

- Introduction
- The health impact of secondhand smoke
- Secondhand smoke in cars
- Ventilation
- Smoking in cars with children
- Smoking while driving
- UK Legislation
- Public opinion
- International law

Smoking in Cars

www.ash.org.uk

enquiries@ash.org.uk

Telephone: 020 7739 5902

Introduction

This fact sheet reviews the health impact of being exposed to secondhand smoke in cars and policy options to tackle the problem. The health risks of exposure to secondhand smoke (SHS) are well established¹ and in the UK it has been against the law to smoke in vehicles used for work since July 2007. However, there are no restrictions on smoking in private vehicles that are not used for work purposes even though researchers have found that secondhand smoke concentrations in vehicles are often greater than in any other micro-environment.² Following an inquiry into smoking in private vehicles, a group of UK parliamentarians has made a number of policy recommendations. Meanwhile, there is growing public support for a ban on smoking in cars altogether.

Smoking in cars causes harm in several ways. Firstly, there is the harm to the smoker from inhaling tobacco smoke. Secondly, there is harm to other occupants of the vehicle from inhaling secondhand smoke. Thirdly, there is the potential harm that children will perceive smoking to be normal adult behaviour. Fourthly, there is potential harm to the driver, passengers and other road users from the driver's temporary loss of control of the vehicle when lighting or extinguishing a cigarette.

The health impact of secondhand smoke

Breathing in other people's tobacco smoke (also known as secondhand, passive or involuntary smoking) is known to cause a range of disorders from minor eye and throat irritation through to heart disease and lung cancer.^{1 3}

Children are particularly vulnerable to the effects of secondhand smoke and exposure increases the risk of cot death, glue ear, asthma and other respiratory diseases.⁴ A review by the British Medical Association's Board of Science concluded that there is no safe level of exposure to tobacco smoke for children and adverse effects can be found at low levels of exposure.⁵

For further information:

[ASH Fact Sheet: Secondhand Smoke.](#)

Secondhand smoke in cars

Levels of secondhand smoke in cars can be extremely high because of the restricted area in which the smoke is circulated and can reach levels far higher than those experienced in buildings.⁶ Several studies have measured tobacco smoke pollutants in vehicles and found high levels even

in moderately ventilated conditions.^{7 8 9} Canadian research found that a single cigarette smoked in a stationary car with its windows closed can produce a level of secondhand smoke 11 times higher than the level found in an average bar where smoking is permitted. In a moving car, the level of secondhand smoke produced by a single cigarette can be as high as 7 times the average level of a smoky bar.⁷ The researchers noted that in the condition with the least airflow (motionless car, window closed) levels of fine respirable particles (known as PM2.5) were over 100 times greater than the US Environmental Protection Agency's 24-hour standard for fine particle exposure and 15 times the EPA's "hazardous" rating. Furthermore, the authors note that the EPA ratings, which are created for outdoor air pollution, may under-estimate the actual hazard since tobacco smoke, which contains many carcinogens, is likely to be more hazardous per unit weight than outdoor air pollution for which the ratings were created.¹⁰

Ventilation Although opening a window or using air-conditioning reduces the level of secondhand smoke, exposure for occupants in a vehicle remains significant. A US study examined 100 different air change rate measurements in four vehicles. Results showed that under all ventilation circumstances, even with windows open and the fan on high, SHS concentrations in a vehicle were greater than in any other small enclosed place.¹¹ A Canadian study found that when the driver's window is open and the cigarette is held at the opening when the driver is not puffing, the level of secondhand smoke produced by a single cigarette is about two-thirds of the level of an average smoky bar.⁷

Smoking in cars with children Given that children have significantly higher metabolic and respiratory rates than adults, exposure to secondhand smoke in vehicles is potentially a very serious problem.

