



The Facts About Secondhand Smoke

Secondhand smoke causes between 35,000 and 40,000 deaths from heart disease every year.¹ 3000 otherwise healthy nonsmokers will die of lung cancer annually because of their exposure to secondhand smoke.² These deaths occur because tobacco users are not the only ones who breathe smoke—all the people around them inhale it too. Unfortunately, non-smoking and ventilated public spaces cannot filter or circulate air at the rate necessary to eliminate secondhand smoke.³ The total annual costs of secondhand smoke exposure are estimated at over \$5 billion in direct medical costs and over \$5 billion in indirect costs.⁴ Therefore, to protect those who choose not to smoke and to reduce the costs associated with treating tobacco-related disease, the American Cancer Society 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 (mainstream smoke).⁵
- Secondhand smoke contains over 4000 substances, more than 60 of which are known or suspected to cause cancer.⁶ 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-naphthylamine 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-naphthylamine and 4-aminobiphenyl are banned for use in dye manufacturing.⁷
- The Environmental Protection Agency (EPA) has classified secondhand smoke as a Group A carcinogen, a substance which is known to cause human cancer.⁸

Who Is Exposed to Secondhand Smoke?

- Exposure of the general U.S. population to secondhand smoke has declined dramatically since 1988-1991.^{9, 10} However, 60 percent of people living in the United States still have biological evidence of secondhand smoke exposure.¹¹
- Thirty-seven percent of adult nonsmokers have reported that they either lived in a home with a smoker or that they inhale secondhand smoke while at work.¹²
- Secondhand smoke has become an occupational hazard for many workers, including casino, restaurant, bar, and hotel employees. Although over three fourths of white collar workers are covered by smoke-free policies, just 43% of the country's 6.6 million food preparation and service occupations workers benefit from the same level of protection.¹³
- Younger workers (15-19 and 20-24 years) were least likely to work under a smoke-free policy.¹⁴

- Fifteen million kids, or nearly 22% of all children and adolescents, were exposed to secondhand smoke in the home during 1996.¹⁵

The Effects of Secondhand Smoke

- Nonsmokers exposed to secondhand smoke have been shown to have many of the same tobacco-related diseases as active smokers. Secondhand smoke has been shown to increase nonsmokers' risk of heart disease, stroke, and cancer.¹⁶
- 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.¹⁷
- Secondhand smoke can cause many short-term effects, such as coughing and nasal and eye irritation.

The Impact of Secondhand Smoke on the Medically Underserved

- African-American, Hispanic 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.^{18, 19, 20}
- The CDC has found higher levels of secondhand smoke exposure among African Americans than for any other race or ethnic subgroup.²¹

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

- Smoke-free laws improve the health of the community by preventing 35,000-40,000 deaths from heart disease, 3,000 deaths from lung cancer, and significantly reducing healthcare costs.
- Public concern about the harmful effects of secondhand smoke and the need for smoke-free policies are high. A 2001 report by the CDC determined that high levels of public support exist, even among smokers, for smoke-free policies in many settings.²² Similarly, a 2001 poll indicated that over fifty percent of American adults believe secondhand smoke is "very harmful."²³ This growing sentiment -- 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. And smoke-free laws have produced important improvements that lead to better health.
- **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 in all five boroughs among all age groups, all race and ethnicities, and all educational attainment levels, meaning there were 140,000 fewer smokers in 2003. Almost half (46 percent) 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 18,000 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.²⁴ 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.²⁵
- **Helena, Montana:** During the six months (June 5, 2002-December 3, 2002) that Helena, Montana's smoke-free law 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 for heart attack incidence.²⁶

- **Pueblo, Colorado:** Heart attack rates decreased 17-39 percent in Pueblo City, Colorado 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.²⁷
- **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.²⁸
- **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.²⁹
- **Lexington, Kentucky:** 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.³⁰
- **Bloomington, Indiana:** 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 U.S. environmental Protection Agency.³¹

American Cancer Society on Secondhand Smoke

The Society 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, the Society opposes preemptive state legislation that restricts local authorities from enacting local smoke-free laws. The Society, 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 the Society achieve its goal of saving lives and reducing the death and disease caused by exposure to secondhand smoke.

Policy
National Government Relations Department
June 2006

¹ Steenland, K. (1992). Passive Smoking and the Risk of Heart Disease. *Journal of the American Medical Association* 267(1): 94-99.

² U.S. Environmental Protection Agency (EPA) (1992). *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*. Washington, D.C.: EPA.

³ Repace, J, I. Kawachi and S. Glantz (1999). *Fact Sheet on Secondhand Smoke*. Available online at <http://repace.com/SHSFactsheet.pdf>.

⁴ Behan, D.F., Eriksen, M.P., and Lin, Y (2005). Economic Effect of Environmental Tobacco Smoke. Society of Actuaries: Washington, D.C. Available online at <http://www.soa.org/ccm/content/areas-of-practice/life-insurance/research/economic-effects-of-environmental-tobacco-smoke-SOA/>.

⁵ U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control (CDC) (1986). *The Health Consequences of Involuntary Smoking: A Report of the Surgeon General*. Washington D.C.: Government Printing Office (GPO).

