

The Public Health Implications of Indoor Smoking
Bans

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ABSTRACT

It is a well documented fact that the smoking of cigarettes in public places imposes health and environmental health risks and, therefore, burdens society in many ways. Through an analysis of the externalities of smoking in public, this paper will explore the consequences that cigarette consumption in public imposes upon society. The results of banning smoking indoors will be analyzed as well.

Introduction

When Nazi researchers discovered links between smoking and lung cancer, along with overall poor health, they launched the first extensive anti-smoking campaign based on the findings of scientific research. With restrictions on tobacco advertising, public smoking bans, an extensive anti-smoking public relations campaign and restrictions on tobacco production, Hitler's goal was to eliminate smoking in its entirety in Nazi Germany. Following the Nuremberg trials at the end of World War II the dangers of environmental tobacco smoke exposure went into hiding as many of the Nazi research documents were put into storage vaults only to be read by historians many years later

(Proctor, 2000). It would be almost twenty years until policy makers in the United States began to question the public health aspects of smoking with the 1964 Surgeon Generals Report, *Reducing the Health Consequences of Smoking*, and it was not until 1972 that Surgeon General Dr. Jesse Steinfeld expressed interest in exploring the topic of the effects that environmental tobacco smoke had on nonsmokers.

The most recent Surgeon General's Report, *The Health Consequences of Involuntary Exposure to Tobacco Smoke*, outlines the health hazards associated with secondhand smoke, analyzes who is exposed to secondhand smoke and makes recommendations on how secondhand smoke should be regulated. The conclusions drawn by the report warn us that secondhand smoke is a substantial public health hazard that many nonsmokers are exposed to on a regular basis. The report's suggested manner of dealing with secondhand smoke is the implementation of total indoor smoking bans.

Health Risks Associated with Exposure to Environmental Tobacco Smoke

The risks associated with exposure to environmental tobacco smoke, also known as secondhand smoke, is now an

extensively researched topic. There is an overwhelming consensus that secondhand smoke bears causal links to many preventable illnesses (U.S. Surgeon General, 2006).

Secondhand smoke is a particularly harmful pollutant. Researchers in Italy conducted a study comparing the pollution produced by idling a low emissions diesel vehicle (a Ford Mondeo) fueled with low sulfur fuel for 30 minutes to smoldering cigarettes, lit one after another for 30 minutes. What they found was that, compared to the car, the cigarettes released 10 times the particulate matter into the air (Invernizzi et al., 2004). Another researcher compared the amount of mutagenic substances released by automobiles and cigarettes. The findings concluded that a pack a day smoker releases the same amount of mutagens as an automobile driven 22 miles (Sanner, 1992).

Cardiovascular Effects Of Environmental Tobacco Smoke

Passive smoking, or, in other words, inhaling environmental tobacco smoke, has been causally linked to prothrombotic activity (blood clotting)(U.S. Surgeon General, 2006), endothelial dysfunction (dysfunction of the cells lining the cardiovascular system), increased platelet aggregability (responsible for clotting), increased

atherosclerosis (narrowing of arteries), increased arterial stiffness (which causes high blood pressure), increased oxidative stress (a form of cell damage), decreased antioxidant defense and decreased energy production in the heart muscle. All of these factors contribute to the onset of myocardial infarction, an ailment commonly known as a heart attack (Barnoya and Glantz, 2005).

The adverse cardiovascular effects of passive smoking are a significant risk to public health, especially when the risk factor of acquiring symptoms of heart disease is taken into consideration. A study that was conducted by measuring levels of cotinine (a metabolite of nicotine that can be used to determine the level of exposure to tobacco) in the blood found that the health risk associated with the inhalation of passive smoke by nonsmokers is equivalent to between 80% and 90% of the risk of active smoking (Barnoya and Glantz, 2005).

