

TEXAS HEALTH INSTITUTE

THE UNIVERSITY OF TEXAS SCHOOL OF PUBLIC HEALTH AUSTIN REGIONAL CAMPUS

TEXAS A&M HEALTH SCIENCE CENTER SCHOOL OF RURAL PUBLIC HEALTH

Smoke-Free Workplace Environments

The Benefits to Texans and Their Communities

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EXECUTIVE SUMMARY

Smoking affects all of us: the health of smokers and nonsmokers, alike. Given these health impacts, it ultimately affects the economic climate of our great state too.

Over the past decade, there has been an increased awareness about the importance of disease prevention and health promotion among Texas families, communities, businesses, schools, state agencies and elected officials. The major causes of death in our state are not a surprise: heart disease, cancer, stroke, and lower respiratory disease. Notably, the leading cause of these diseases is cigarette smoking, one of the greatest health challenges facing our state.¹ In fact, tobacco use is the single greatest preventable cause of premature death and disease in Texas².

The purpose of this study is to understand the health and financial impacts that a comprehensive, statewide smoke-free workplace law would have in Texas. Overall, Texas would save at least \$404 million biennially. This includes biennial healthcare cost savings of at least \$250 million. Of that amount, \$142 million comes in reduced costs from smokers who would quit as a result of reduced ability to smoke ubiquitously. The remaining \$108 million is from nonsmokers who would have reduced exposure to secondhand smoke. In addition, we estimate productivity gains of at least \$154 million biennially.

Figure 1: Summary of Study Results



¹ Lakey, Dr. David, Texas Department of State Health Services, Testimony before the Senate Committee on Health and Human Services, (Austin, TX, September 8, 2010).

² Centers for Disease Control and Prevention: Tobacco Use: Targeting the Nation's Leading Killer, 2010 Accessed February 18, 2011: http://www.cdc.gov/chronicdisease/resources/publications/aag/pdf/2010/tobacco_2010.pdf

METHODOLOGY

Current research suggests that smoke-free workplaces have several benefits. Smokers often decide to quit or reduce their smoking and nonsmokers are not subjected to the harmful effects from secondhand smoke. People who quit smoking are more productive in the workplace and avoid expensive medical problems. Reduced exposure to secondhand smoke improves overall health. However, despite the evidence being amassed of the benefits of smoke-free workplaces, there has not been an effort to quantify these savings in the state of Texas. This report aims to address this task.

Many municipalities in Texas have already adopted smoke-free ordinances. Therefore, in order to estimate the cost savings that would occur due to a statewide smoke-free workplace (including bars and restaurants) law, we excluded counties that have at least one municipality that currently has a smoke-free ordinance. While all counties would be affected by a statewide law, we were careful not to overestimate the effects in counties with cities where a workplace ordinance exists. We used the University of Texas Medical Branch (UTMB) Smoking Ordinance database, an online resource which catalogs smoke-free workplace ordinances in Texas municipalities, to identify these counties.

Table 1 lists the types of ordinances we examined. These ordinances include smoke-free municipal workplaces, private workplaces, restaurants, bars in restaurants, and bars not in restaurants. There are “full” smoke-free ordinances and “partial” smoke-free ordinances; in the latter, there are places designated for smoking at the facility in question. Municipalities have the jurisdiction to establish smoke-free policies, while counties lack the jurisdiction, so the UTMB Smoking Ordinance database consists of ordinances by municipalities within counties. If one or more municipalities established a full smoke-free ordinance in a county, we, conservatively, considered the entire county smoke-free. This is because in many instances the largest city, where many residents in the county travel to work or eat, is typically the one establishing smoke-free policies. If no municipality has established a full smoke-free ordinance, but one or more has established a partial smoke-free ordinance, we considered the county partially smoke-free.

Table 1. Status of Smoke-Free Ordinances in Texas' 254 Counties, January 2011

Workplace						
Counties	Municipal			Private		
	None	Partial	Full	None	Partial	Full
Number	136	31	87	192	21	41
Percentage	54%	12%	34%	76%	8%	16%

Public Places									
Counties	Restaurants			Bars in Restaurants			Bars		
	None	Partial	Full	None	Partial	Full	None	Partial	Full
Number	176	33	45	195	21	38	205	20	29
Percentage	69%	13%	18%	77%	8%	15%	81%	8%	11%

