



SECONDHAND SMOKE, KIDS AND CARS

“Exposure to secondhand smoke continues in restaurants, bars, casinos, gaming halls, **vehicles**.” – U.S. Surgeon General¹ [emphasis added]

“You can protect yourself and your loved ones by making your home and **car** smoke-free.” – U.S. Surgeon General² [emphasis added]

State/commonwealth laws and key provisions:

Arkansas: No smoking with kids in a child safety seat (under 6 and under 60 pounds) in the vehicle. Enacted 4/10/06; Effective 8/3/06.

California: No smoking with a minor (under 18) in vehicle. Enacted 10/10/07; Effective 1/1/08.

Louisiana: No smoking with kids under 13 in the vehicle. Enacted 7/5/06; Effective 8/15/06.

Maine: No smoking with kids under 16 in the vehicle. Enacted 4/10/08; Effective 9/1/08.

Puerto Rico: No smoking with kids under 13 in the vehicle. Enacted 3/2/06; Effective 3/2/07.

Local laws and key provisions:

Bangor, ME: No smoking with a minor (under 18) present in the vehicle. Enacted 1/8/07; Effective 1/19/07.

Keyport, NJ: No smoking with a minor present (under 17) in the vehicle. Enacted and Effective 4/24/07.

Rockland County, NY: No smoking with a minor (under 18) present in the vehicle. Enacted and Effective 6/15/07.

West Long Branch Borough, NJ: No smoking with a minor (under 18) present in the vehicle. Enacted and Effective 6/7/07.

Recent action by several states and territories to prohibit smoking in privately owned vehicles while children are present has brought significant attention to the issue of the risks to children associated with exposure to secondhand smoke, particularly in vehicles. While the research specific to children, secondhand smoke, and vehicles is limited, there is overwhelming evidence of the harms associated with exposure to secondhand smoke that is specific to children and specific to enclosed environments.

For more information on current legislative activity addressing smoking in vehicles with children present, please visit the Americans for Nonsmokers' Rights webpage on smoke-free cars:

<http://www.no-smoke.org/learnmore.php?id=616>

Harvard School of Public Health Study of Smoking in Cars with Kids³

A 2006 study by researchers at the Harvard School of Public Health found “alarming” levels of secondhand smoke were generated in just five minutes in vehicles under various driving, ventilation, and smoking conditions.

- The average levels of respirable particulate matter (the pollution inhaled from secondhand smoke) in the vehicles was actually higher than that found in similar studies of smoking in bars in several towns in eastern Massachusetts. In addition, the levels of particulate matter found in the vehicles exceeded those levels described by the U.S. Environmental Protection Agency as “unhealthy for sensitive groups” such as children and the elderly.
- The researchers found that the pollution levels detected “highlight the potentially serious threat to children’s health presented by secondhand smoke in private cars under normal driving conditions.”
- In addition to “alarming” increases of respirable particulate matter, the researchers also found a “significant increase” in levels of carbon monoxide. The researchers point out that carbon monoxide

“is a poisonous gas, which may cause coma and death in large amounts, but among infants is known to induce lethargy and loss of alertness even in small quantities.”

Based on their analysis, the researchers concluded that “smoking in cars under typical driver and traffic conditions provides potentially unsafe secondhand smoke exposure.”

Other Studies Addressing Secondhand Smoke Levels in Cars

- A 2008 study examining tobacco smoke pollution in cars found that secondhand smoke reached unhealthy levels even under varying ventilation conditions. Smoking just one cigarette in a vehicle far exceeded fine particle exposure limits set by the Environmental Protection Agency (EPA) and raised secondhand smoke levels several times higher than levels found in smoky bars and restaurants.⁴
- In 2006, researchers presented a study in which they found secondhand smoke in cars under all conditions tested reached unhealthy levels, even with ventilation. Extremely high levels of particulate matter were recorded in cars with tobacco smoke, putting all riders, particularly children, at an increased health risk.⁵
- A study published by *The New Zealand Medical Journal* found that smoking in a car with the window open produced air quality five times worse than even on the poorest air quality days in Auckland. Furthermore, it found that air quality was up to 100 times worse with all car windows closed. The study suggests adopting laws to make cars smoke-free in order to protect children and non-smokers from air pollution resulting from smoking in cars.⁶
- A study published in 2008 examined residual smoke pollution in used cars. The authors found significantly higher levels of nicotine in the air, dust, and surfaces of used cars that had been owned by smokers than in cars previously owned by nonsmokers who prohibited smoking in their vehicle.⁷