Effects on the Pulmonary System

Exposure to environmental tobacco smoke is known to cause lung cancer, and evidence suggests that it is also a cause of the onset of adult and childhood asthma, chronic obstructive pulmonary disease, poor lung function, nasal

allergies, cough, excess phlegm, wheezing and breathlessness (U.S. Surgeon General, 2006).

Health Risks for Children

The risks imposed upon children and fetuses by environmental tobacco smoke are significant. Childhood exposure to environmental tobacco smoke has been causally linked to middle ear effusion (fluid retention), sudden infant death syndrome, lower respiratory illness and asthma. It is also evident that childhood cancers may be brought on by pre and post natal exposure to secondhand smoke. The most likely source of secondhand smoke exposure for children is parental smoking (U.S. Surgeon General, 2006).

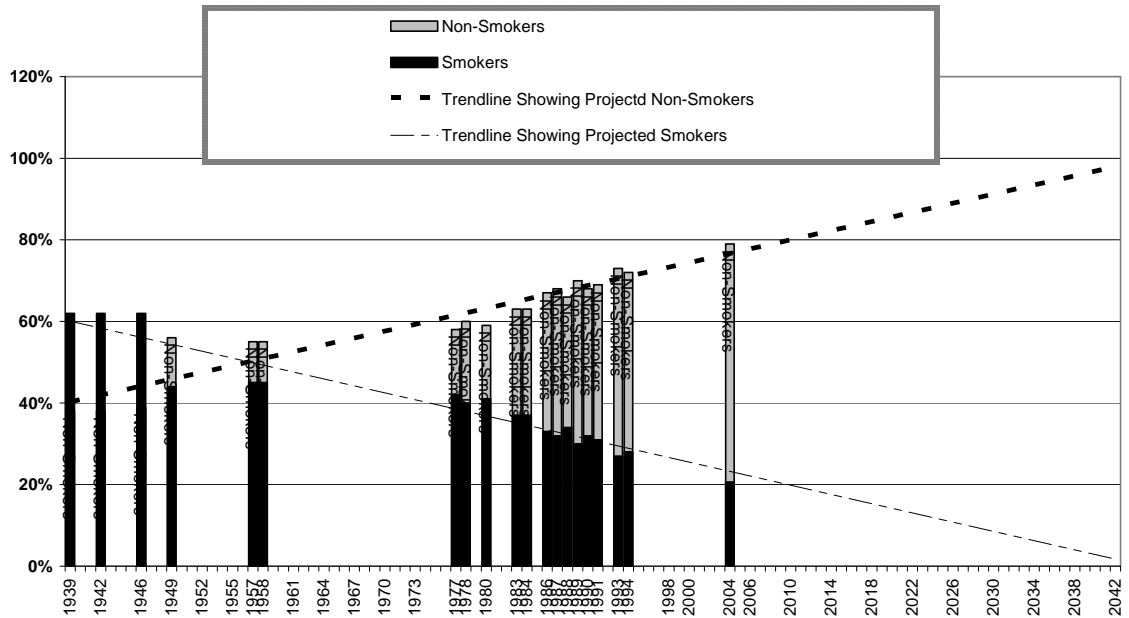
Smoking Bans

According to The Henry J. Kaiser Family Foundation, the vast majority of adult citizens of the United States are nonsmokers (79.4%)(Henry J. Kaiser Family Foundation, 2006). The smoking rate in the United States has been dropping for decades and if current trends continue it is likely that smoking will be uncommon (in the U.S.) within

two to three generations (see figure 1). The only sources of environmental tobacco smoke for most nonsmoking adults are the workplace, along with restaurants and bars, which are, indeed, workplaces for many (U.S. Surgeon General, 2006). The rate of coverage by smoke free workplace laws ranges from a high of 85% in Utah, which, notably, has a smoking rate of only 10.5%, the lowest smoking rate of any state (Henry J. Kaiser Family Foundation, 2006) to Nevada, which has a rate of coverage of only 49% (Shopland et al. 2001).