Source: University of Texas Medical Branch Smoking Ordinance database

Because we are evaluating the impact of a proposed law of comprehensive smoke-free workplaces, including restaurants and bars, we estimated the smoking prevalence in counties lacking “full” smoke-free places for each ordinance type, meaning we analyzed counties with “partial” smoke-free places going to “full” and “no” smoke-free places going to “full.” With this analysis plan, we avoided the unrealistic assumption that counties with “full” smoke-free ordinances in at least one municipality are the same as those without on the dimensions of smoking prevalence and attitudes toward smoking. Note that counties with municipalities having limited smoke-free ordinances, who will be establishing “full” smoke-free ordinances under the currently proposed comprehensive statewide legislative proposal, will have likely already seen an effect on smoking prevalence and hence secondhand smoke exposure to a certain extent. This will be reflected in our smoking prevalence estimates for those counties. We estimated the smoking prevalence in all counties that would be affected by a statewide comprehensive smoke-free law, i.e., those without comprehensive smoke-free ordinances in place, using the 2009 Behavioral Risk Factor Surveillance System (BRFSS) for Texas, which is available by county. Note that the survey is not large enough to make county-level estimates, but we aggregated counties with no current workplace or public smoke-free ordinances as described above. Our definition of smoking is someone who responds “every day” or “some days” to the question 'Do you now smoke cigarettes every day, some days, or not at all?' We estimated the smoking prevalence for counties with no ordinances and partial ordinances for each of the

following types of laws: smoke-free municipal workplaces, private workplaces, restaurants, bars in restaurants, and bars not in restaurants.

Let us consider our estimates of the averted productivity and medical costs due to the establishment of the proposed statewide comprehensive smoke-free workplace law. The relevant smoke-free ordinance types are for municipal and private workplaces, both full and partial. Farrelly et al. estimate that workplace ordinances reduce smoking prevalence by six percentage points (1999). We estimated the number of smokers by multiplying the population of employees in counties without full private and municipal smoke-free workplaces by the BRFSS smoking prevalence estimate for counties without that ordinance type, as described above, assuming smoking would fall by six percentage points. We estimated four specific smoking prevalence rates, in aggregate, for counties with partial smoke-free private and municipal workplaces and for counties without smoke-free private and municipal workplaces. We used Centers for Disease Control and Prevention (CDC) figures (Centers for Disease Control and Prevention, 2002) at the state level on the percentage of municipal workers to weight the working population. The CDC estimates that workers who do not smoke earn \$2,358 (2010 US dollars) more than workers (if they are not unemployed) who smoke. The CDC also estimates that smokers face \$2,175 (2010 US dollars) more in medical costs than nonsmokers (ibid.)

Finally, let us consider the benefits of reduced exposure to secondhand smoke. Examining the UTMB database, one can see that counties vary greatly in the combinations of smoke-free places their municipalities have established. Therefore, we focused on counties without full or with only partial smoke-free municipal workplaces because that was the most common type of smoke-free ordinance established. This ensures that our results are conservative, because many counties have partial or full smoke-free municipal places but no other “full” or “partial” smoke-free places (See Table 1). Based on a recent Johns Hopkins study on the economic impact of secondhand smoke in Maryland (Waters, 2006), we assumed that establishing comprehensive smoke-free policies in workplaces, restaurants and bars would lower exposure to secondhand smoke by 25 percent. We assumed the same yearly occurrence of health

problems attributable to secondhand smoke as in Waters et al. (2006). These are based on lung cancer, heart attacks and heart disease for nonsmoking adults, low birth weight (under 5.5 lbs.), acute lower respiratory illness (birth to age 3 only), otitis media and middle ear effusion, and asthma for children. The costs were from the Minnesota Blue Cross Blue Shield and were converted to 2010 dollars.

Table 3 and Chart 1 show the susceptible population by age group. For children under 18, the diseases relevant to secondhand smoke are low birth weight (under 5.5 lbs.), acute lower respiratory illness (birth to age 3 only, using 2009 Census estimates), otitis media and middle ear effusion, and asthma. We used Census data on the population estimates under 18 years of age in counties without full or with only partial smoke-free municipal workplaces, multiplying these numbers by the weighted treated prevalence and then the population attributable risk (American Factfinder, Waters et al., 2009). The costs per disease episode are given in the third column of Table 3. Note that low birth weights are particularly expensive, and that approximately 40 percent of births in Texas are paid for by Medicaid (National Conference of State Legislatures, 2008). For the 18-65 age group in Table 3, we used Census data on the population under 18 years of age in counties without “full” or with only “partial” smoke-free municipal workplaces. Finally, for the 65+ age group, we used Census data on the population over 65 years of age in counties without “full” or with only “partial” smoke-free municipal workplaces. Lung cancer and coronary heart disease are the relevant diseases related to secondhand smoke exposure.

