<b>\$6,862,456</b>	<b>\$6,377,745</b>	<b>\$15,527,301</b>

Community-based smoking cessation programs have received grant support from the THTF since 2001. A grant awarded to the American Lung Association provided smoking cessation counseling and NRT to smokers with the greatest health risks in local health department settings. The MATCH (Mobilizing Against Tobacco for Connecticut's Health) Coalition received funding from the American Legacy Foundation to support a tobacco cessation, public education and outreach program with the Hispanic/Latino population of Connecticut. The program, facilitated by bi-lingual health educators, was effective in reducing smoking rates among Connecticut's Latino population.<sup>68</sup>

Since FY 2008, the THTF has viewed smoking cessation programs, particularly for low income and minority populations, a priority for funding. Community health centers (CHC), the primary medical home for many of the people they serve and where programs and counseling can be integrated into all patient services, are an ideal location for funding smoking cessation programs. In addition, most CHC patients are uninsured, underinsured, low-income and/or people of color, populations with some of the highest smoking rates and risks. Currently CHC are not reimbursed by the federal government for smoking cessation services.

Initially, pregnant women and women of childbearing age were targeted and by June 30, 2009, 625 women had been served (38 percent Latina; 19 percent African American). Fifty-nine percent earned less than \$10,000 a year, 21 percent had no high school diploma and 59 percent had attempted to quit smoking at least twice. Of those who completed the program, 30 percent stopped smoking and an additional 30 percent reduced their smoking. Smoking cessation

funding for FY09 and FY10 will continue for persons with low incomes, reaching smokers in a number of settings: CHC, hospital clinics, local health departments and AIDS programs.<sup>64</sup> To the extent that quit rates are generalizable, these programs could result in 300 fewer smokers for every one thousand persons served.

*Quit-lines in Connecticut:* The Connecticut Department of Public Health has supported a quit-line model for several years using grant funds provided through the CDC. While the quit-line provides free services to callers, CDC funds were limited and the quit-line contract provided telephone counseling only, not the recommended counseling and NRT. During the first two years there were approximately 1,200 registered callers per year.

In FY 2008, a total of nearly \$1.7 million was allocated to the quit-line which provided for the recommended NRT (nicotine patch or gum) and enhanced counseling. The program was available to insured and uninsured, with insured persons receiving a two-week starter of NRT and those without private insurance or on Medicaid receiving up to eight weeks of NRT. Counseling was available to all enrollees. The quit-line was overwhelmed in the first three weeks of operation: over 10,000 calls were received; more than 6,000 residents enrolled for service; and NRT supplies were exhausted by the end of July. There were 3,787 shipments of nicotine patches and 858 shipments of nicotine gum sent to quit-line users. Since August 2008, the Quit-line has continued to provide enhanced counseling services only.<sup>69</sup> In April 2009 the Quit-line received additional funding to reestablish enhanced counseling and NRT.

Through June 30, 2008, 10,114 individuals were registered with the quit-line. Among the 8,405 registrants who provided insurance information, 46.5 percent had private insurance, 16.1 percent had Medicaid coverage, 11.7 percent had Medicare coverage and 19.3 percent were uninsured. Although almost half of registrants reported having commercial insurance, most insurance plans do not provide coverage for smoking cessation services, and those that do may require higher premiums from enrollees or plans may cover prescription medications only.<sup>70</sup>

Women who use tobacco were more likely to utilize the quit-line than men (62 percent compared to 38 percent, respectively). By age, 1 in 4 quit-line users were 31-50 years old, one-third were 51-60 years old and 14% were 60 or older. Only 12 percent were 18-30 years old. Eighty percent identified themselves as white, 11 percent as African-American and 1.5 percent as other race. By ethnicity 8 percent identified themselves as Hispanic. Over half of quit-line users (54 percent) reported an educational level of high school or less.<sup>64 71</sup>

**Summary:** Various policies, programs and interventions have been effective in reducing smoking rates and the effects of secondhand smoke. Quit-lines, community interventions, smoking bans in public places and other measures can reduce the cost and other burdens that smoking places on health care, individuals, families, communities and the state. To date, Connecticut has invested in smoking cessation at only a fraction recommended by the CDC.