Figure 1

Smoking Rates in the United States and Projections Assuming Status Quo



The Need for Bans

Separation of smokers and nonsmokers, although somewhat effective at reducing the concentration of environmental tobacco smoke inhaled by nonsmokers, is considered by researchers an ineffective means of protecting nonsmokers from the dangers of environmental tobacco smoke (Hammond and Perrino, 2002; U.S. Surgeon General, 2006). Additionally, air exchange and cleaning systems have been found to be inefficient at controlling environmental tobacco smoke. Total bans on indoor smoking are the only way to eliminate exposure of nonsmokers to the risks associated with environmental tobacco smoke (U.S. Surgeon General, 2006).

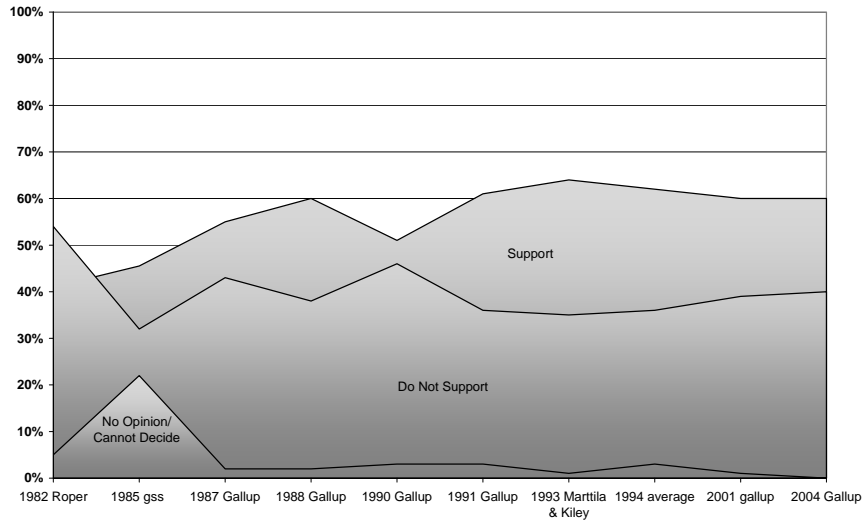
Public Support for Bans

Support for smoking bans is strong, and has been for over a decade. The 2004 Gallup poll on public opinion of smoking found that 60% of the country favors banning smoking in all public places (see figure 2). In 2002 the

state of Florida voted in an indoor smoking ban, with a 71% majority, that

Figure 2

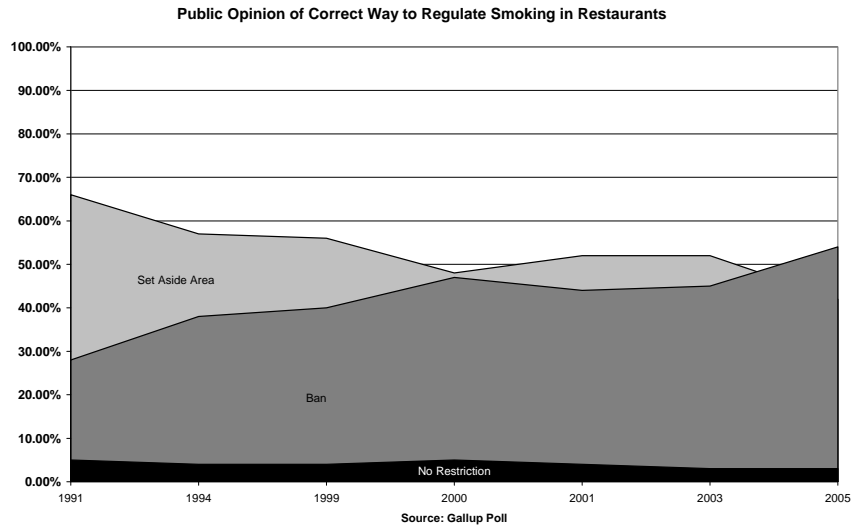
Support for Total Ban on Smoking in Public



