

Smoking Prohibition (Children in Motor Vehicles) (Scotland) Bill

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1. Do you support the Bill? Please provide reasons for your position.

Yes. The University of Aberdeen study¹ on second-hand smoke (SHS) concentrations in cars demonstrated that fine particulate matter (PM_{2.5}) quickly reaches levels that are hazardous to health and above those found outdoors in some of the most polluted cities in the world such as Beijing and Delhi. It is worth noting that children exposed to SHS in cars experience similar PM_{2.5} peak concentrations to the eye-watering smoke levels measured inside wood, dung or charcoal burning homes in rural areas of Malawi. If children in Scotland were being exposed to these PM_{2.5} concentrations from outdoor air pollution there would be a national clamour to take steps to improve our air quality. Epidemiological evidence indicates that inhaling these concentrations of PM_{2.5} leads to both acute and chronic respiratory and cardiovascular effects².

Arguments against the need for legislation tend to centre around: (a) that opening windows or using ventilation can reduce SHS exposure; and (b) that smokers do not tend to smoke with children in cars and thus this measure is unnecessary. The results from SHS measurements made in cars suggest that ventilation is not a sufficient measure to remove all SHS during smoking¹. Observational work from several roadside sites across Scotland reported in a recent PhD thesis³ from the University of Aberdeen suggested that a measurable number of car journeys involve an adult smoking while carrying one or more child passengers.

The Scottish Government has set an important target, the first in the world, to reduce the number of children exposed to SHS at home by 50% by 2020. While this legislation deals specifically with cars, the measure is likely to assist the process of increasing awareness of the health effects of exposure to SHS within both car and home settings. The legislation and education campaign around its introduction are likely to provoke discussion and negotiation between smokers and non-smokers on the issue of children's exposure to SHS at home.

2. Do you think the Bill (if enacted) would achieve its aim of protecting children from the effects of second-hand smoke and their health? Please provide an explanation for your answer.

Yes, though it is important to understand that the fraction of the total inhaled dose received during car journeys - for a child who lives with a parent who smokes both at home and in the car - is likely to be small. The generally short time spent in the car coupled with the high air exchange in a moving vehicle mean that the dose received by a typical child in a car will be perhaps 2-10% of the dose they will receive if their smoking parent also smokes at home. For those children who live in a smoke-free home however, the dose reduction from also having a smoke-free car will be

much greater and may approach 100% depending on where they spend the remainder of their time.

As discussed in the response to Q1 there is the possibility that one consequence of the legislation may be increased awareness and negotiation of smoke-free rules between smokers, non-smokers and children. Having a smoke-free car may be a useful stepping stone on the journey to having a smoke-free home, and there is evidence that smokers who achieve a smoke-free home are much more likely to successfully quit smoking altogether⁴.

3. Is there anything in the Bill you would change? If yes, please provide more details.

No. The Bill is well drafted and is a proportionate response to the health risks that arise from children being exposed to SHS in cars.

4. Who do you think should have responsibility for enforcing the proposed legislation and why?

Police Scotland currently enforce all other regulations relating to moving vehicles including activity such as the use of mobile phones. It would seem entirely appropriate that they also enforce the proposed legislation.

5. What type of vehicles do you think should be exempt from the legislation and why?

From a scientific or exposure point of view it is difficult to see why any enclosed space within any vehicle would be exempt. While there is some argument that concentrations of SHS in convertible or open top cars would be lower there are two arguments that would favour including these in the legislation. The first is that the child passenger may be within the near-field of the cigarette (i.e. within 1 metre) and in these ranges the amount of air exchange or ventilation will have limited impact on concentration reduction. The second argument is one of simplicity- one of the major advantages of the 2006 smoke-free public spaces legislation was the simplicity of the legislation with very few exemptions. This removed confusion and was likely to have played an important role in ensuring high levels of compliance.

6. What is your view on the Bill's provision for a defence that the person smoking could not have reasonably know that the other occupants of the vehicle were under 18?

Given the known health effects of SHS exposure it would be prudent and considerate for everyone to avoid smoking within the confines of any car. Ignorance of the age of others in the car should not be a defence. My understanding is that this is not a defence for a driver who has failed to ensure children in his/her car wear age-appropriate child restraints.

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1. Semple S, Apsley A, Galea KS, et al. Secondhand smoke in cars: assessing children's potential exposure during typical journey conditions. *Tob Control*. 2012;21:578-83.
2. Pope CA III, Burnett RT, Thun MJ, et al. Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution. *JAMA* 2002;287:1132–1141.
3. Andrew Apsley (2013). Second-hand tobacco smoke exposure in different micro-environments. University of Aberdeen. PhD thesis.
4. Vijayaraghavan M, Messer K, White MW, et al. 2013. The Effectiveness of Cigarette Price and Smoke-Free Homes on Low-Income Smokers in the United States. *Am J Public Health*.103:2276–2283.