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The impact of smokefree legislation (‘the smoking ban’): evidence from research



About this research

Tobacco is the biggest cause of death and disease in England. In July 2007 legislation came into effect which required enclosed public spaces, including workplaces, to go smokefree. Internationally important research from members of the Tobacco Control Research Group at the University of Bath (part of the UK Centre for Tobacco Control Studies, UK CTCS) has examined the effects of the smokefree legislation on exposure to, and knowledge about, secondhand smoke.

The research shows that legislation has had a significant effect on decreasing adults' exposure to secondhand smoke, with accompanying health benefits, and that, while smoking was not displaced from public places into the home, more still needs to be done to protect children most at risk. Mass media campaigns have an important role to play in strengthening public knowledge about the risks of secondhand smoke.

The research found that:

- After smokefree legislation was introduced in England, there was a significant drop in non-smoking adults' exposure to secondhand smoke.
- Hospital admissions for heart attacks dropped significantly, with 1,200 fewer admissions in the first year following legislation (after controlling for other factors), saving the NHS £8.4 million.
- Emergency hospital admissions for asthma among adults dropped significantly, with 1,900 fewer admissions in each of the first three years following legislation.
- Smoking was not displaced from public places into the home. The number of children living in smokefree homes increased during the build-up to legislation, and children's exposure to secondhand smoke declined; possibly reflecting the impact of media campaigns at the time.
- However, a significant number of children are still at risk. Major predictors of risk include whether parents or carers smoke, and whether a child's home is smokefree: these are modifiable and effective action can therefore be taken to decrease children's risk.
- Smokers who know more about the effects of secondhand smoke are more likely to take measures to protect children from exposure (for example by not smoking in the home or in the same room as children). Public knowledge about illnesses associated with exposure to secondhand smoke was greatest during the lead up to legislation (2003-2006). Education and mass media campaigns have an important role here.

Research findings in context

Smokefree legislation applying to almost all enclosed public spaces including workplaces, pubs and clubs, was introduced in England on 1st July 2007. The government's aim was to reduce exposure to secondhand smoke, and cut the incidence of associated health problems including heart attacks and asthma. Before the legislation took effect though, concerns were raised that smokers who could no longer smoke in public places may smoke more in the home, and that children who lived in these homes would be exposed to greater levels of secondhand smoke as a result of the legislation.

Research from the University of Bath, used by the Department of Health to evaluate the effects of the legislation, has provided evidence to ensure it was not overturned despite on-going efforts by the tobacco industry and others; and has directly informed the current government's tobacco control policy. Furthermore, the post-legislation reduction in heart attacks, found by the Group, led to significant financial saving for the NHS, something that Primary Care Trusts were able to cite to defend their resources for tobacco control interventions. Additionally, due to its methodological rigour, the paper was referred to in the Medical Research Council's guidance report evaluating population health interventions. This research has been cited in international academic publications, has provided evidence for other countries considering smokefree laws, and has contributed to the debate on how non-communicable diseases should be tackled globally.

Levels of cotinine (a biomarker of exposure to tobacco smoke) in non-smoking adults fell significantly (27%) following legislation. This trend did not extend to some population sectors: there was no significant reduction in exposure for those in lower socioeconomic groups or those living in a home where smoking occurs inside on most days, although there was also no increase.

Among adults, there was a statistically significant reduction in the number of emergency hospital admissions for heart attacks following the introduction of legislation, equivalent to 1,200 fewer admissions in the first year. Emergency admissions for asthma in adults also dropped, with the equivalent of 1,900 fewer admissions each year in the first three years following legislation.

Children's exposure to secondhand smoke dropped by almost 60% between 1996 and 2006, with the greatest declines immediately prior to the introduction

of legislation rather than following it. Concerns that children's exposure would increase due to the displacement of smoking from public places to the home were not borne out. Major predictors of children's exposure to secondhand smoke were whether smoking is allowed in the home, and whether a child's parents or carers smoke. This is an important finding because both of these factors are modifiable. Indeed, the increase in the number of children living in smokefree homes suggests that legislation may have reinforced the growing social feeling against smoking in enclosed spaces.

Survey data showed that 65% of non-smokers but only 40% of smokers had good knowledge of illnesses associated with secondhand smoke exposure, and that smokers with greater knowledge of these are more likely to live in smokefree homes and less likely to smoke in a room where there are children or non-smoking adults. Public knowledge about the health risks of secondhand smoke exposure was at its highest level in 2003-2006, that is, during the run-up to the 2007 legislation. This suggests that mass media campaigns such as those which took place during that period are an effective means of increasing public knowledge and a useful tool in modifying smoking behaviour, but that such campaigns need to be ongoing or recurring if they are to maintain their impact.

Implications for policy

While these findings are encouraging, evidence indicates that even low levels of secondhand smoke exposure are damaging. Further action is therefore needed to reduce exposure to secondhand smoke.

- Living in a smokefree home is key to reducing children's morbidity from secondhand smoke exposure. This may be accomplished by:
 - Reducing smoking rates amongst parents and carers; and
 - Encouraging both smoking and non-smoking parents not to allow smoking inside the home.
- Smokefree home initiatives at the local level therefore need to be evaluated, and the range of effective interventions identified.
- Future interventions need to take account of the important role played by public knowledge. Evidence suggests that mass media campaigns make a difference to public understanding. This research supports the recent call for campaigns to:

- Highlight the dangers of exposure to secondhand smoke;
 - Inform about the inadequacy of some 'protective' measures; and
 - Inform about how smokefree homes can be achieved.
- Finally the research confirms the value of collecting smoking-related data in large national surveys.



Methodology

Secondhand smoke (SHS) exposure was explored using Health Survey for England data which collects samples of saliva to measure cotinine, a breakdown product of nicotine and therefore an indicator of tobacco smoke exposure. Population health was investigated using Hospital Episode Statistics data, which provides details on all patients who received care provided by the National Health Service in England. Knowledge of SHS and SHS-protective behaviours was examined using Opinions Survey (formerly the Omnibus Survey) data.

The research is characterised by a methodological rigour in a number of areas:

- Few previous studies have measured exposure to secondhand smoke using a biomarker (cotinine).
- This is the first research to take account of existing trends and long-term declines in exposure, and its findings may thereby be considered more robust than those from earlier or more limited studies.
- At the time of publication (2010), the study on hospital admissions for heart attacks was based on data from the largest study population to date, and used robust statistical methods to control for confounding factors.
- The study on hospital admissions for asthma was also based on data from the largest population study to date, and used robust statistical methods to control for confounding factors.

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More on this research:

The Tobacco Control Research Group is based at the University of Bath (Department for Health).

For a full list of the publications of this group, please visit:
www.bath.ac.uk/health/research/tobacco-control



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