

Health Effects of Secondhand Smoke

⌘ Exposure to secondhand smoke leads to acute and chronic health problems among non-smokers. The 2006 U.S. Surgeon General's report on secondhand smoke indicates that there is evidence to conclude that secondhand smoke leads to respiratory illnesses, heart disease, and cancer. It affects fetal development and birth outcomes as well as later infant health and development.

Listed below are proven health effects of secondhand smoke:^{1,2,3}

- Arterial (blood vessel) changes (e.g., clotting)
- Heart disease & related deaths
- Respiratory infections (e.g., colds, bronchitis, pneumonia, RSV) (children)
- Asthma, asthma exacerbation (asthma attack) (children and adults)
- Chronic respiratory symptoms (e.g., coughing, wheezing, sore throat) (children)
- Eye and nasal irritation (adults)
- Middle ear infections and hearing loss (children)
- Lung cancer
- Nasal sinus cancer
- Breast cancer (pre-menopausal women)
- Low birth weight
- Sudden Infant Death Syndrome (SIDS)
- Pre-term delivery

There is suggestive evidence that secondhand smoke increases the risk for:^{2,3}

- Stroke
- Allergies
- Decreased lung function (adults and children)
- Slowed lung development (children)
- Exacerbation of cystic fibrosis
- Cervical cancer
- Brain cancer
- Lymphomas (children)
- Slowed fetal growth
- Miscarriage
- Infertility

⌘ Children are particularly vulnerable to the effects of secondhand smoke due to smaller airways, higher breathing rates, and less mature immune systems.

- According to a 1997 study, exposure to secondhand smoke leads to over 500,000 physician visits for asthma, 1.3 million visits for coughs, 115,000 episodes of pneumonia, 14,000 tonsillectomies or adenoidectomies, 260,000 episodes of bronchitis, and two million cases of middle ear infection.⁴
- Healthcare costs associated with prenatal and post-natal exposure to secondhand smoke ranges from \$1.4 billion to \$4.0 billion spent annually in the U.S.⁵

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- ⌘ Children and youth who are exposed to secondhand smoke are more likely to experience learning and behavioral problems,⁶ become a smoker in adolescence or adulthood,⁷ and develop metabolic syndrome, a disorder associated with excess fat around the abdomen and increased risk for type 2 diabetes, heart disease and stroke.⁸ Furthermore, children exposed to secondhand smoke have a greater chance of getting lung cancer during their lifetime than children who were raised in a smoke-free environment.⁹
- ⌘ Secondhand smoke causes heart disease. A 2009 report by the Institute of Medicine finds that there is sufficient evidence to conclude that secondhand smoke exposure causes heart disease and increases the risk for heart attacks, and that smoke-free laws reduce the number of heart attacks and save lives.¹⁰
- ⌘ Secondhand smoke is the cause of many deaths in the U.S.
 - According to the CDC, nearly 50,000 adult non-smokers in the U.S. will die each year from either lung cancer (3,400) or heart disease (46,000) attributable to secondhand smoke exposure.¹¹ Other studies estimate the total number of secondhand smoke deaths to be as high as 73,000.¹²
 - It is estimated that each year, 280 children die from respiratory illness caused by secondhand smoke.¹³
 - An average of 1,040 (and as many as 1,650) non-smokers in Virginia will die each year from secondhand smoke.¹⁴

¹ California Environmental Protection Agency. [*Health Effects of Exposure to Environmental Tobacco Smoke—Final Report and Appendices*](#). Cal/EPA, Office of Environmental Health Hazard Assessment, September 1997.

² California Environmental Protection Agency. [*Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant*](#). September 29, 2005. For more information on ETS, go to the California Office of Environmental Health Hazard Assessment (OEHHA) website (http://www.oehha.org/air/environmental_tobacco/index.html).

³ U.S. Department of Health and Human Services. [*The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*](#). Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

⁴ DiFranza JR & Lew RA. Morbidity & mortality in children associated with the use of tobacco products by other people. *Pediatrics* 1997; 97(4):560-68.

