Public Health Interventions: Smoking

**OP53 DEFINING THE LONG-TERM TREND IN A PUBLIC HEALTH INTERVENTION STUDY: A CAUTIONARY TALE**

doi:10.1136/jech-2012-201753.053

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**Background** Numerous studies have reported on the impact of comprehensive smoke-free laws on population health. Many early studies have ignored the potential effect of the long-term trend of the health outcome, and when included, subsequent studies have focused on either linear or non-linear trends. However, the choice of appropriate trend is not always straightforward. We illustrate this by investigating the short-term impact of smoke-free legislation in England, introduced on 1st July 2007, on myocardial infarction mortality.

**Methods** We investigate the impact of the legislation using weekly counts of all cases aged 18 years or older residing in England with a primary cause of death of a myocardial infarction (ICD–10 I21) between July 2002 to December 2010 (providing 5 years pre-legislative and 3 years and 6 months post-legislative data). We compare a number of models based on an interrupted time series design with a quasi-Poisson generalised additive model that adjusted for seasonality and region-specific, non-linear, long-term trends.

**Results** After adjusting for the long-term trend in admissions, we observed a 4.9% (95% CI: 0.6, 9.0) reduction in admissions for asthma immediately after introduction of smokefree legislation in the population as a whole. This implies that almost 1900 emergency admissions for asthma were prevented during the first year of the legislation. The reduction in admissions did not vary significantly across regions.

**Conclusion** Our finding, based on the largest study to date, adds to the expanding body of evidence that smokefree legislation is associated with positive health outcomes. Further research evaluating the impact of legislation on asthma admissions in other jurisdictions is needed in order to support these findings.

**OP55 SOCIOECONOMIC INEQUALITIES IN CHILDHOOD EXPOSURE TO SECONDHAND SMOKE BEFORE AND AFTER SMOKE-FREE LEGISLATION IN THREE UK COUNTRIES**

doi:10.1136/jech-2012-201753.055

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**Background** Secondhand smoke (SHS) exposure is higher among children from lower socioeconomic status (SES) families, contributing to the intergenerational reproduction of health inequalities. Legislation prohibiting smoking in enclosed public places was introduced in all UK countries between 2006 and 2007. Although opponents argued that it would displace smoking into the home, legislation has been associated with reduced childhood SHS exposure and increased prevalence of smoke-free homes. In some UK countries however, trends towards widening inequality in childhood SHS exposure have been reported following legislation. This paper combines datasets from 3 UK countries to examine socioeconomic patterning in childhood SHS exposure and smoking restrictions in homes and cars pre- and post-legislation.

**Methods** We conducted a repeat cross-sectional survey of 10,867 schoolchildren in 504 primary schools in Scotland, Wales and Northern Ireland. Children provided saliva for cotinine assay, completing questionnaires before and 12-months after legislation, including the Family Affluence Scale (a measure of socioeconomic status), and reports of smoking restrictions in homes and cars. Multinomial regression analyses assessed differences between survey years in SHS exposure and private smoking restrictions, with interaction terms to assess SES patterning in changes.

**Results** SHS exposure was highest, and private smoking restrictions least frequent, among lower SES children pre- and
Background Smoking during pregnancy is recognized as the most important preventable risk factor. Maternal smoking accounts for 20–30% of low birth weight infants (<2,500g), the most common adverse outcome in pregnancy. The objective of this study was to explore the effects of maternal smoking habits: stopping smoking in the first and second trimesters, continuing to smoke, number of cigarettes smoked and socio-demographic factors on infant birth weight.

Methods The study was a longitudinal cohort study of 1,000 pregnant smokers attending public hospital clinics in a disadvantaged catchment area at first pre-natal visit (V1), and assessed at 28–32 weeks (V2) and at one week after birth (V3) using an interviewer-administered questionnaire. The primary outcome variables were: change in smoking status based on self-reported response and urinary cotinine measurement for those who had quit. ANOVA was carried out to test for differences in mean birth weight. A multiple regression analysis with birth weight as the dependent variable was carried out on demographic and smoking characteristics and derived from England and Scotland to explore the associations between diabetes and risk of all-cause and cause-specific mortality, and examine the extent to which any increase was attributable to raised BMI.