included all indoor spaces except private residences (unless used for childcare) and bars. Support for smoking bans in restaurants and bars fluctuates depending upon location. Residents of urban and suburban areas are more likely to support smoking bans in restaurants and bars than those who reside in rural areas (McMillen et al., 2004). Education and socioeconomic status positively correlate to support for smoking bans in bars and restaurants as well as smoking bans overall. Likewise, blue collar workers are less likely to support smoking bans than white collar workers and also less likely to be covered by workplace smoking bans (U.S. Surgeon General, 2006). Nationally,

about 55% of the country support banning smoking in restaurants (see figure 3)(Gallup poll, 1991-

Figure 3



2005). However, it should be noted that because of demographic variance this rate differs by location. It should also be noted that support for bans has been known to increase after the ban has been implemented. For example, a poll conducted, by the Field Research Corporation, in 1998 immediately after California prohibited smoking in bars found that 24% of smokers and 59% of nonsmokers supported the ban. Two years later the California Department of Health Services found a significant increase in support; 44% among smokers and 73% among nonsmokers (U.S. Surgeon General, 2006). To date 10 states (California, Connecticut, Delaware, Maine, Massachusetts, New Jersey, New York, Rhode Island, Vermont

and Washington) have banned smoking in both bars and restaurants. Two hundred fifteen municipalities have also banned smoking in bars and restaurants.

Result of bans

Impact on Public Health

As previously stated, environmental tobacco smoke is a significant public health hazard. Though possibly an affirmation of the obvious, total indoor smoking bans essentially remove this public health hazard from affecting those who are not smokers and are not exposed to secondhand smoke in the home. Researchers have found that even just 30 minutes of exposure to environmental tobacco smoke can cause cardiovascular dysfunction. When Helena, Montana, banned smoking in bars, restaurants and casinos in June of 2002, the city's hospital saw a drop in heart attacks by 56 percent over a six month time frame (CBS News, 2003). It has been estimated that, within the first year alone, a savings of \$49 million in medical costs associated with myocardial infarction would be recovered if all workplaces within the United States were to go smoke-free (Barnoya and Glantz, 2005). A study conducted before and after the implementation of smoking bans in San Francisco, California

found that 74% of bartenders complained of respiratory dysfunction before the ban. After the ban had taken affect the percent of bartenders who reported dysfunction dropped by 33%. Furthermore, a statistically significant improvement in both forced vital capacity and forced expiratory volume (both of which are measurements of pulmonary function) was found to result from the ban (Eisner et al., 1998).

Environmental Impact

Unfortunately, the implementation of indoor smoking bans has been linked to an increase of improperly disposed cigarette butts and smoking paraphernalia. Cigarette butts are the most common type of litter, and contrary to popular belief, they are made out of cellulose acetate, a type of nonbiodegradable plastic, not cotton (Clean Virginia Waterways, 2006). Once littered, butts find their way to streams, rivers and lakes and wetlands where they generally take approximately 10 years to degrade (Clean Virginia Waterways, 2006). Coastal cleanup crews consistently cite butts as the most common type of debris found. The strong presence of littered butts has more than just an aesthetic impact. Cigarette butts have been found to be toxic to

daphnia, organisms commonly called water fleas, which are extensively used by biologists to test acute toxicity of chemicals on aquatic invertebrates. Used cigarette butts, both with and without remnant tobacco, have been found to cause daphnia to alter their swimming patterns, accumulate dark deposits in their setae (a body part similar to hair), float without attempting to swim and clump together in groups. Furthermore, at concentrations of .5 butts per liter 100% of the daphnia died within 48 hours. At the lowest concentration tested, .125 butts per liter, 15% of the daphnia died. It was also found that the remnant tobacco causes a higher toxicity than the butt alone. (Register, 2000) Although the overall ecological impact of these findings is unknown, the evidence suggests that the effects of this little known externality of smoking could alter the food chain, which ultimately affects the human food supply (Rand, 1995).

