

Topic: Preventing secondhand smoke exposure

Title: Effect of smoke-free legislation on perinatal and child health: a systematic review and meta-analysis.

Conclusion: Smoke-free legislation is associated with substantial reductions in preterm births and hospital attendance for asthma.

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Abstract: **BACKGROUND:** Smoke-free legislation has the potential to reduce the substantive disease burden associated with second-hand smoke exposure, particularly in children. We investigated the effect of smoke-free legislation on perinatal and child health. **METHODS:** We searched 14 online databases from January, 1975 to May, 2013, with no language restrictions, for published studies, and the WHO International Clinical Trials Registry Platform for unpublished studies. Citations and reference lists of articles of interest were screened and an international expert panel was contacted to identify additional studies. We included studies undertaken with designs approved by the Cochrane Effective Practice and Organisation of Care that reported associations between smoking bans in workplaces, public places, or both, and one or more predefined early-life health indicator. The primary outcomes were preterm birth, low birthweight, and hospital attendances for asthma. Effect estimates were pooled with random-effects meta-analysis. **FINDINGS:** We identified 11 eligible studies (published 2008-13), involving more than 2·5 million births and 247 168 asthma exacerbations. All studies used interrupted time-series designs. Five North American studies described local bans and six European studies described national bans. Risk of bias was high for one study, moderate for six studies, and low for four studies. Smoke-free legislation was associated with reductions in preterm birth (four studies, 1 366 862 individuals; -10·4% [95% CI -18·8 to -2·0]; p=0·016) and hospital attendances for asthma (three studies, 225 753 events: -10·1% [95% CI -15·2 to -5·0]; p=0·0001). No significant effect on low birthweight was identified (six studies, >1·9 million individuals: -1·7% [95% CI -5·1 to 1·6]; p=0·31). **INTERPRETATION:** Smoke-free legislation is associated with substantial reductions in preterm births and hospital attendance for asthma. Together with the health benefits in adults, this study provides strong support for WHO recommendations to create smoke-free environments.