An Australian study found that children exposed to secondhand smoke in their parents' car had double the risk of persistent wheeze compared to children who had not been exposed.¹² Similarly, a study in Ireland found significantly higher levels of wheezing and non-significantly increased risks of bronchitis and asthma in children exposed to secondhand smoke in cars compared to those not exposed.¹³ In Canada, a study examining exposure to SHS in both the home and in cars found that, when considered separately, both home and car exposure were significantly associated with chronic bronchitis in children and adolescents aged 12-19 years.¹⁴

For further information on the health impacts of secondhand smoke see: [ASH Research Report: Secondhand smoke - the impact on children](#)

In addition to the physical risks faced by children exposed to secondhand smoke in cars, there are wider social issues to consider. Observational studies examining the prevalence of smoking in cars by socioeconomic area suggests that children in lower socio-economic groups are likely to receive more frequent exposure than other children, compounding the already unacceptable health inequalities faced by these children.¹⁵

Some experts argue that it is ethically justifiable to ban smoking in cars carrying children because children are not fully autonomous and are therefore unable to act to protect their own interests.¹⁶ Furthermore, a study in New Zealand found an association between smoking uptake and reported exposure to SHS in cars.¹⁷

Smoking while driving

A review of studies on smoking and car safety found that smokers have an increased risk of being involved in motor crashes and “actual distraction caused by the act of smoking is a likely factor.”¹⁸ The review concludes that “it is clear that smoking while driving is a hazard.”¹⁹

A Taiwanese study examining the risk of injury for drivers who smoke found that smoking almost doubled car death risk. Smoking was associated with at least one in five male injury deaths.²⁰

UK Legislation relating to cars and smoking

The Highway Code 2007 advises against smoking and driving because it can cause a distraction.²¹

In addition, the Health Act 2006 stipulates that a vehicle must be smokefree if it is used “in the course of paid or voluntary work by more than one person” (even if those persons use the vehicle at different times, or only intermittently).²² Furthermore, vehicles used for work purposes must display a “No Smoking” sign at all times.²³

For further information:

[The Highway Code](#)

[The Smokefree England website](#)

[The Smoke-free \(Exemptions and Vehicles\) Regulations 2007](#)

Parliamentary Inquiry

Following an inquiry into smoking in private vehicles, the All Party Parliamentary Group on Smoking and Health concluded that there was a need for more detailed consideration of the policy options to tackle the harm caused by smoking in private vehicles. The politicians recommended that the Government conduct a public consultation and a systematic review of the evidence including the relevant legal and ethical issues.²⁴

Public opinion on smoking in cars

Since the introduction of smokefree legislation in 2007 there has been growing public support for a ban on smoking in cars, especially when children are present.

- A YouGov poll in 2011 found that 78% of adults in Great Britain agreed that smoking should be banned in cars carrying children younger than 18 years of age, while 44% agreed that smoking should be banned in all cars.²⁵
- A survey conducted by GEM Motoring Assist (formerly The Guild of Experienced Motorists) found a considerable majority (72%) in favour of a complete ban on smoking while driving in the UK.²⁶
- Polls publicised by Road Safety GB and Channel 4 in 2007 showed that 70% of respondents supported a complete ban on smoking in cars in the UK.^{27 28}
- An international review of surveys from North America, the UK and Australasia found a majority (76%) of the public supported the introduction of smokefree car laws. In four of the jurisdictions examined (Victoria, California, New Zealand, and South Australia) levels of public support were in excess of 90%.²⁹

International Law

Laws banning smoking in cars carrying children have been introduced in a number of jurisdictions in Canada, the United States and Australia, with others expected to introduce similar laws in the near future. South Africa recently introduced a country-wide ban on smoking in cars with children while Mauritius has banned smoking in all cars carrying any passenger.

In addition, a number of countries ban smoking in vehicles used for work purposes, including Chile and Germany, while in Kuwait it is against the law to smoke while driving in any vehicle.^{29 24}

