



# The Facts About Secondhand Smoke

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**Tobacco users are not the only ones who breathe its deadly smoke—all the people around them are forced to inhale it too. In fact, secondhand smoke causes more than 42,000 deaths, including more than 3,000 lung cancer deaths among nonsmoking adults each year.<sup>1</sup> The total annual costs of secondhand smoke exposure are estimated to be at least \$5 billion in direct medical costs and at least \$6 billion in indirect costs.<sup>2</sup>**

**To protect nonsmokers and to reduce the costs associated with treating tobacco-related disease, the American Cancer Society Cancer Action Network (ACS CAN) supports smoke-free air policies that restrict the places where people can light up.**

## What is Secondhand Smoke?

- Secondhand smoke is the combination of smoke emitted from the burning ends of a tobacco product (sidestream smoke) and the smoke exhaled from the lungs of tobacco users (exhaled mainstream smoke).<sup>3</sup>
- Secondhand smoke contains over 4,000 substances, more than 60 of which are known or suspected to cause cancer.<sup>4</sup> Some of the deadly substances in secondhand smoke and the cancers they cause are:
  - Arsenic, benzo(a)pyrene, cadmium, chromium, nickel, and NNK → lung cancer
  - Nitrosamines → cancers of the lung, respiratory system, and other organs
  - Aromatic amines → bladder and breast cancers
  - Formaldehyde and nickel → nasal cancer
  - Benzene → leukemia
  - Vinyl chloride → liver and brain cancer
  - 2-naphthalymine and 4-aminobiphenyl → bladder cancer
  - Lead → liver cancer
- Three of the above carcinogens -- arsenic, benzene, and vinyl chloride -- are regulated in the United States as hazardous air pollutants. Two of the bladder carcinogens -- 2-naphthalymine and 4-aminobiphenyl -- are banned for use in dye manufacturing.<sup>5</sup>
- The U.S. Environmental Protection Agency (EPA) has classified secondhand smoke as a Group A carcinogen, a substance which is known to cause human cancer.<sup>6</sup>

## Who Is Exposed to Secondhand Smoke?

- Exposure of the general U.S. population to secondhand smoke declined dramatically from 1988-1994 to 1999-2004. The proportion of nonsmokers with detectable levels of a secondhand smoke indicator in their bloodstream dropped from 84 percent to 46 percent between those time periods.<sup>7</sup> However, progress in reducing exposure to secondhand smoke since has stalled. In 2007-2008, the most recent years for which data is available, 40 percent of nonsmokers had a biomarker for secondhand smoke exposure.<sup>8</sup>
- Nearly one in five children ages 4-11 (18%) and youth ages 12-19 (17%) are exposed to secondhand smoke in their home.<sup>9</sup>
- While 63 percent of the U.S. population are covered by smoke-free workplace laws, 75 percent are covered by smoke-free restaurant laws, and 64 percent are covered by smoke-free bar laws,

less than half of the population (48%) are covered by smoke-free laws in all three types of venues.<sup>10</sup>

- Secondhand smoke is an occupational hazard for many workers, including casino, restaurant, bar, and hotel employees. According to a CDC analysis of secondhand smoke exposure in 11 states, state estimates of exposure to secondhand smoke in an indoor workplace ranged from 6.0 to 15.8 percent of nonsmokers.<sup>11</sup> Blue collar and service employees are less likely than white collar indoor workers to be covered by smoke-free policies.<sup>12</sup>

### **The Effects of Secondhand Smoke**

- Exposure to secondhand smoke causes many of the same tobacco-related diseases and premature death as active smoking, including increasing nonsmokers' heart disease, stroke and cancer risk.<sup>13</sup>
- The 2006 Surgeon General's Report on *The Health Consequences of Involuntary Exposure to Tobacco Smoke* concluded that "The scientific evidence indicates there is no risk-free level of exposure to secondhand smoke."<sup>14</sup> The 2010 Surgeon General's report *How Tobacco Smoke Causes Disease* further affirmed and provided a more detailed review of the mechanisms that validate the conclusion.<sup>15</sup>
- Before New York City implemented its smoke-free ordinance, an air quality survey conducted by the New York State Department of Health found that air pollution levels in bars permitting smoking were as much as 50 times greater than pollution levels at the Holland Tunnel entrance during rush hour.<sup>16</sup>
- In addition to causing lung cancer and heart disease, secondhand smoke increases the risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma.<sup>17</sup>

### **The Impact of Secondhand Smoke on the Medically Underserved**

- African-Americans, Hispanics, and Native Americans are less likely to be protected under smoke-free workplace policies since they are more likely to work in occupation sectors that enjoy the least amount of protection from smoking in the workplace -- service, hospitality, and labor industries.<sup>18, 19</sup> In particular, black male workers, construction/manufacturing sector workers, and blue-collar and service workers have the highest levels of secondhand smoke exposure.<sup>20</sup>
- The Centers for Disease Control and Prevention (CDC) has found higher levels of secondhand smoke exposure among African-Americans than for any other race or ethnic subgroup.<sup>21</sup>
- People with incomes below the poverty level are more likely to be exposed to secondhand smoke.<sup>22</sup>

### **Reversing the Harm to Health from Secondhand Smoke: *Smoke-Free Laws***

Public concern about the harmful effects of secondhand smoke and the need for smoke-free policies is high. Studies have found that there is strong public support for smoke-free laws among both smokers and nonsmokers.<sup>23 24</sup> This public support -- along with an increasing body of evidence about the detrimental effects of secondhand smoke -- has enabled many jurisdictions to successfully pass smoke-free laws and ordinances.

