Center for Mississippi Health Policy

ISSUE BRIEF
SECONDHAND SMOKE
Impact on Health and Economy

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This brief examines the research related to the effects of secondhand smoke and the impact of smoke-free policies in Mississippi communities and around the United States.

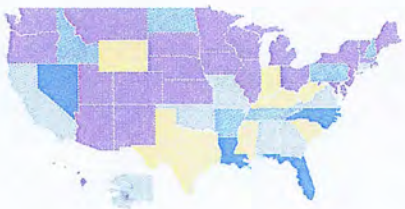
Secondhand Smoke & Smoke-Free Policies

SMOKE-FREE POLICY DEFINED:
Definitions of the term "smoke-free" relate primarily to ordinances and laws involving bars, restaurants, and non-hospitality workplaces. Smoke-free ordinances or laws with exemptions for one or more type of workplace may be considered "partial" smoke-free policies.

Beginning in 1964, and in thirty subsequent reports, the United States Surgeon General has publicized a growing body of scientific evidence on the adverse health effects of cigarette smoking. The 2004 report *The Health Consequences of Smoking* categorizes smoking as "the single greatest cause of avoidable morbidity and mortality in the United States," and outlines the ways in which smoking damages nearly every organ in the human body.[1] In addition to the study of active smoking, the public health community has increasingly focused on the health effects of secondhand smoke. As early as 1986, the Surgeon General notified the public that secondhand smoke was shown to cause lung cancer in non-smokers.[2]

The Surgeon General's report *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease* (2010) discusses multiple health consequences for children exposed to secondhand smoke. These include: middle ear disease, respiratory symptoms, impaired lung function, lower respiratory illness, and sudden infant death syndrome. In the adult population, secondhand smoke exposure is known to cause nasal irritation, lung cancer, coronary heart disease, and negative reproductive effects in women like reduced fertility and low birth weight.

SMOKE-FREE POLICIES BY STATE



Locations are defined by the CDC as private worksites, restaurants, and bars.
- 3 of 3 locations 100% smokefree
- 2 of 3 locations 100% smokefree
- 1 of 3 locations 100% smokefree
- Designated or ventilated areas in at least one location
- No smoke-free restrictions

Source: CDC—MMWR April 22, 2011

The 2010 report concludes that "there is no safe level of exposure to tobacco smoke."[3] Studies have shown that secondhand smoke can have 80-90% of the impact of chronic smoking.[4] Research indicates that smoke-free policies are a practical and effective intervention to limit exposure to secondhand smoke.[5] Smoke-free policies have also been linked with a decrease in youth tobacco use, and smoke-free workplace policies have been associated with a decrease in adult smoking.[6]

Mississippi is one of only seven states without any kind of statewide law restricting smoking in private indoor workplaces, restaurants, or bars.[7] In Mississippi, 47 municipalities have passed ordinances ensuring these public places are smoke-free, and 12 municipalities have partial smoke-free ordinances in place.[8]

Health Impact of Secondhand Smoke

The most recent evidence identifies more than 7,000 chemicals in secondhand smoke, 69 of which have been identified as carcinogens, or cancer-causing compounds.[9] Secondhand smoke itself has been identified as a known human carcinogen since 2000 by the National Institutes of Health (NIH).[10] A comprehensive review of data from 192 countries around the world found that the largest incidence of disease related to secondhand smoke exposure was from lower respiratory infections and asthma in children and heart disease and asthma in adults.[11] Close to 88 million nonsmoking Americans older than three years of age are exposed to secondhand smoke each year.[12]

Secondhand smoke and its link to asthma

ASTHMA DEFINED:
A respiratory condition marked by spasms in the bronchi of the lungs, causing difficulty in breathing. It usually results from an allergic reaction or other forms of hypersensitivity.

Exposure to secondhand smoke is associated with both developing and exacerbating asthma symptoms and results in poorer asthma outcomes in children and adults.[13] Asthma episodes resulted in 1.75 million visits to emergency rooms and 456,000 hospitalizations nationwide in 2007.[14] In 2009, approximately 76,719 Mississippi children (10.4%) and 144,009 Mississippi adults (6.6%) had asthma. Between 2003-2007, asthma emergency room visits in Mississippi increased by 23%,[15] with approximately 4,000 asthma hospitalizations in 2008.[16]

Following the introduction of a smoke-free policy in Kentucky, emergency room visits for asthma episodes declined 22%.

After the passage of a national smoke-free law in 2006 in Scotland there was an 18.2% mean reduction in hospital admissions for childhood asthma.