References

- 1 Secondhand smoke: Review of evidence since 1998. Scientific Committee on Tobacco and Health (SCOTH). Department of Health, 2004. [\[View document\]](#)
- 2 Ontario Medical Association. Backgrounder - Tobacco Smoke Concentrations in Cars. OMA Website. Accessed 31 May 2009. [\[View website item\]](#)
- 3 Tobacco smoke and involuntary smoking. IARC Monographs on the evaluation of carcinogenic risks to humans. Vol 83. Lyon, France, 2004. [View summary](#)
- 4 [Passive smoking and children](#). A report of the Tobacco Advisory Group of the Royal College of Physicians. London, RCP, 2010.
- 5 BMA Board of Science and Education. [Breaking the cycle of children's exposure to tobacco smoke](#). London, BMA, 2007
- 6 Ott W, Langan L, Switzer P. A time series model for cigarette smoking activity patterns: model validation for carbon monoxide and respirable particles in a chamber and an automobile. *J Expo Anal Environ Epidemiology*. 1992;2 (Suppl 2):175-200.
- 7 Sendzik T, Fong GT, Travers M & Hyland A. An experimental investigation of tobacco smoke pollution in cars. *Nicotine & Tobacco Research* 2009; 11 (6): 627-634
- 8 Jones M, Navas-Acine A Yuan J & Breyse P. Secondhand tobacco smoke concentrations in motor vehicles: a pilot study. *Tob Control* 2009; 18: 399-404
- 9 Liu S & Zhu Y. A case study of exposure to ultrafine particles from secondhand tobacco smoke in an automobile. *Indoor Air* 2010; doi: 10.1111/j.1600-0668.2010.00665.x
- 10 Fong GT, & Hitchman SC. Levels of exposure to smoke in cars and the Canadian Experience. [APPG Inquiry into smoking in private vehicles](#). 2011
- 11 Ott W, Klepeis N, Switzer P. Air change rates of motor vehicles and in-vehicle pollutant concentrations from secondhand smoke. *Journal of Exposure Science and Environmental Epidemiology* 2007; 18: 312-325. [\[View document\]](#)
- 12 Sly PD, Devereill M, Merci M et al Letter to the editor: Exposure to environmental tobacco smoke in cars increases the risk of persistent wheeze in adolescents. *Medical Journal of Australia*. 2007; 186 (6): 322 [\[View document\]](#)
- 13 Kabir, Z et al. Second-hand smoke exposure in cars and respiratory health effects in children. *Eur Resp J*. 2009; 34: 629-633
- 14 Evans J & Chen Y. The association between home and vehicle environmental tobacco smoke (ETS) and chronic bronchitis in a Canadian population: The Canadian Community Health Survey, 2005. *Inhalation Toxicology* 2009; 21: 244-249
- 15 Martin J, George R, Andrews K, et al. Observed smoking in cars: A method and differences by socioeconomic status. *Tobacco Control*. 2006;15(5):409-411.
- 16 Jarvie, J, Malone R. Children's secondhand smoke exposure in private homes and cars: An ethical analysis. *American Journal of Public Health*. 2008; 98 (12): 2140-2145. [\[View document\]](#)
- 17 Glover M et al. Driving kids to smoke? Children's reported exposure to smoke in cars and early smoking initiation. *Addict Behav* 2011 doi: 10.1016/j.addbeh.2011.06.003
- 18 Jones, A. Comment on ACT Consultation Paper: Exploring options for managing smoking in motor vehicles when children are present. *ASH Australia Response Paper*. 2009. [\[View document\]](#)
- 19 Young K, Regan M, Hammer M. Driver distraction: a review of the literature. Monash University Accident Research Centre. 2003. [\[View document\]](#)
- 20 Wen CP, Tsai SP, Cheng TY et al Excess injury mortality among smokers: a neglected tobacco hazard. *Tobacco Control*. 2005; 14 (Supplement 1): i28-i32. [\[View document\]](#)
- 21 See [the Highway Code S148](#)
- 22 See: [The Smoke-free \(Exemptions and Vehicles\) Regulations 2007](#)
- 23 See [The Smoke-free \(Signs\) Regulations 2007](#)
- 24 [APPG Inquiry into smoking in private vehicles](#) All Party Parliamentary Group on Smoking and Health. 2011
- 25 YouGov survey. Fieldwork was conducted between 3-15 March 2011. Total sample size was 12,296. The survey was carried out online. The figures have been weighted and are representative of all GB adults (aged 18+).
- 26 GEM Motoring Assist Poll: [View news release](#)
- 27 Road Safety GB. Road Safety News 2 July 2007 http://www.larsoa.org.uk/news.php?article_id=142
- 28 Call to ban smoking at the wheel. Channel 4 news 31 May 2007 [View news release](#)
- 29 Thomson G, Wilson N. Public attitudes to laws for smokefree private vehicles: a brief review. *Tobacco Control* 2009; 18: 256-261