⁵ Adams, EK & CL Melvin, "[*Costs of Maternal Conditions Attributable to Smoking During Pregnancy*](#)", *American Journal of Preventive Medicine* 15(3):212-9, October 1998; CDC, "[*Medical Care Expenditures Attributable to Cigarette Smoking During Pregnancy - United States, 1995*](#)", *MMWR* 46(44), November 7, 1997 (costs associated with birth complications adjusted to 1995 dollars); Aligne, CA & JJ Stoddard, "[*Tobacco and Children: An Economic Evaluation of the Medical Effects*](#)

[of Parental Smoking](#)," *Archives of Pediatrics and Adolescent Medicine*, 151(7):648-653, July 1997 (healthcare costs for infants and children resulting from exposure to parents smoking adjusted to 1993 dollars); Stoddard, JJ & B Gray, "[Maternal Smoking and Medical Expenditures for Childhood Respiratory Illness](#)," *American Journal of Public Health* 87(2): 205-9, February 1997 (costs for treating childhood respiratory illnesses associated with mothers smoking adjusted to 1995 dollars).

⁶ Yolton K, et al. Exposure to environmental tobacco smoke and cognitive abilities of U.S. children and adolescents. *Environmental Health Perspectives* 2005; 113(1):98-103.

⁷ Becklake, M.R.; Ghezzi, H.; Ernst, P., "Childhood predictors of smoking in adolescence: a follow-up study of Montreal schoolchildren," *CMAJ* 173(4): 377-379, August 16, 2005; Gilpin, E, et al., "Home smoking restrictions: which smokers have them and how they are associated with smoking behavior," *Nicotine and Tobacco Research* 1:153-162, 1999. See also, Proescholdbell, R, et al., "Home smoking restrictions and adolescent smoking," *Nicotine and Tobacco Research* 2(2):159-67, 2000.

⁸ Weitzman, M., et. al, "Tobacco Smoke Exposure Is Associated With the Metabolic Syndrome in Adolescents," *Circulation* 2005, doi:10.1161/CIRCULATIONAHA.104.520650; Kallio, K.; Jokinen, E.; Hamalainen, M.; Saarinen, M.; Volanen, I.; Kaitosaari, T.; Viikari, J.; Ronnema, T.; Simell, O.; Raitakari, O.T., "Decreased aortic elasticity in healthy 11-year-old children exposed to tobacco smoke," *Pediatrics* 123(2): e267-e273, February 2009.

⁹ Olivo-Marston SE et al. Childhood exposure to secondhand smoke and functional mannose binding lectin polymorphisms are associated with increased lung cancer risk. *Cancer Epidemiology, Biomarkers & Prevention* 2009; 18(12):3375-83.

¹⁰ Institute of Medicine. [Secondhand Smoke Exposure and Cardiovascular Effects: Making Sense of the Evidence](#). Washington, CD: The National Academies Press, October 2009.

¹¹ CDC, "[Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses -- United States, 2000-2004](#)," *MMWR* 57(45):1226-1228, November 14, 2008. See also CDC fact sheet, "[Tobacco-Related Mortality](#)".

¹² The California EPA 2005 report estimates the number of deaths from heart disease could be as high as 69,600 (minimum of 22,700).

¹³ Li JS et al. Meta-analysis on the association between environmental tobacco smoke (ETS) exposure and the prevalence of lower respiratory tract infection in early childhood. *Pediatric Pulmonology* 1999; 27(1):5-13; see DiFranza et al. citation above. For rest of citations, see Campaign for Tobacco-Free Kids fact sheet, "[Tobacco Harm to Kids](#)", December 14, 2009.

¹⁴ Campaign for Tobacco-Free Kids (CTFK; <http://www.tobaccofreekids.org>), September 21, 2009 (state estimates of deaths from secondhand smoke are derived from the California EPA 2005 report - see above). The range is 590 to 1,650 deaths per year.