⁶ EPA (1992).

⁷ Repace, J, I. Kawachi and S. Glantz (1999).

⁸ EPA (1992).

-
- ⁹ CDC (2003). *Second National Report on Human Exposure to Environmental Chemicals: Tobacco Smoke*. Atlanta, GA: U.S. Department of Health and Human Services, CDC, National Center for Environmental Health. NCEH Pub No. 03-0022
- ¹⁰ Levy, D.T., Romano, E., and Mumford, E.A. (2004). Recent Trends in Home and Work Smoking Bans. *Tobacco Control* 13:258-263.
- ¹¹ Ibid.
- ¹² CDC (1996). *Third National Health and Nutrition Examination Survey (NHANES III)*. Hyattsville, MD.: National Center for Health Statistics.
- ¹³ Shopland, D.R., Anderson, C.M., Burns, D.M., and Gerlach, K.K. (2004). Disparities in smoke-free workplaces among food service workers. *Journal of Occupational and Environmental Medicine* 46(4): 347-356.
- ¹⁴ Gerlach, K.K., Shopland, D.R., Hartman, A.M., Gibson, J.T., and Pechacek, T.F. (1997). Workplace Smoking Policies in the United States: Results from a National Survey of more than 100,000 Workers. *Tobacco Control* 6:199-206.
- ¹⁵ CDC (1997). State-Specific Prevalence of Cigarette Smoking Among Adults, and Children's and Adolescents Exposure to Environmental Tobacco Smoke—United States, 1996. *MMWR* 46(40):1038-1043.
- ¹⁶ National Cancer Institute (NCI) (1999). *Health Effects of Exposure to Environmental Tobacco Smoke: The Report of the California Environmental Protection Agency. Smoking and Tobacco Control Monograph 10*. Bethesda, MD: NCI.
- ¹⁷ New York City Department of Finance, New York City Department of Health and Mental Hygiene, New York City Department of Small Business Services, and New York City Economic Development Corporation (2004). *The State of Smoke-Free New York City: A One Year Review*.
- ¹⁸ U.S. Census Bureau (2000). Current Population Survey, March 2000. *Table 11: Major Occupation Group of the Employed Civilian Population 16 Years and Over by Sex, Race and Hispanic Origin: March 2000*. Available online at <http://www.census.gov/population/socdemo/race/black/ppl-142/tab11.txt>.
- ¹⁹ Gerlach et al. (1997).
- ²⁰ U.S. Department of Health and Human Services (HHS). Public Health Service (PHS). National Institutes of Health (NIH). National Cancer Institute (NCI). (2000). Population Based Smoking Cessation: Proceedings of a Conference on What Works to Influence Cessation in the General Population. *Smoking and Tobacco Control Monograph No. 12*. Bethesda, MD: NCI.
- ²¹ CDC. National Center for Environmental Health (2001). *First National Report on Report on Exposure to Environmental Chemicals*. Washington, D.C.: Centers for Disease Control and Prevention.
- ²² CDC (2001). State-Specific Prevalence of Current Cigarette Smoking Among Adults, and Policies and Attitudes about Secondhand Smoke – United States, U.S., 2001. *MMWR* 50(49):1101-1105.
- ²³ July 2001 Gallup Poll available at www.gallup.com
- ²⁴ Frieden, T.R., Mostashari, F., Kerker, B.D., Miller, N., Hajat, A., and Frankel, M. (2005). Adult tobacco use levels after intensive tobacco control measures: New York City, 2002-2003. *American Journal of Public Health* 95(6): 1016-1023.
- ²⁵ New York City Department of Finance, et al. (2004).
- ²⁶ Sargent, R.P., Shepard, R.M., Glantz, S.A. (2004). Reduced incidence of admissions for myocardial infarction associated with public smoking ban: before and after study. *British Medical Journal* 328: 977-980.
- ²⁷ Bartecchi, C., Alsever, R.N., Nevin-Woods, C., Thomas, W.M., Estacio, R.O., Bucher-Bartelson, B., and Krantz, M.J. (2005, November 14). *A Reduction in the Incidence of Acute Myocardial Infarction Associated with a Citywide Smoking Ordinance*. Paper presented at the 2005 American Heart Association Scientific Session.
- ²⁸ Eisner, M.D., Smith, A.K., and Blanc, P.D. (1998). Bartenders' Respiratory Health After Establishment of Smoke-Free Bars and Taverns. *Journal of the American Medical Association* 280(22): 1909-1914.
- ²⁹ Repace, J. (2003). An Air Quality Survey of Respirable Particles and Particulate Carcinogens in Wilmington Delaware Hospitality Venues Before and After a Smoking Ban. Available online at <http://www.tobaccoscsm.ucsf.edu/pdf/Repacedelaware.pdf>.
- ³⁰ Hahn, E.J., K. Lee, C.T.C. Okoll, A. Troutman, and R.W. Powell (2005). Smoke-Free Laws and Indoor Air Pollution in Lexington and Louisville. *Louisville Medicine* 52(9): 391-394.
- ³¹ Travers, M. and A. Hyland (2005). "Indiana Air Monitoring Study, December 2004-January 2005." New York, NY: Roswell Park Cancer Institute.