

Smoking in cars

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.

The Children and Families Act 2014 gave the Secretary of State for Health the power to legislate against smoking in private vehicles when children are present. Regulations were approved in February 2015 and the law entered into force on 1st October 2015.²

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.

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.³

Several studies have measured tobacco smoke pollutants in vehicles and found high levels even in moderately ventilated conditions.^{4,5,6} 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.⁴ 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.⁷

These findings were confirmed in a real-life study of drivers who smoked. The study found that PM2.5 concentrations where smoking took place greatly exceeded international indoor air quality guidance values.⁸

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.⁹ 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.⁴

Health Impact of smoking in cars

Evidence of the harm from exposure to secondhand smoke is well established and because of its carcinogenic content, there is no safe level of exposure.¹⁰ Breathing in other people's tobacco smoke (also known as secondhand, passive or involuntary smoking) is known to cause a range of disorders. These include immediate effects such as eye and throat irritation, headache, cough, dizziness and nausea. Adults with asthma can experience a decline in lung function while new cases of asthma may be induced in children.^{1,10}

For adults already suffering from CVD, acute exposure to SHS can trigger heart attacks while cessation of exposure reduces the risk. In the year following implementation of the public places smokefree law in England the number of admissions to hospital for heart attacks fell by 1200 (a reduction of 2.4%).¹¹ Other research has shown that there is a strong, dose dependent association between passive smoking and risk of stroke, even at low levels of exposure.¹²

Repeated exposure to secondhand smoke increases the risk of lung cancer, chronic obstructive lung disease, and cardiovascular disease (CVD). The increase in risk of coronary heart disease is as great for people who are heavily exposed to SHS as it is for people who are light smokers.¹³

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.¹⁴ 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.¹⁵

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.¹⁶ 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.¹⁷ 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.¹⁸ For further information see ASH Fact Sheet: [Secondhand Smoke](#).

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.¹⁹ Furthermore, children who are regularly exposed to smoke in cars are up to six times more likely to smoke themselves.²⁰

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.²¹ Furthermore, a study in New Zealand found an association between smoking uptake

and reported exposure to SHS in cars.²²

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.”²³ The review concludes that “it is clear that smoking while driving is a hazard.”²⁴ 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.²⁵

Parliamentary Inquiry

In 2011, the All Party Parliamentary Group on Smoking and Health conducted an inquiry into 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.²⁶

UK legislation relating to cars and smoking

As part of the Health Act 2006 smoking in vehicles for work purposes was prohibited. The regulations require 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).²⁷ Furthermore, vehicles used for work purposes must display a “No Smoking” sign at all times.²⁸ In addition, the Highway Code 2007 advises against smoking and driving because it can cause a distraction.²⁹

The Health Act 2006 was amended by the Children and Families Act 2014 granting the Government power to introduce regulations to make private vehicles smokefree when carrying children under the age of 18.³⁰ The regulations took effect on 1 October 2015.³¹ The law applies to England and Wales. A similar law has been passed in Scotland³² which is due to be implemented in 2016 while the Northern Ireland Assembly has also voted in favour of ban on smoking in cars when children are present and this is expected to take effect in 2017.³³

Enforcement & compliance

The police and local authorities have the power to enforce the law. A fixed penalty of £50 may be issued to any person who smokes in a private vehicle with someone under the age of 18 present or to the driver for failing to prevent someone smoking if a child is present.³¹

Since implementation of the law in England and Wales there have been no recorded prosecutions to date but it was expected that police would issue warnings initially rather than fixed penalties.³⁴ It is also possible that overall compliance with the law is already high, given the high level of public support for the measure – see below. By comparison, efforts to require the use of seatbelts in cars were most successful when legislation was introduced. Seatbelt wearing increased in the UK from 25% to 91% after the law was introduced.³⁵

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 2015 found that 85% of adults in England agreed that smoking should be banned in cars carrying children younger than 18 years of age. Among smokers, 74% support the measure including 50% who strongly support it.³⁶
- The 2015 YouGov poll also revealed that 59% of adults in England agreed that smoking should be banned in all cars.
- A similar poll conducted in 2013 found that even among smokers, smoking was rare

with only one in seven (15%) smokers with children reporting that smoking was allowed in the vehicle at any time.³⁷

- 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%.³⁸

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 and Bahrain have bans on smoking in cars with children present while Mauritius has banned smoking in all cars carrying any passenger.^{39 40}

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.³⁸

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