

CAMPAIGN For TOBACCO-FREE Kids®

HEALTH HARMS FROM SECONDHAND SMOKE

The scientific evidence on the health risks associated with exposure to secondhand smoke is clear, convincing, and overwhelming. Secondhand smoke (also referred to as involuntary smoking, environmental tobacco smoke, and passive smoking) is a known cause of lung cancer, heart disease, low birth-weight births, and chronic lung ailments such as bronchitis and asthma (particularly in children), as well as other health problems.

Exposure to secondhand smoke has been estimated to result in at least 38,000 annual deaths in the United States and over one million illnesses in children (see table below).

Annual Toll From Exposure to Secondhand Smoke in the United States¹		
Condition	Estimated Annual Deaths	Estimated Annual Diseases
Ischemic Heart Disease	35,000	NA
Lung Cancer	3,000	NA
Sudden Infant Death Syndrome	1,900	NA
Low Birthweight Births	--	9,700
Asthma Exacerbation in Children	--	400,000
Acute Lower Respiratory Illness (children < 18 mo.)	--	150,000
Otitis Media in Children	--	700,000

What are the health risks associated with exposure to secondhand smoke?

- *International Agency for Research on Cancer* (June 2002) – According to the IARC, “involuntary smoking (exposure to secondhand or 'environmental' tobacco smoke) is carcinogenic to humans (Group 1).”² Further, the IARC concluded that there is a “statistically significant and consistent association between lung cancer risk in spouses of smokers and exposure to secondhand tobacco smoke from the spouse who smokes. The excess risk is on the order of 20% for women and 30% for men.”

In addition, the IARC found that “epidemiological studies have demonstrated that exposure to secondhand tobacco smoke is causally associated with coronary heart disease” and they estimated that “involuntary smoking increases the risk of an acute coronary heart disease event by 25-35%.” Further, the IARC noted that, for adults, “the strongest evidence for a causal relation exists for chronic respiratory symptoms.”

- *U.S. Environmental Protection Agency* (1992) – In its groundbreaking report, the EPA concluded that, for adults, “ETS [environmental tobacco smoke] is a human lung carcinogen, responsible for approximately 3,000 lung cancer deaths annually in U.S. non-smokers” and the report found that secondhand smoke has a statistically significant effect on the respiratory health (e.g., reduced lung function) of non-smoking adults.³

For children, the report concluded that, “ETS exposure is causally associated with an increased risk of lower respiratory tract infections (LRIs) such as bronchitis and pneumonia; increased prevalence of fluid in the middle ear, symptoms of upper respiratory tract irritation, and a small but significant reduction in lung function, and; additional episodes and increased severity of symptoms in children of asthma, with ETS exposure a risk factor for new cases of asthma in children who have not previously displayed symptoms.”⁴

- In 1997, the National Cancer Institute (NCI) issued its 10th Monograph, *Health Effects of Exposure to Environmental Tobacco Smoke*, which evaluated the available scientific research and concluded that secondhand smoke exposure is causally associated with a number of negative health effects in adults and children.
 - For children, the NCI estimated that exposure to secondhand smoke resulted in more than 10,000 annual cases of low birthweight, more than 2,000 cases of SIDS (sudden infant death syndrome), more than 8,000 new cases of asthma, and as many as 1 million cases of exacerbated asthma.
 - For adults, the NCI estimated that each year secondhand smoke causes 3,000 deaths from lung cancer and 35,000 to 62,000 deaths associated with ischemic heart disease.⁵
- *The U.S. Surgeon General's Report* of 1986 concluded the following regarding exposure to secondhand smoke:
 - “Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers.
 - The children of parents who smoke, compared with the children of nonsmoking parents, have an increased frequency of respiratory infections, increased respiratory symptoms, and slightly smaller rates of increase in lung function as the lung matures.
 - Simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, exposure of nonsmokers to environmental tobacco smoke.”⁶
- In 2000, the *American College of Occupational and Environmental Medicine* issued the following summary of current knowledge on health harms from workplace exposure to secondhand smoke:

“Environmental tobacco smoke (ETS) contains numerous toxins. Robust epidemiologic evidence implicates ETS as a cause of lung cancer and as a primary cause and a source of exacerbation of excess respiratory disease. There is also increasing evidence that ETS may be associated with other outcomes, including heart disease. There is currently little doubt that ETS is an important and avoidable health hazard. Unfortunately, ETS is frequently encountered in the workplace - where it is no safer than in other environments and where it presents hazards to exposed workers and others.”⁷
- In December 2002, the U.S. Public Health Service's National Toxicology Program issued its *10th Report on Carcinogens*, which unambiguously states, based on a thorough review of the available scientific and medical evidence, that:

