

Increasing prevalence of smoke-free homes and decreasing rates of sudden infant death syndrome in the United States: an ecological association study

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Abstract

Purpose This study utilises an ecological design to analyse the relation between concurrent temporal trends in sudden infant death syndrome (SIDS) rates and prevalence of smoke-free households with infants in the USA, controlling for an important risk factor, infant supine sleep position.

Methods Annual state-specific SIDS cases were computed using period linked birth/infant death files; the prevalence of 100% smoke-free homes with infants using Tobacco Use Supplement to the Current Population Survey data, and percentage of infants in supine sleep position from National Infant Sleep Position data, for years 1995–2006. Incidence rate ratios relating trends in SIDS cases and risk factors were determined using time-series negative binomial regression. Population-level health effects were assessed with secondhand smoke (SHS) exposure population attributable fractions and excess attributable SIDS deaths.

Results For every 1% absolute increase in the prevalence of smoke-free homes with infants, SIDS rates decreased 0.4% from 1995 to 2006, controlling for supine sleep position. Nationally, it is possible that 20% of the 1326 total SIDS cases were attributable to childhood SHS exposure at home in 2006 with potentially 534 fewer infant deaths attributable to SHS exposure in 2006 than in 1995, owing to an increasing prevalence of 100% smoke-free homes with infants. Cumulatively, 4402 (lower 95% CI) to 6406 (upper 95% CI) excess SIDS cases may have been attributable to SHS exposure in the home over the 12-year study period.

Conclusions The uptake of voluntary restrictions on smoking inside the home may present a public health benefit for infants in their first year of life. In light of inherent ecological study design limitations, these results warrant further individual level research linking postnatal SHS exposure and SIDS.