Studies Examining Secondhand Exposure among Children

- A study published in 2009 examined the effect of secondhand smoke on infants' health. The researchers found an association between the total number of cigarettes smoked by parents per day and the total number of infantile infections. The authors emphasize that secondhand smoke exposure is a preventable risk factor for infections in infants.⁸
- A 2008 edition of the Center for Disease Control and Prevention's *Morbidity and Mortality Weekly Report* (MMWR) found that smoking declines, largely resulting from smoke-free laws and policies, have sharply reduced secondhand smoke exposure nationwide. However, declines have been smallest among very young children and highest among adults. Part of this is explained by the fact that business, state, and local smoke-free laws primarily reduce adult workplace exposure. The study's results emphasize the need to reduce children's exposure to secondhand smoke.⁹
- A study published in *Ambulatory Pediatrics* measured the degree to which children with asthma living in urban areas are protected from secondhand smoke exposure. The results showed that among households with smokers, less than half (49 percent) maintained smoke free cars. The study concluded that protecting children from secondhand smoke exposure in their environment should be a public health priority.¹⁰
- Researchers conducting a study in rural southwestern Georgia interviewed low income families on the establishment and enforcement of smoking rules in family cars. The researchers found a widespread belief that secondhand smoke was not hazardous as long as the car windows were down. Their results imply promoting policies that encourage smoke-free cars.¹¹
- A Canadian study examined nicotine dependence symptoms in the absence of tobacco use. Researchers found an independent link between secondhand smoke exposure in cars and nicotine dependence symptoms in young never-smokers. The authors suggest that if their findings can be replicated, their research supports policies promoting smoke-free cars.¹²

Public Support for Legislation Prohibiting Smoking in Cars with Children Present

- In late 2008, researchers reviewed fifteen studies dating back to 1988 that addressed public attitudes towards legislation prohibiting smoking in cars with kids. The studies were conducted in North America, the United Kingdom, and Australasia. The researchers' review found high levels of public support for smoke-free car laws, including five studies since 2005 that found support levels at 77 percent or higher among smokers. This suggests that smoke-free car laws are a relatively non-divisive issue.¹³

U.S. Surgeon General Statements on Children and Secondhand Smoke¹⁴

- "Secondhand smoke contains more than 250 chemicals known to be toxic or carcinogenic (cancer-causing), including formaldehyde, benzene, vinyl chloride, arsenic, ammonia, and hydrogen cyanide. Children who are exposed to secondhand smoke are inhaling many of the same cancer-causing substances and poisons as smokers."
- "Because their bodies are developing, infants and young children are especially vulnerable to the poisons in secondhand smoke."
- "Both babies whose mothers smoke while pregnant and babies who are exposed to secondhand smoke after birth are more likely to die from sudden infant death syndrome (SIDS) than babies who are not exposed to cigarette smoke."
- "Babies whose mothers smoke while pregnant or who are exposed to secondhand smoke after birth have weaker lungs than other babies, which increases the risk for many health problems."
- "Secondhand smoke exposure causes acute lower respiratory infections such as bronchitis and pneumonia in infants and young children."
- "Secondhand smoke exposure causes children who already have asthma to experience more frequent and severe attacks."
- "Secondhand smoke exposure causes respiratory symptoms, including cough, phlegm, wheeze, and breathlessness, among school-aged children."
- "Children exposed to secondhand smoke are at increased risk for ear infections and are more likely to need an operation to insert ear tubes for drainage."
- "The Surgeon General has concluded that the only way to fully protect yourself and your loved ones from the dangers of secondhand smoke is through 100% smoke-free environments."
- "If you are a smoker, the single best way to protect your family from secondhand smoke is to quit smoking. In the meantime, you can protect your family by making your home and vehicles smoke-free and only smoking outside."

American Academy of Pediatrics' on Children's Exposure to Tobacco Smoke¹⁵

The American Academy of Pediatrics has made the following conclusions regarding exposure of children to secondhand smoke:

- "Results of epidemiologic studies provide evidence that exposure of children to environmental tobacco smoke is associated with increased rates of lower respiratory illness and increased rates of middle ear effusion, asthma, and sudden infant death syndrome."
- "Exposure during childhood to environmental tobacco smoke may also be associated with development of cancer during adulthood."