“Environmental tobacco smoke (ETS) is *known to be a human carcinogen* based on sufficient evidence of carcinogenicity from studies in humans that indicate a causal relationship between passive exposure to tobacco smoke and human lung cancer (IARC 1986, EPA 1992, CEPA 1997). Studies also support an association of ETS with cancers of the nasal sinus (CEPA 1997). Evidence for an increased cancer risk from ETS stems from studies examining nonsmoking spouses living with individuals who smoke cigarettes, exposures of nonsmokers to ETS in occupational settings, and exposure to parents' smoking during childhood. Many studies, including recent large population-based case control studies, have demonstrated increased risks of approximately 20% for developing lung cancer following prolonged exposure to ETS, with some studies suggesting higher risks with higher exposures. Exposure to ETS from spousal smoking or exposure in an occupational setting appears most strongly related to increased risk.”⁸

- A 1997 analysis of 37 epidemiological studies of lung cancer and secondhand smoke, published in the *Journal of the National Cancer Institute*, found that lifelong nonsmokers living with smokers had, on average, a 24 percent higher chance of contracting lung cancer than those living with nonsmokers, and that those exposed to the heaviest smokers for the longest time had the highest risks.⁹ Subsequent research studies have made similar findings.¹⁰
- A 1997 *British Medical Journal* meta-analysis of 19 published studies found that "Breathing other people's smoke is an important and avoidable cause of ischaemic heart disease, increasing a person's risk by a quarter."¹¹
- A June 2001 study published in the journal *Pediatrics* found that exposure to secondhand smoke through the mother in utero was associated with increased rates of hospitalization in infants with non-smoking mothers, and that use of tobacco products by household members has an "enormous adverse impact" on the health of children.¹²
- A July 2001 study in the *Journal of the American Medical Association* concluded that exposure to secondhand smoke "substantially reduced" coronary circulation in healthy non-smokers, providing "direct evidence" that exposure to secondhand smoke causes coronary circulatory dysfunction in non-smokers.¹³
- A December 2001 study published in *The Lancet* found that exposure to secondhand smoke "increased the likelihood of experiencing [adverse] respiratory symptoms and was associated with increased [adverse] bronchial responsiveness." Specifically, the study found that exposure to secondhand smoke was "significantly associated" with nighttime chest tightness and breathlessness after physical activity, and that exposure to secondhand smoke in the workplace was significantly associated with all types of respiratory symptoms and current asthma.¹⁴
- A January 2002 study in the *British Medical Journal* found that maternal smoking during pregnancy represents a "true risk factor for early adult onset of diabetes." In addition, the study found that in utero exposures due to smoking during pregnancy "may increase the risk of both diabetes and obesity" possibly due to fetal malnutrition or toxicity.¹⁵
- Numerous research studies in the United States and overseas have found that smoking and exposure to secondhand smoke among pregnant women is a major cause of spontaneous abortions, stillbirths, and sudden infant death syndrome (SIDS) after birth.¹⁶

The National Center for Tobacco-Free Kids, January 20, 2004 / Matt Barry

Related Campaign Fact Sheets

[All Campaign for Tobacco-free Kids Factsheets available at <http://tobaccofreekids.org/research/factsheets.>]

Secondhand Smoke Harms to Kids

Clean Indoor Air Laws Encourage Smokers To Quit And Discourage Youth From Starting

Smoke-Free Workplace Laws Reduce Smoking Rates – and the Cigarette Companies Know It

Smoke-free Restaurant & Bar Laws Do Not Harm Business

Ventilation Technology Does Not Protect People From Secondhand Smoke

Secondhand Smoke, EPA, & the Courts - Cigarette Company Lawsuits Cannot Change the Facts: Secondhand Smoke is Deadly

What's In Secondhand Smoke?

[All of these SHS factsheets are at <http://tobaccofreekids.org/research/factsheets/index.php?CategoryID=19.>]