A review of current scientific literature indicates an association between exposure to secondhand smoke and the overall number and severity of asthma cases.[17] Following the introduction of a smoke-free policy in Kentucky, emergency room visits for asthma episodes declined 22%.[18] A study in Scotland showed that after the passage of a national smoke-free law in 2006, there was an 18.2% mean reduction in hospital admissions for childhood asthma, and an increase in voluntary bans on smoking in homes, which reduced overall exposure of children to secondhand smoke.[19] This was a particularly notable finding in light of concerns that banning smoking in public places would lead to more smoking in the home, resulting in an unintentional increase in the risk of secondhand smoke exposure to children and other adults in the residence. A study in Arizona found statistically significant reductions in hospital admissions for asthma following a statewide smoking ban in 2007.[20]

Secondhand smoke and its link to cardiovascular disease

In 2009, the Centers for Disease Control and Prevention (CDC) requested that the Institute of Medicine (IOM) form a committee to review scientific evidence on the relationship between exposure to secondhand smoke and cardiovascular disease. The IOM report concluded the following:[21]

There is a 25-30% increase in cardiovascular disease associated with exposure to secondhand smoke.

CARDIOVASCULAR DISEASE DEFINED:
A disease of the heart or blood vessels. This can include narrowed or blocked vessels that can lead to a heart attack, chest pain, or stroke.

- There is a 25-30% increase in cardiovascular disease associated with exposure to secondhand smoke
- Indoor smoking bans reduce the risk of heart attack
- It is possible that a brief exposure to secondhand smoke may lead to a heart attack

Smoke-free ordinances linked to fewer heart attack admissions and lower hospital costs

SECONDHAND SMOKE: THE ANTI-ASPIRIN
The IOM report includes a discussion of how secondhand smoke affects blood clotting.[2] It concludes that secondhand smoke causes blood to become sticky and clot, increasing the risk of heart attack. One way to visualize this process is to see secondhand smoke as an "anti-aspirin."

Communities around Mississippi began to pass local smoke-free ordinances starting in 1996.[22] The availability of smoke-free communities provides one opportunity to examine how these policies affect Mississippi's health and economy. In 2010, researchers from the Mississippi State University Social Science Research Center (SSRC) set out to determine what, if any, impact the ordinances may have had in local Mississippi communities. By comparing hospital admission data before and after local smoke-free ordinances were passed in Hattiesburg and Starkville, the SSRC studies found the following:[23]

MISSISSIPPI MUNICIPALITIES WITH A 100% SMOKE-FREE POLICY

Aberdeen	Kosciusko
Amory	Laurel
Bassfield	Lumberton
Batesville	Madison
Belzoni	Mantachie
Brookhaven	Marks
Byram	Mathiston
Calhoun City	Mayersville
Centreville	Meridian
Clinton	Metcalf
Coldwater	New Albany
Collins	Oxford
Corinth	Pearl
Crystal Springs	Petal
Ecru	Pontotoc
Flora	Prentiss
Flowood	Ridgeland
Greenwood	Rienzi
Grenada	Rolling Fork
Hattiesburg	Starkville
Hernando	Sumrall
Hollandale	Tupelo
Jackson	Wesson
Jonestown	

- Over the three years following implementation of a smoke-free ordinance, residents of Starkville experienced a 22.7% reduction in heart attack admissions, compared with a 14.8% reduction among non-residents treated at the same hospital
- The hospital cost savings associated with the reduction in heart attack admissions in Starkville was estimated to be $288,270 over the five-year study time period
- Over the two and half years following implementation of a smoke-free ordinance, residents of Hattiesburg experienced a 13.4% reduction in heart attack admissions, compared with a 3.8% reduction among non-residents treated at the same hospitals
- The hospital cost savings associated with the reduction in heart attack admissions in Hattiesburg was estimated to be $2,367,909 over the four-year study time period

These findings show substantial reductions in the rates of admissions for heart attacks in these two communities. Because of the small number of heart attack admissions, additional data collected over a longer period of time are required to determine whether these reductions are statistically significant. However, the results mirror findings from larger studies with statistical significance from dozens of communities, many states, and even on a national level. It serves as an indicator that the same is likely to be true in Mississippi, given time. Communities that implement smoke-free policies can potentially expect reductions in both heart attack admissions and the associated hospital costs.[24]

Economic Impact of Secondhand Smoke And Smoke-Free Policies on Local Communities

Smoke-free policies have not been linked to lower business revenues

Many policymakers are concerned about the economic impact of smoke-free laws on the business community. An analysis of peer-reviewed studies by the 2006 Surgeon General report found that smoke-free policy does not have a negative impact on the hospitality industry.[25] Economic studies have shown that smoke-free policies do not adversely affect business revenues or operating costs.[26] Additionally, smoke-free policies are linked to improved employee health and productivity, and decreases in business costs for insurance, cleaning, maintenance, and potential litigation.[27]

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Most studies examining the impact of smoke-free policy on business have been conducted at the local municipal level. The state of Washington's Department of Revenue reported gross revenue gains in both the bar (20.3%) and restaurant (8.7%) sectors in 2007, two years after the passage of a statewide smoke-free policy (there was a more modest gain in both sectors the year immediately following the law's passage).[28] Similar results were reported in tourism and hospitality data for Arizona[29], California,[30] and Hawaii.[31]