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### The Business Case for Smoking Cessation Policies, Programs and Interventions

Tobacco cessation interventions are among the most cost-effective of all preventive interventions. Smoking cessation treatments are clinically effective and economically defensible. Compared to routinely reimbursed health care such as diuretics for high blood pressure, drugs for high cholesterol, screening and public safety measures, smoking cessation treatment is significantly less expensive per year of life saved.<sup>72 73</sup> *Table 3: Cost-effectiveness of Prevention* provides cost estimates per year of life saved with various prevention methods.

Considering health-care expenses for chronic smoking-related illnesses, including heart and pulmonary diseases and cancers, tobacco cessation is truly the gold standard. The *Clinical Practice Guidelines* suggest that providing complete tobacco dependence treatment benefits (both medication and counseling) through insurance doubles the likelihood that smokers will receive smoking cessation treatment and improves smoking quit rates by 60 percent.<sup>20</sup>

**Table 3: Cost-Effectiveness of Prevention**<sup>72 73</sup>

Preventive Procedure	Cost / year of life saved
Statin (45 – 75 year old male, no heart disease, cholesterol 250 – 300)	\$105,000 - \$270,000
Front airbags in automobiles	\$96,000 - \$213,000
Annual mammography (55 – 65 year old)	\$32,000 - \$120,000
Diuretic for high blood pressure	\$22,000
Brief smoking cessation counseling + nicotine patch	\$2,900
Intensive smoking cessation counseling + nicotine patch	\$2,000

*Cost Effectiveness of Smoking Cessation in Connecticut:* To determine the cost effectiveness of smoking cessation, revenues from cigarette sales tax must be taken into account, in addition to the costs for programs and interventions to reduce smoking. In 2008, 166 million packs of cigarettes were sold in Connecticut, generating sales tax revenues of \$332 million, up from \$267 million generated in 2007. This increase in 2008 is primarily due to increased sales tax on cigarettes rather than an increase in the number of packs sold. In fact, the number of packs sold was actually down from the nearly 177 million packs sold in 2007 (personal communication, K. O’Flaherty, Campaign for Tobacco-Free Kids, 1/6/2010). *Figure 7: Cigarettes Sold, Tax Revenues and State Tax per Pack in Connecticut: 2000 – 2008* provides trend data on packs sold, tax revenues and taxes per pack.

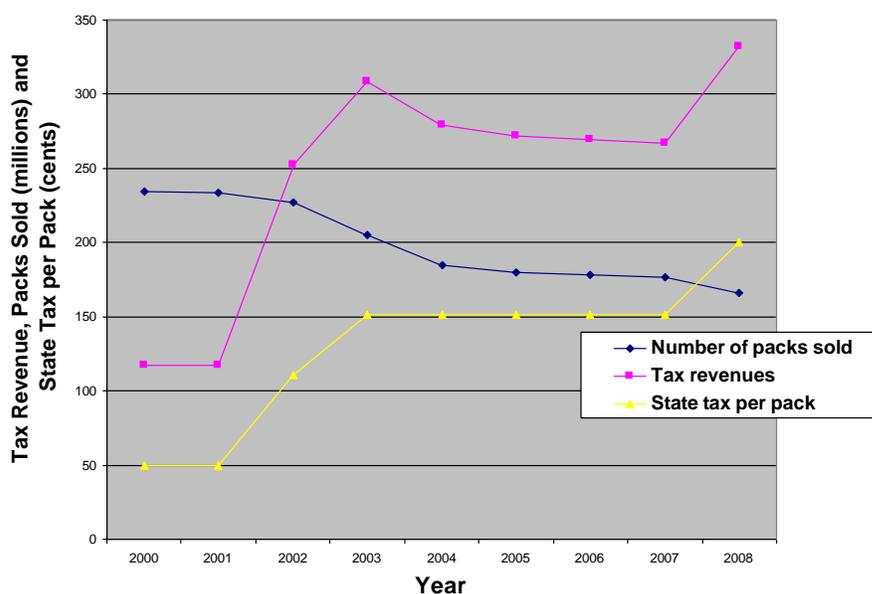
Reduction in cigarette smoking may lead to lower sales tax collected as a result of fewer packs sold. However, when tax revenue declines as a result of reduced cigarette sales, the costs to society and to the health care system will fall as well. For example, the CDC estimates that years of potential life lost (YPLL) for each worker is 0.035 years.<sup>38</sup> There are approximately 362,263 workers in the state who smoke.<sup>§</sup> Total lost general sales tax for these workers amounts to more than \$69 million annually.