- ¹ National Cancer Institute. *Health Effects of Exposure to Environmental Tobacco Smoke: The Report of the California Environmental Protection Agency*, Smoking and Tobacco Control Monograph no. 10, NIH Pub. No. 99-4645, 1999, http://cancercontrol.cancer.gov/tcrb/nci_monographs/MONO10/MONO10.HTM.
- ² International Agency for Research on Cancer, *Volume 83: Tobacco Smoke and Involuntary Smoking Summary of Data Reported and Evaluation*, June 2002, <http://www.iarc.fr>.
- ³ U.S. Environmental Protection Agency (EPA), Office of Research and Development & Office of Air and Radiation, *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*, EPA/600/6-90/006F, December 1992, <http://www.epa.gov/nceawww1/ets/etsindex.htm>.
- ⁴ U.S. Environmental Protection Agency (EPA), *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*, EPA/600/6-90/006F, December 1992, <http://www.epa.gov/nceawww1/ets/etsindex.htm>.
- ⁵ National Cancer Institute. *Health Effects of Exposure to Environmental Tobacco Smoke: The Report of the California Environmental Protection Agency*, Smoking and Tobacco Control Monograph no. 10, NIH Pub. No. 99-4645, 1999, http://cancercontrol.cancer.gov/tcrb/nci_monographs/MONO10/MONO10.HTM.
- ⁶ *The Health Consequences of Involuntary Smoking: A Report of the Surgeon General*, 1986, U.S. Department of Health & Human Services (HHS), Public Health Service, U.S. Centers for Disease Control, Office on Smoking and Health, http://www.cdc.gov/tobacco/sgr/sgr_1986/SGR1986-PrefaceAndForward.PDF.
- ⁷ American College of Occupational & Environmental Medicine, *Epidemiological Basis for an Occupational and Environmental Policy on Environmental Tobacco Smoke*, www.ocoem.org/paprguid/papers/etspaper.htm, July 30, 2000.
- ⁸ National Toxicology Program, Public Health Service, HHS, *10th Report on Carcinogens: Revised December 2002*, December 2002, <http://ehp.niehs.nih.gov/roc/tenth/profiles/s176toba.pdf>.
- ⁹ Hackshaw, AK et al, "The Accumulated Evidence on Lung Cancer and Environmental Tobacco Smoke," *British Medical Journal* vol. 315 980-988, October 18, 1997.
- ¹⁰ Boffetta, P, et al., "Multicenter Case-Control Study of Exposure to Environmental Tobacco Smoke and Lung Cancer in Europe," *Journal of the National Cancer Institute* 90: 1440-50, October 7, 1998. See, also, NCI, *Health Effects of Exposure to Environmental Tobacco Smoke: The Report of the California Environmental Protection Agency*, 1999, http://cancercontrol.cancer.gov/tcrb/nci_monographs/MONO10/MONO10.HTM.
- ¹¹ Law, M. R., et al., "Environmental Tobacco Smoke Exposure and Ischaemic Heart Disease: An Evaluation of the Evidence," *British Medical Journal* 315: 973-979, October 18, 1997. See, also, He, J., et al, "Passive Smoking and the Risk of Coronary Heart Disease -- A Meta-Analysis of Epidemiologic studies," *New England Journal of Medicine* 340(12): 920-26, March 25, 1999.
- ¹² Lam, Tai-Hing, et al, "The Effects of Environmental Tobacco Smoke on Health Services Utilization in the First Eighteen Months of Life," *Pediatrics* 107(6), June 2001. See, also, Anderson, HR & DG Cook, "Passive Smoking and Sudden Infant Death Syndrome: Review of the Epidemiological Evidence," *Thorax* 52: 1003-1009, November, 1997.
- ¹³ Otsuka, Ryo, et al, "Acute Effects of Passive Smoking on the Coronary Circulation in Healthy Young Adults," *Journal of the American Medical Association* 286(4), July 25, 2001.
- ¹⁴ Janson, Christer, et al, "Effect of passive smoking on respiratory symptoms, bronchial responsiveness, lung function, and total serum IgE in the European Community Respiratory Health Survey: a cross-sectional study," *The Lancet* v.358, December 22/29, 2001.
- ¹⁵ Montgomery, S. & A. Ekbohm, "Smoking during pregnancy and diabetes mellitus in a British longitudinal birth cohort," *British Medical Journal*, 324: 26-27, January 5, 2002.
- ¹⁶ See, e.g., Shiverick, K.T. & C. Salafia, "Cigarette Smoking and Pregnancy I: Ovarian, Uterine and Placental Effects," *Placenta* 20(4): 265-272, May 1999; Ness, R. B., et al., "Cocaine and Tobacco Use and the Risk of Spontaneous Abortion," *New England Journal of Medicine* 340(5): 333-339, February 4, 1999; Chatenoud, L., et al., "Paternal and Maternal Smoking Habits Before Conception and During the First Trimester: Relation to Spontaneous Abortions," *Annals of Epidemiology* 8(8): 520-26, November 1998; Kline, J., et al., "Smoking: A Risk Factor for Spontaneous Abortions," *New England Journal of Medicine* 291(15): 793-96, October 1977; Raymond, E.G. et al., "Effects of Maternal Age, Parity, and Smoking on the Risk of Stillbirth," *British Journal of Obstetric Gynaecology* 101(4): 301-306, April 1994; Ahlborg, G. Jr. & L. Bodin, "Tobacco Smoke Exposure and Pregnancy Outcome Among Working Women: A Prospective Study At Prenatal Care Centers In Orebro County, Sweden," *American Journal of Epidemiology* 133(4): 338-347; February 1991; Cooke, R.W., "Smoking, Intra-Uterine Growth Retardation and Sudden Infant Death Syndrome," *International Journal of Epidemiology* 27(2): 238-41 (April 1998). See, also, Campaign for Tobacco-Free Kids, *Harm Caused by Pregnant Women Smoking or Being Exposed to Secondhand Smoke*, <http://tobaccofreekids.org/research/factsheets/pdf/0007.pdf>.