In addition to negatively affecting the environment cigarette butts have an adverse impact on pocketbooks. In 1997 the Philadelphia Daily News reported: "School officials say landscapers who should be planting flowers and pruning shrubs are spending time instead picking up butts on the 15,000-acre campus: Some 13 landscapers spend 10 hours a week picking up discarded cigarettes at an

estimated cost of \$150,000" (Philadelphia Daily News, March 27, 2000).

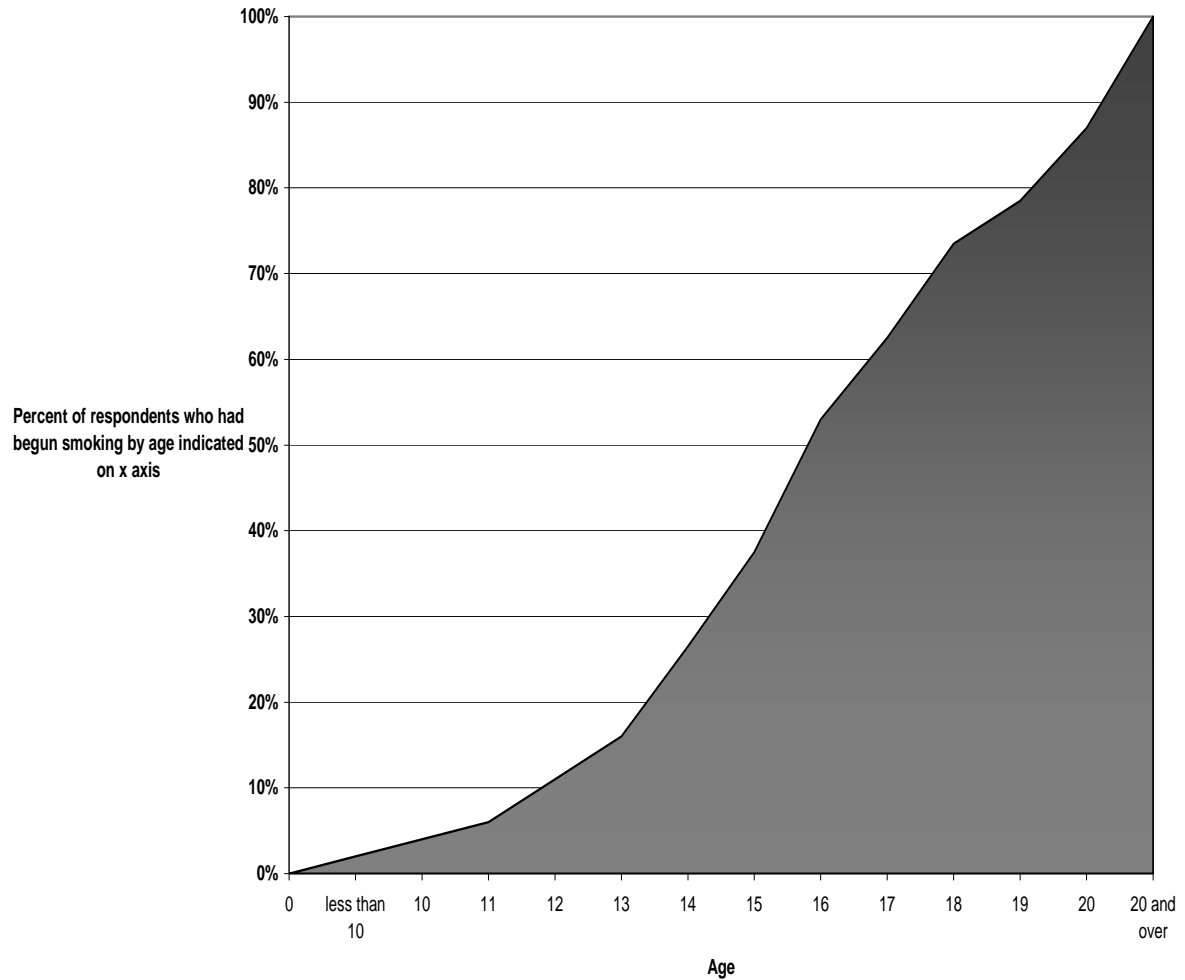
Perception and Treatment of Exiled Smokers