Results Within this sample of 166,600 participants (5,131 with diabetes) there were 19,483 deaths (1,060 among those with diabetes, 18,423 without diabetes). All-cause mortality was greater among those with diabetes when adjusted for age, sex and smoking status (OR 1.52, 95% CI 1.41–1.65). Cause-specific mortality among those with diabetes was raised for CVD (model 2 OR 1.73, 1.55–1.93), cancer (1.24, 1.08–1.45) and ‘Other’ (1.77, 1.54–2.04) with a non-significant increase for respiratory diseases (1.21, CI 0.99–1.47). Additional adjustment for BMI had a minimal impact on the excess mortality found among those with diabetes: CVD (OR 1.69, 1.49–1.93), cancer (1.24, 1.05–1.45), ‘Other’ causes (1.75, 1.49–2.07), and respiratory diseases (1.16, 0.92–1.47). Survival was also lower among those with diabetes compared with those without the disease at baseline.

Conclusion Diabetes is associated with an excess of all-cause and cause-specific mortality from CVD, cancer, and ‘Other’ causes but probably not respiratory diseases. Increased BMI does not appear to be a mediating factor within the association between diabetes and cause-specific mortality.

Post-legislation in all countries. Proportions of samples containing <0.1ng/ml (i.e. undetectable) cotinine increased significantly (RR=1.63, 95%CI=1.45 to 1.83), from 31.0% to 41.0%. Although across the SES spectrum, there was no evidence of displacement of smoking into the home, socioeconomic inequality in the likelihood of samples containing detectable levels of cotinine increased (RR=1.10, 95%CI=1.05 to 1.16). Among children from the poorest and most affluent families respectively, 96.9% and 38.2% of post-legislation samples contained detectable cotinine. Socioeconomic gradients at higher exposure levels remained unchanged. Among children from the poorest families; in 8 samples contained greater cotinine concentrations than Scottish bar worker’s samples prior to legislation (5ng/ml). Smoking restrictions in homes and cars increased. However, little more than half (55.1%) of children, and only 19.3% of children of smokers, lived in smoke-free homes following legislation. Significant socioeconomic patterning remained, with 26.3% and 72.0% of children from the poorest and most affluent families respectively living in a smoke-free home.

Conclusion Urgent action is needed to reduce inequalities in SHS exposure. Such action should include emphasis on reducing smoking in cars and homes.

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Population Based Studies: Midlife

OP57 ALL-CAUSE AND CAUSE-SPECIFIC MORTALITY AMONG INDIVIDUALS WITH AND WITHOUT DIABETES IN ENGLAND AND SCOTLAND


Background Although a growing body of evidence demonstrates an increase in cardiovascular disease (CVD) mortality among those with diabetes mellitus, the results related to other causes of death are less homogenous. The strength of the association between diabetes and mortality appears to differ by geographic location. The role that Body Mass Index (BMI) plays also requires further exploration. In the UK, one in 20 individuals is estimated to have diabetes. Therefore, even a small increase in mortality risk among those with diabetes, could result in a large number of deaths among those with the disease. This large general-population cohort study used data from England and Scotland to explore the associations between diabetes and risk of all-cause and cause-specific mortality, and examine the extent to which any increase was attributable to raised BMI.

Methods Nationally-representative, cross-sectional data from 15 years of the Health Survey for England (HSE) (1994–2005) and Scottish Health Survey (SHeS) (1995, 1998 and 2003) were linked with mortality records up to the first quarter of 2011. Odds ratios (OR) and 95% confidence intervals (CI) adjusted for age-group and sex (model 1), plus smoking status (model 2) and additionally for BMI category (model 3) were estimated using logistic and multinomial logistic regression. Participants mentioning cancer at baseline were excluded from the study.

Results Within this sample of 166,600 participants (5,131 with diabetes) there were 19,483 deaths (1,060 among those with diabetes, 18,423 without diabetes). All-cause mortality was greater among those with diabetes when adjusted for age, sex and smoking status (OR 1.52, 95% CI 1.41–1.65), with no reduction when adjusting for BMI category (OR 1.49, 1.37–1.64). Cause-specific mortality among those with diabetes was raised for CVD (model 2 OR 1.73, 1.55–1.93), cancer (1.24, 1.08–1.45) and ‘Other’ (1.77, 1.54–2.04) with a non-significant increase for respiratory diseases (1.21, CI 0.99–1.47). Additional adjustment for BMI had a minimal impact upon the excess mortality found among those with diabetes: CVD (OR 1.69, 1.49–1.93), cancer (1.24, 1.05–1.45), ‘Other’ causes (1.75, 1.49–2.07), and respiratory diseases (1.16, 0.92–1.47). Survival was also lower among those with diabetes compared with those without the disease at baseline.

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OP55 Socioeconomic Inequalities in Childhood Exposure to Secondhand Smoke Before and after Smoke-Free Legislation in three UK Countries

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*J Epidemiol Community Health* 2012 66: A21-A22
doi: 10.1136/jech-2012-201753.055

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