<sup>§</sup> These calculations were made using Bureau of Economic Analysis data: Regional Economic Accounts (available at <http://www.bea.gov/regional/spi/default.cfm?selTable=SA04&selSeries=ancillary>); State Annual Personal Income data (available at <http://www.bea.gov/regional/spi/default.cfm?selTable=SA04&selSeries=ancillary>); and

Further, any loss of sales tax income due to fewer packs sold is dwarfed by the savings to the health care system due to decreased smoking. Total health care costs associated with smoking are nearly \$2 billion in 2008 dollars. Nearly 35 percent of Medicaid-insured adults under the age of 65 smoke (compared to just 18.3 percent of privately-insured adults).<sup>15</sup> The associated health care costs for Medicaid recipients who smoke is more than \$507 million in 2008 dollars,<sup>38</sup> costs primarily borne by Connecticut taxpayers.

Quit-lines appear to be one cost-effective strategy for reducing smoking rates. A quit rate evaluation was conducted in Connecticut 13 months after registered quit-line participants were offered both counseling and NRT. Twenty-seven percent reported that they had quit.<sup>74</sup> Using current costs for quit-line services, \$2 million could potentially reach 11,672 callers and provide a multiple call program to all participants, with a two-week starter kit to insured participants and 8 weeks of NRT delivered in two, four-week shipments to uninsured and Medicaid participants.<sup>75</sup> This represents a penetration rate of just less than 3 percent of the adult smoking population in Connecticut, at a cost of \$497 per uninsured and Medicaid participant and \$284 per person with insurance.<sup>76</sup>

**Figure 7: Cigarettes Sold, Tax Revenues and State Tax per Pack  
Connecticut: 2000 – 2008**



If the quit-line can reach 22,000 smokers in the next two years and 30 percent successfully quit, there would be 6,600 fewer adult smokers as a result of this program alone. Projections from the DSS 2006 report to the legislature estimate the cost of implementing smoking cessation programs for Medicaid clients (both counseling and NRT) at approximately \$7.1 million per year. Since the state would be eligible for 50 percent federal matching funds, actual cost to the state would be half, or approximately \$3.6 million. The American Legacy Foundation estimated

that within five years, Connecticut would see annual Medicaid savings of \$91 million (2005 dollars) with a 50 percent decrease in smoking rates, and \$18 million (2005 dollars) annually in Medicaid savings with a ten percent reduction in smoking.<sup>77</sup>

**Summary:** A strong business case can be made for implementing proven, effective smoking cessation policies and programs. Current policies that increase tobacco taxes reduce the number of packs sold but do little to reduce disparities in smoking rates: those who are poor, less educated and receive Medicaid benefits smoke at higher rates than those who are more educated, with higher incomes and have private insurance. Implementing Medicaid coverage of smoking cessation would result in overall cost savings to the state.

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### Conclusions and Policies for Consideration

Despite declines in rates of smoking over the past four decades,<sup>5</sup> smoking remains a significant public health concern. More than 20 percent of U.S. adults smoke<sup>4</sup> and in Connecticut nearly 16 percent of adults smoke.<sup>6</sup> Although rates of smoking in Connecticut are third lowest in the nation, this masks some significant differences between disparate groups. For example, it is estimated that between 36 – 40 percent of Medicaid recipients smoke.<sup>15 16 17</sup> Those with lower incomes<sup>8</sup> and less education (D. Sorosiak, personal communication, September 22, 2009) are also more likely to be smokers.