Because indoor smoking bans exile smokers outside to congregate they have many effects on both the perception of smokers and the treatment of smokers. The increased presence of smokers outside has been cited to lead to a perceived quantity of smokers in society higher than it really is, a known catalyst for the uptake of youth smoking, which, in fact, is when most smokers start smoking (see figure 4) (Hazelden Current And Former Smokers Survey, November, 1998). However, there is no evidence that this leads to adult uptake and may have the reverse effect because many adults view the activity of going outside to smoke unproductive and somewhat desperate (Boyle et al., 2004). Smoking bans have been linked to contributing to reduced productivity among smokers who must remove themselves from their work to nourish their addiction (Boyle et al., 2004; U.S. Surgeon General, 2006). This, presumably, may lead to tensions in workplaces between smokers and has already led, along with the rising price of health care, to many employers refusing to hire smokers.

This policy, a practice the ACLU calls lifestyle discrimination, is similar to testing for illegal drugs, and allows employers to discriminate against potential employees on the basis of what they do off the clock, regardless of its effect on job performance (ACLU, 1998). Many employers have also addressed the loss of productivity with a less radical approach, by simply prohibiting workers from smoking on company time and/ or prohibiting "cigarette breaks" (Boyle et al., 2004).

**Figure
4**

Percent of Respondents (Current and Former Smokers) Actively Smoking at Indicated Age



Effect on Smoking Rates

Smoking bans have been known to have an effect on increasing smoking cessation (Boyle et al., 2004; U.S. Surgeon General, 2006). This may be due to a number of factors. The cost of the added hassle imposed upon smokers

by bans may outweigh the benefit that smokers derive from the use of cigarettes. Many of the benefits that smokers receive from smoking are social, especially in recreational settings such as bars and nightclubs. As a Philip Morris document from 1994 states, "if smokers are banished to doorways and loading docks outside buildings it makes them feel like outcasts" (Walls, 1994). With much of the social aspect removed by indoor bans smoking becomes much less desirable (Boyle et al., 2004). Another explanation for the increase in cessation may be the fact that most adult smokers don't want to smoke, and bans give them reason to quit. Approximately 90% of smokers say that they regret picking up the habit and 80% say that they want to quit (Fong et al, 2004).

Economic Impact of Smoking Bans on the Hospitality Industry

A major claim of many restaurant and bar owners, along with many restaurant associations is that smoking bans are bad for the economy. Several studies, many of which have been conducted by or for the tobacco industry, have linked up to a 30% decrease in sales within the hospitality industry to the implementation of bans. This simply isn't true (U.S. Surgeon General, 2006). The Office of the

Surgeon General reviewed these and many other reports on the economic impact of smoking bans. The Surgeon General's findings show that studies linking a negative economic impact to smoking bans rely upon proprietor predictions and estimates of changes in sales instead of actual sales and revenue data. Furthermore, studies showing a negative economic impact are 400% more likely to have used subjective measures and 2000% more likely to have not been subject to peer review than studies that found no undesirable economic impact. There are currently no studies that are both peer reviewed and based on objective measures that show a negative economic impact as a result of the implementation of a smoking ban (Scollo et al., 2003; U.S. Surgeon General, 2006). The findings of objectively measured peer reviewed research are backed up by polling data as well. A majority of respondents to polls conducted by Zagats and Zogby reported that smoking bans would not have any effect on patronage of bars and restaurants (U.S. Surgeon General, 2006). Moreover, some studies have shown a correlation between smoking bans and an increase in restaurant sales (Hyland et al., 1999; U.S. Surgeon General, 2006).