In 2007, the American Academy of Pediatrics adopted a resolution encouraging all its member state and local societies and chapters to:

"support and advocate for changes in existing state and local laws and policies that protect children from secondhand smoke exposure by prohibiting smoking in any vehicle while a legal minor (under 18 years of age) is in the vehicle."¹⁶

Campaign for Tobacco-Free Kids, May 20, 2009 / Jessica Kuehne

-
- ¹ U.S. Department of Health and Human Services, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, 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.
- ² The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, U.S. Department of Health and Human Services, Children are Hurt by Secondhand Smoke, <http://www.surgeongeneral.gov/library/secondhandsmoke/factsheets/factsheet2.html>; The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, U.S. Department of Health and Human Services, How to Protect Yourself and Your Loved Ones from Secondhand Smoke - <http://www.surgeongeneral.gov/library/secondhandsmoke/factsheets/factsheet3.html>.
- ³ Rees VW, Connolly GN, "Measuring Air Quality to Protect Children from Secondhand Smoke in Cars," *American Journal of Preventive Medicine*, 2006 Nov; 31(5):363-8.
- ⁴ Sendzik, T, et al., "An experimental investigation of tobacco smoke pollution in cars," *Toronto, ON: Ontario Tobacco Research Unit*, March 2008.
- ⁵ Sendzik T, Fong G, Travers M, Hyland A, "The hazard of tobacco smoke pollution in cars: evidence from an air quality monitoring study," 13th World Conference on Tobacco or Health; 2006 July 12th-15th; Washington DC - <http://www.arts.uwaterloo.ca/~gfong/smokefree/Sendzik-Car-WCTOH-2006.pdf>.
- ⁶ Edwards R, et al., "Highly hazardous air quality associated with smoking in cars: New Zealand pilot study," *The New Zealand Medical Journal*, 2006 Oct, 119(1244), <http://www.nzma.org.nz/journal/119-1244/2294/>.
- ⁷ Matt, GE, et al., "Residual tobacco smoke pollution in used cars for sale: air, dust, and surfaces," *Nicotine and Tobacco Research*, 2008 Sept; 10(9):1467-1475.
- ⁸ Ladomenou F, et al., "Environmental tobacco smoke exposure as a risk factor for infections in infancy," *Acta Paediatrica*, 2009 March [Epub ahead of print].
- ⁹ CDC, "Disparities in Secondhand Smoke Exposure --- United States, 1988--1994 and 1999--2004," *MMWR*, July 11, 2008; 57(27):744-747.
- ¹⁰ Halterman JS, et al., "Do Parents of Urban Children With Persistent Asthma Ban Smoking in Their Homes and Cars?" *Ambulatory Pediatrics*, 2006 Mar-Apr; 6(2):115-9.
- ¹¹ Kegler, MC, et al., "A qualitative study on establishing and enforcing smoking rules in family cars," *Nicotine and Tobacco Research*, 2008 Mar; 10(3):493-7.
- ¹² Bélanger, M, et al., "Nicotine dependence symptoms among never-smokers exposed to secondhand tobacco smoke," *Addictive Behaviors*, 2008 Dec; 33(12):1557-63.
- ¹³ Thomson, G, & Wilson, N, "Attitudes to, and knowledge of, secondhand smoke in New Zealand homes and cars," *New Zealand Medical Journal*, 2005 April; 118(1213).
- ¹⁴ The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, U.S. Department of Health and Human Services, Children are Hurt by Secondhand Smoke, <http://www.surgeongeneral.gov/library/secondhandsmoke/factsheets/factsheet2.html>; The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, U.S. Department of Health and Human Services, How to Protect Yourself and Your Loved Ones from Secondhand Smoke - <http://www.surgeongeneral.gov/library/secondhandsmoke/factsheets/factsheet3.html>.
- ¹⁵ American Academy of Pediatrics, Committee on Environmental Health, "Environmental Tobacco Smoke: A Hazard to Children", *Pediatrics*, Vol. 99, No. 4, April 1997.
- ¹⁶ American Academy of Pediatrics, Resolution on Secondhand Smoke Exposure of Children in Vehicles (Resolution # LR2, (06) – 2006/2007 Annual Leadership Forum), January 21, 2007.