Smoking rates also vary by race and ethnicity, and are higher among some vulnerable populations. In Connecticut smoking rates are higher among Hispanics as compared to Blacks or Whites (D. Sorosiak, personal communication, September 22, 2009). Veterans,<sup>7</sup> those who have mental illness<sup>25</sup> and substance abuse<sup>26</sup> diagnoses are more likely to be smokers. Smoking is particularly concerning among pregnant women, children and adolescents: in Connecticut, approximately eight percent of pregnant women smoked in 2005<sup>22</sup> and nearly 17 percent of adolescents report that they smoke.<sup>11</sup>

Nationally smoking claims 443,000 lives annually in the U.S.<sup>28</sup> mostly due to lung cancer, ischemic heart disease and chronic obstructive pulmonary disease (COPD). In Connecticut, smoking accounts for more than 80 percent of all lung-cancer deaths, 16 percent of all heart disease, ten percent of all strokes and about 75 percent of all COPD-related deaths.<sup>32</sup> Smoking is also associated with a number of other cancers,<sup>32</sup> increased health risks to non-smokers who are exposed to second-hand smoke,<sup>31 36</sup> and nursing home and residential fire fatalities.<sup>33</sup>

In addition to the diseases and deaths associated with smoking, the economic consequences are also significant. In 2004, smoking was responsible for an estimated \$193 billion in health care and lost productivity costs in the U.S.<sup>28</sup> In the same year, it was estimated that smoking-related health care costs in Connecticut were around \$1.6 billion.<sup>38</sup> We estimate that, in 2008 dollars, smoking-related health care costs in Connecticut are about \$2 billion annually. The associated health care costs for Medicaid recipients who smoke is more than \$507 million in 2008 dollars,<sup>38</sup> costs primarily borne by Connecticut taxpayers.

Smoking is considered a chronic and recurring disorder due to the unique properties of nicotine, a highly addictive and stimulant-like drug.<sup>41</sup> Although smoking cessation programs can reduce rates of smoking significantly<sup>59</sup> and are among the most cost-effective of all prevention programs,<sup>72 73</sup> these programs have not been made widely available. For example, Connecticut, Missouri, Georgia and Tennessee are the only four states *not* providing smoking cessation services as recommended in the 2000 *Clinical Practice Guidelines* for Medicaid recipients;<sup>60</sup> in fact Connecticut spends only 14 percent of the amount recommended by the CDC to fund comprehensive smoking cessation programs.<sup>51</sup>

In 1998 Connecticut participated in the *Master Tobacco Settlement*, along with 45 other states, against the four major tobacco companies. It was anticipated that a significant portion of the funds from the settlement (totaling about \$175 million annually for Connecticut alone) would be used to support smoking cessation programs. To date 86 percent of the funds have been used for unrestricted spending in the General Fund.<sup>64 65</sup> This is despite research showing that smoking cessation interventions that include both counseling and nicotine replacement therapy (e.g., patches, gum) are highly effective.<sup>72 73</sup>

In the past, legislators have attempted to pay for smoking-related health care costs and to reduce smoking rates by raising taxes (*see Figure 7: Cigarettes sold, tax revenues and state tax per pack Connecticut 2000 – 2008*). While this does have the intended effect of reducing the number of packs sold (personal communication, K. O’Flaherty, Campaign for Tobacco-Free Kids, 1/6/2010), it does nothing to reduce rates of smoking among Medicaid recipients<sup>15 16 17</sup> and other vulnerable populations who do not have access to effective smoking cessation treatment.

There are, however, a number of policy options available to legislators and others for reducing the economic and health consequences of tobacco use and would be effective in reaching the most vulnerable populations. Here we list some of those options.