Other Economic Impacts

Because smoking bans are linked to a decrease in smoking there may be additional economic results of smoking bans. There is general consensus that the net economic result of smoking in the United States is negative. The Centers for Disease Control estimates that each cigarette sold costs the country 35.9 cents in medical costs and lost productivity; this works out to approximately \$3,391 per year per smoker (Fellows, 2002). Because an increase in smoking bans would likely reduce the number of smokers, along with the number of nonsmokers exposed to environmental tobacco smoke, the economic cost to the country would likely decrease with an increase in smoking bans.

W. Kip Viscusi, an economics professor for Harvard University, writer for the Cato Institute, a libertarian think tank, and, as his biography on the Harvard University website states, an expert witness for the tobacco industry, is one economist who disagrees with the consensus that smoking has an economic cost to society (President and Fellows of Harvard College, 2006). Viscusi believes that smoking has a net economic benefit. His main argument is

that because smokers die prematurely they contribute to the economy in the form of unused long term care (nursing homes), and lower hospital bills because they die earlier and quicker than nonsmokers. He also points out that smokers frequently never are able to recover their pensions (Viscusi, 2002).

Viscusi's claims, however, trouble economists such as Kenneth Warner, a University of Michigan economist, Dean of the School of Public Health and Director of the University's Tobacco Research Network. Warner points out that "an innate weakness in the practice of economics is measuring the measurable and forgetting that which can't be measured". Particularly, the pain suffering and other intangible costs bared by families who must cope with the atrocities brought about by smoking and ambient smoke.

The debate over whether Viscusi is right with his figures or not is somewhat of a moot point. Almost all behaviors have an (economically) optimal level of participation. Slavery is one example of a behavior that has a net economic benefit to society; however we prohibit this behavior based on ethics. MIT economist and physician Jeffery Harris agrees. He considers Viscusi's premise to be the equivalent of Congress debating on whether or not to boost funding for cancer research on the basis of how much

social security expenditure will be lost (Miller, 97). Harris' point is a good example of why public health issues, such as regulation of smoking in public places, are not fit to be regulated solely by market mechanisms.

Big Tobacco's Role

The tobacco companies are well aware of the risks total indoor smoking bans pose to the sale of their product. Lobbying for the enactment of preemption laws is the number one way that the tobacco industry has fought the threat of bans. Preemption laws remove or restrict local policymakers' rights to enact legislation regulating the use of tobacco products in public. The local level is generally where the most progress, in respect to the implementation of smoking bans, has been made. Therefore preemption laws make a considerable impact on the ability of public health officials to pass smoking bans (Walls, 1994; Americans for Nonsmokers' Rights, 2004). Philip Morris stated in 1994 that passing some form of preemption in all 50 states is one of their most important priorities (Walls, 1994). Aside from preemption the tobacco industry funds many front groups and contributes money to organized interests to form alliances. This way they can spin the

issue to reflect a variety of topics ranging from protecting property rights to protecting freedom of choice, sometimes called "smokers rights" (Americans for Nonsmokers' Rights, 2006).

Conclusion

Exposure to environmental tobacco smoke is a significant, and unnecessary, health hazard that many nonsmoking Americans face on a daily basis. The evidence is more than sufficient to infer causal links to both cardiovascular and pulmonary repercussions developing from exposure to tobacco smoke. Despite the effects that smoking bans have on the natural environment they are the best solution for protecting the health of nonsmokers. Reducing the number of smokers has been found to be an after effect of indoor smoking bans; therefore, smoking bans are also an effective way for the government to reduce public health expenditures. The largest threat to total indoor smoking bans is the tobacco industry, which fights the implementation of bans through lobbying and the funding of front groups aimed at rallying support for the anti-ban cause. The majority of Americans, however, support legislation implementing a total ban on indoor smoking and support grows annually. The "smoker's rights" crowd appears

to be losing to those who want the simple right to clean air.

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