Almost half of all of Mississippi's restaurants are currently located within the 47 municipalities with smoke-free ordinances.[32] Analysis of tax revenues showed that no Mississippi community experienced a decline in collected tourism tax after enacting a smoke-free policy, indicating that smoke-free ordinances at the municipal level did not have a negative impact on restaurants and/or bars. Additionally, SSRC reviewed numerous studies on employment trends in the hospitality industry in Mississippi, and found no negative impacts from smoke-free policies.[33] A report issued by the SSRC compared overall tourism and economic development (TED) tax revenues in smoke-free communities around Mississippi with TED tax revenues in communities without smoke-free ordinances. In the 12 months after enacting ordinances, TED tax revenues were 10.3% higher in smoke-free communities, compared with TED tax revenues in communities without smoke-free ordinances.[34]

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Emerging research on smoke-free policies and casino revenue

After reviewing the limited body of literature on the impact of smoke-free policy on full-scale casino revenues, it is clear there is not enough published research to draw objective conclusions. One widely read report on the impact of smoke-free policies on casino revenues documents a decline in revenue after implementation of a smoke-free law in Illinois, but no peer-reviewed research was found that supports this conclusion.[35] Studies have shown that ordinances prohibiting smoking have not impacted charitable gaming or bingo revenues.[36, 37]

In June 2011, the Palace Casino in Biloxi underwent a $50 million renovation and reopened as a smoke-free property. Because there is not yet year-to-year data to compare, it is too early to fully assess the impact of the policy on the casino. However, analyses performed on third quarter data from 2011, immediately following the implementation of the smoke-free policy, showed no change in the casino's market share or number of employees, slot games, and table games when compared to the third quarters of past years.[38]

Smoke-free policies shown to benefit national, state, and local economies

A 2005 Society of Actuaries study projected that the United States spends in excess of $10 billion each year in medical care as a result of mortality and morbidity caused by secondhand smoke.[39] The American Cancer Society (ACS) releases annual reports on state-specific data related to a variety of health policies. In 2011, ACS issued a report estimating the savings that could result in the state of Mississippi from the implementation of a comprehensive statewide smoke-free law. The projected economic benefits over a five-year period were: $10.95 million in lung cancer treatment savings; $31.82 million in heart attack and stroke savings; $910,000 in state Medicaid program savings; and $4.29 million in smoking-related pregnancy treatment savings.[40] This totals to an overall estimated savings of $47.97 million.

$10+ billion is the amount the United States spends each year in medical care as a result of mortality and morbidity caused by secondhand smoke, as projected by a 2005 Society of Actuaries study.[39]

PROJECTED SAVINGS OF A STATE-WIDE SMOKE-FREE LAW IN MISSISSIPPI

LUNG CANCER TREATMENT SAVINGS	$10.95 million
HEART ATTACK & STROKE SAVINGS	$31.82 million
MEDICAID PROGRAM STATE SAVINGS	$.91 million
SMOKING-RELATED PREGNANCY TREATMENT SAVINGS	$4.29 million
TOTAL SAVINGS	$47.97 MILLION

There have been two studies of the state-level costs incurred as a result of secondhand smoke exposure. In Minnesota, an analysis of Blue Cross Blue Shield claims data allowed researchers to project an estimated cost of $228.7 million per year of costs directly related to secondhand smoke exposure. It is important to note that this figure is a projection for one year's worth of direct medical costs, and that it did not include other categories of cost such as long term cost or any indirect costs, such as impacts on income or productivity.[41] A North Carolina study that replicated the methodology used in the Minnesota Blue Cross Blue Shield study placed secondhand smoke-related costs in that state at $288.8 million dollars annually.[42]

Policy Implications of Smoke-Free Ordinances

Research evidence strongly documents the negative health effects of secondhand smoke, particularly in regard to heart disease and asthma. Preliminary research specific to Mississippi appears to mirror studies across the nation showing declines in hospital admissions for heart attacks following passage of smoke-free ordinances.

Mississippi has one of the highest smoking rates in the country, at 22.7%.[37]

The economic impact of secondhand smoke is primarily calculated in terms of higher insurance and healthcare costs, as well as lower employee productivity, and is significant for Mississippi.

Studies on the economic impact of smoke-free laws on the business community have generally focused on the hospitality industry. Smoke-free policies in Mississippi have had no negative impact on restaurants and bars. Research specific to Mississippi indicates that revenues related to the hospitality industry increased faster in smoke-free communities than those without smoke-free policies.

Research specific to Mississippi indicates that revenues related to the hospitality industry were higher in smoke-free communities than those without smoke-free policies.

Any conclusions drawn about the impact of smoke-free policy on full-scale casinos are premature, because there is not enough data available to assess what, if any, impact smoke-free policies are having on this portion of the gaming industry. Other types of gaming venues have not been negatively affected by smoke-free policy.

A final consideration is the impact of smoke-free policies on smoking prevalence. Research links smoke-free policies with reductions in youth tobacco use and an increase in voluntary bans on smoking in homes. There is evidence that smoke-free workplaces are associated with reductions in adult smoking prevalence, as well as reduction in the overall number of cigarettes smoked by adults who do not quit.[43]