Smoke-free laws have produced important improvements that lead to better health.

- A 2006 nationwide study examining the relationship between smoke-free laws and secondhand smoke exposure found that 12.5 percent of nonsmoking adults living in counties with a smokefree law covering all workplaces, restaurants, or bars in the county were exposed to secondhand smoke, compared with 45.9 percent of nonsmoking adults in counties with no smoke-free law.<sup>25</sup>
- Citing the health benefits of smoke-free policies and the lack of evidence that smoking restrictions would have a devastating effect on businesses, the Institute of Medicine in its 2007

report, *Ending the Tobacco Problem: A Blueprint for the Nation*, recommends enacting “complete bans on smoking in all nonresidential indoor locations, including workplaces, malls, restaurants, and bars.”<sup>26</sup>

- **New York City:** New York City’s comprehensive smoke-free ordinance is one reason for the city’s 11 percent decline in smoking prevalence. Smoking rates declined from 2002 to 2003 in all five boroughs among all age groups, all races and ethnicities, and all educational attainment levels, meaning there were 140,000 fewer smokers. Almost half (46%) of New Yorkers who were surveyed reported less exposure to secondhand smoke after the passage of the city’s smoke-free law. Approximately 157,000 fewer New Yorkers were exposed to secondhand smoke at work or at home. An estimated 28,000 smokers quit using tobacco as a result of the city’s smoke-free ordinance. If these trends are sustained, New York City will prevent 45,000 premature deaths and will save upwards of \$500 million annually from tobacco-related health care costs.<sup>27</sup> Furthermore, six months after the Smoke-Free Air Act went into effect, the Health Department found a six-fold reduction in air pollution levels in bars that used to permit smoking.<sup>28</sup>
- **Helena, MT:** During the six months (June 5, 2002-December 3, 2002) that the smoke-free law in Helena, MT, was in effect, the number of patients admitted for heart attacks dropped significantly (40 percent) while areas where the ban was not in force observed no changes in their heart attack admission rates. When Helena’s smoke-free law was overturned, the number of residents admitted to the hospital for heart attacks increased, suggesting that Helena’s smoke-free law may be associated with a rapid decline in heart attack incidence.<sup>29</sup>
- **Pueblo, CO:** Heart attack rates decreased 17-39 percent in Pueblo City, CO, one-and-a-half years after the city’s smoke-free ordinance went into effect. This study was conducted over a 3-year period and involved 1,112 patients, not only improving on the above Helena research design, but also confirming its findings: smoke-free ordinances decrease heart attack incidence rates.<sup>30</sup>
- **California:** A group of 53 bartenders, examined before and after California’s smoke-free bar and tavern law went into effect, were found to have a 5-7 percent improvement in their overall pulmonary function just one month after the law’s implementation.<sup>31</sup>
- **Delaware:** A 2003 survey of air quality before and after the Delaware smoking ban concluded that the smoke-free law significantly reduced the risk of cancer, heart disease, stroke and respiratory disease among workers and patrons in the hospitality industry.<sup>32</sup>
- **Lexington, KY:** A 2003-2004 air quality study found a 91 percent drop in cancer-causing pollution in nine hospitality establishments after Lexington-Fayette County’s smoke-free ordinance was implemented.<sup>33</sup>
- **Bloomington, IN:** Pollution levels in seven hospitality venues decreased 89 percent after the city’s smoke-free ordinance was enacted on August 1, 2003. Full-time bar and restaurant employees who worked in nearby Fort Wayne or Indianapolis, where smoking is permitted in some or all hospitality venues, were exposed to more than seven times the annual air pollution recommended by the EPA.<sup>34</sup>
- **Charleston, SC:** Pollution levels in 44 venues decreased 94 percent after passage of smoke-free ordinances in Charleston and Mt. Pleasant.<sup>35</sup>
- **Minnesota:** A 2008 study concluded that “the comprehensive smoking ban has had a significant impact in reducing exposure and uptake of carcinogens and nicotine in hospitality workers.”<sup>36</sup>
- **Michigan:** According to a 2011 study, cotinine levels among bar employees significantly decreased down to close to 0 and employees reported “significant improvement in general health and six respiratory symptoms” after implementation of Michigan’s smoke-free law.<sup>37</sup>

### **ACS CAN on Secondhand Smoke**

ACS CAN supports local, state, and federal initiatives to stop public exposure to secondhand smoke, including smoke-free laws, which are one key way to protect nonsmokers, children and workers from the deadly effects of secondhand smoke. Despite tobacco industry claims that ventilation technologies are a

good alternative to smoke-free laws, the evidence shows that ventilation is ineffective and costly for businesses to implement. Further, ACS CAN opposes preemptive state legislation that restricts local authorities from enacting stronger local smoke-free laws. ACS CAN, together with its public and private partners, will work to pass legislative and regulatory measures to limit smoking in public places and work environments. This will ultimately help ACS CAN and the American Cancer Society achieve their shared goals of saving lives and reducing the death and disease caused by exposure to secondhand smoke.

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