1. Since smoking cessation programs can reduce rates of smoking significantly<sup>59</sup> and are among the most cost-effective of all prevention programs,<sup>72 73</sup> Medicaid and private insurance coverage that includes evidence-based smoking cessation treatments could save both lives and money. Massachusetts is a case in point: that state has reduced smoking rates among its Medicaid population by ten percent per year since offering comprehensive smoking cessation to Medicaid beneficiaries.<sup>17</sup>
2. Recent federal health care reform provides incentives for smoking cessation programs and initiatives, including enhanced funding through Medicaid.<sup>78</sup> However effective smoking cessation programs require a number of provisions:
  - a. Both counseling and pharmacological interventions should be offered, since it is the combination of counseling and specific smoking cessation medication treatments that are most effective in reducing smoking rates.<sup>20</sup>
  - b. Providers should have the full panel of FDA approved medications available, since treatment must be tailored to each smoker; there is not a single treatment that is effective for everyone.<sup>20</sup>
  - c. Smoking cessation services should be integrated into sites where smokers receive their healthcare, and multiple types of providers should be trained to deliver smoking cessation services. For example, an effective model for treating tobacco disorders

- across a range of treatment sites (such as community health centers, primary care clinics, dental offices, and mental health and substance abuse treatment facilities), may include brief counseling and medications provided by physicians and other prescribers (including dentists, pharmacists, APRN's and others), with non-prescribers (including psychologists, nurses, trained counselors, etc) providing more intensive evidence-based counseling and followup.<sup>20</sup>
- d. Since smoking is so highly addictive and because smoking is considered a chronic and recurring disorder, insurance coverage for smoking cessation treatment must provide for unlimited episodes of treatment.<sup>20</sup>
  3. One very cost-effective method of delivering evidence-based smoking cessation counseling and treatment is through a quit-line. Quit-lines can reach some of the most vulnerable of smokers: women, young adults, the uninsured, those with less than high-school education and Medicaid recipients.<sup>64 70 71</sup> However, in order for the quit-line to be effective it must be fully funded to provide both counseling and pharmacological treatments.<sup>20</sup>
  4. It is important that smoking cessation programs target at-risk groups, those who are most likely to smoke or to begin smoking. In Connecticut Medicaid recipients,<sup>15 16 17</sup> Hispanic residents (personal communication, D. Sorosiak, September 22, 2009), those with less education,<sup>6</sup> lower income,<sup>8</sup> youth<sup>6</sup> and those with psychiatric<sup>24</sup> and substance abuse<sup>26</sup> disorders are more likely to smoke or to become smokers. For this reason, smoking cessation programs and treatments should specifically target these at-risk groups with culturally, age and otherwise appropriate interventions.<sup>20</sup>
  5. Clinicians providing smoking cessation treatment and/or counseling should be trained appropriately to maximize the effectiveness of their efforts. The recommendations in *Clinical Practice Guidelines* are based upon treatment recommendations from over 8,700 research articles, and offer evidence-based guidance to clinicians and administrators of healthcare delivery and insurers.<sup>20</sup>
  6. Finally, it makes good public health sense for lawmakers to consider building upon current legislation to make Connecticut a 100 percent smoke-free workplace state, in order to protect all workers from the health effects of second hand smoke. In 2003 a state-wide smoking ban in most public places went into effect. However, correctional facilities, designated smoking areas in psychiatric facilities, public housing projects, workplaces with fewer than five employees, private clubs and casinos are exempt from this ban.<sup>62</sup> This exemption is not without consequence: in 2008, 6.4 percent of Connecticut residents reported exposure to second-hand smoke in the workplace.<sup>63</sup>

Tobacco use, consequences and policies in Connecticut have done much to curb smoking rates in the state. But smoking remains a significant public health threat, particularly among some of Connecticut's most vulnerable populations. Evidence-based interventions are effective and will save money. Lawmakers should consider carefully the options available to them, including the consequences of doing nothing. The public's health depends upon it.

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