RESULTS

IMPACT OF SMOKE-FREE WORKPLACE LAW ON CURRENT SMOKERS

The proposed statewide smoke-free workplace legislation would have significant benefits in regard to its direct impact on smoking among employees. Table 2 presents the results of our analysis in regard to the current annual impact of a statewide comprehensive smoke-free law on other workplaces with current smokers. Using published literature (e.g., Farrelly et al., 2009), the analyses assume that 6 percent of smokers in the workforce would quit smoking, given a comprehensive smoke-free workplace law. This would translate to 32,537 individuals in Texas and in turn, result in savings of approximately \$71 million. This would decrease insurance costs for both employers and employees. Additionally, the employers would enjoy approximately \$77 million in productivity savings.

Table 2. Annual impact of proposed statewide workplace smoke-free policies on current smokers.

	Number of smokers Who Decide to Quit	Medical costs averted ¹	Productivity costs averted ¹
<i>Change to Comprehensive Smoke-Free Workplace Law</i>	32,537	\$70,761,424	\$76,734,508

¹ All economic benefits are annual and provided in 2010 dollars.

IMPACT OF SECONDHAND SMOKE EXPOSURE IN TEXAS

Table 3 presents the results of our analysis concerning the impact of the proposed statewide smoke-free law on nonsmokers, as secondhand smoke can have health and economic impacts on those who do not smoke too.

Using published literature (Waters, 2006 and Waters et al., 2009) the analyses assume that secondhand smoke exposure would be 25 percent lower in smoke-free places. This is a conservative assumption because the Maryland study found that 22.8 percent of employees were exposed to secondhand smoke at work, but exposure in restaurants and bars is much higher when smoking is

allowed. It was also assumed that costs and health benefits were proportional to the reduced exposure. The health and economic impacts of these analyses focus on conditions that are directly related to exposure to secondhand smoke, which are specific to different ages, such as childhood and older ages (Waters et al., 2009).

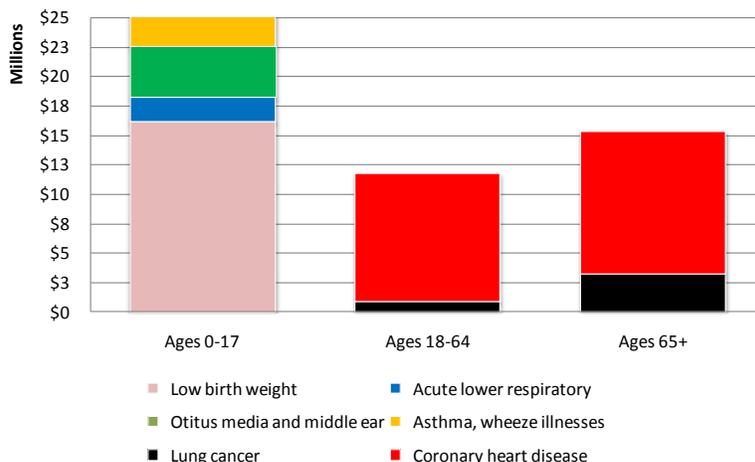
Table 3: Annual Potential Impact of Statewide Smoke-Free Environments on Nonsmokers

	Episodes averted	Cost per episode	Medical costs averted ¹
<i>Ages 0-17 years</i>			
Low birth weight	326	\$49,730	\$16,213,223
Acute lower respiratory illness	2,061	\$1,009	\$2,079,805
Otitis media and middle ear effusion	6,911	\$620	\$4,284,852
Asthma, wheeze illnesses	3,683	\$1,252	\$4,611,123
<i>Ages 18-64</i>			
Lung cancer	33	\$27,608	\$901,649
Coronary heart disease	949	\$11,484	\$10,898,878
<i>Ages 65 and older</i>			
Lung cancer	47	\$69,381	\$3,292,103
Coronary heart disease	420	\$28,860	\$12,128,939
TOTAL:			\$54,410,572

¹ All economic benefits are annual and provided in 2010 dollars.

The impact on nonsmokers is especially large. More than \$54 million in medical costs every year could be averted, if comprehensive smoke-free work and public places became a reality in Texas. As shown in Chart 1, children and youth are disproportionately affected by secondhand smoke; they account for half of the total costs. While the number of the 326 babies born with a low birth weight (under 5.5 Lbs.) is relatively small compared to the other episodes within all age groups, the estimated costs per episode (\$49,730) is higher than any other type of disease resulting from secondhand smoke exposure.

Chart 1: Potential Impact of a Smoke-Free Law on Nonsmokers per Age Group



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