

which were analysed for serum cotinine and CVD risk markers. Cross-sectional associations between log cotinine and CVD risk markers were investigated using linear regression; prospective associations between log cotinine and incident CVD were analysed using Cox regression.

**Results:** Results were similar for men and women and are reported for genders combined. Among 4749 persistent non-smokers without pre-existing CVD or diabetes, geometric mean cotinine was 0.15 ng/mL (IQR 0.05 to 0.30). Active smokers had lower blood pressure, HDL, BMI and waist circumference, higher triglycerides and consistently elevated inflammatory and haemostatic markers than non-smokers with undetectable cotinine ( $\leq 0.05$  ng/mL). In non-smokers, higher cotinine levels were associated with higher CRP, fibrinogen, vWF and t-PA and lower albumin levels which persisted on adjustment for health behaviours, demographic factors and BMI, although not with blood pressure or lipids. A doubling in cotinine level was associated with 0.03 mg/L (95% CI 0.01 to 0.05) increase in log CRP level. However cotinine was not associated with MI: in non-smokers the HR was 1.02 (95% CI 0.94 to 1.11) per doubling in cotinine level, adjusted for socio-demographic behavioural and CVD risk factors. The adjusted HR of MI for smokers (1–9 cigarettes/day) compared to undetectable cotinine was 2.14 (95% CI 1.39 to 3.52). The adjusted HR for stroke in non-smokers was 0.91 (95% CI 0.82 to 1.00) per doubling in cotinine level and for smokers (1–9 cigarettes/day) compared to undetectable cotinine the adjusted HR of stroke was 1.03 (95% CI 0.52 to 2.04).

**Conclusions:** In this elderly cohort with very low SHS exposure, cotinine was positively associated with levels of endothelial, inflammatory and haemostatic factors but had little effect on risks of CHD or stroke. Findings emphasise the continued importance of reducing SHS exposure, even at very low levels.

#### 093 COST EFFECTIVENESS OF ALTERNATIVE SCREENING STRATEGIES FOR IDENTIFYING PEOPLE AT HIGH RISK OF CARDIOVASCULAR DISEASE

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doi:10.1136/jech.2009.096735o

**Objective:** There is strong policy interest across the UK in identifying people at high risk of developing premature cardiovascular disease

(CVD;  $\geq 20\%$  risk over 10 years) in an effort to offer preventative interventions. In 2009, England introduced a mass screening and referral programme; while Scotland is evaluating a pilot programme which targets deprived communities. Here we examine the coverage, efficiency and cost effectiveness of alternative screening strategies.

**Design/Subjects/Setting:** We compared five screening strategies to detect those at high risk of premature CVD, defined as occurring in men aged 40–54 and women aged 40–64. These were: (i) mass screening of the population; (ii) screening of deprived communities; (iii) screening family members of patients with known CVD; (iv) screening only family members living in deprived communities; and (v) screening both family members and those living in deprived communities. To compare these five strategies, we simulated screening of the Scottish population using data from the Scottish Health Survey. The risk of CVD was calculated through the ASSIGN risk tool. This derives a 10-year risk score from a person's age; sex; systolic blood pressure; cigarettes smoked per day; family history; and makes an adjustment for deprivation to approximate psycho-social risk factors. Unit costs per screening session were taken directly from the Department of Health's (England) estimates published in 2008, and include both labour and laboratory costs.

**Main Outcome Measures:** We calculated the percentage of the population at high risk of CVD; and, for each screening strategy, the number needed to screen to detect one person at high risk; and total screening costs. Strategies were ranked in order of effectiveness, defined as the additional yield in terms of coverage of the high risk population; and cost effectiveness was calculated as the additional cost of screening associated with moving to a more effective screening strategy. Sensitivity analysis on the cost of screening was conducted.

**Results:** A mass screening programme would provide complete coverage, but identifying one person at high risk would require 16 people to be screened, costing £436 per case detected. A programme combining the screening of deprived communities and family members would save 60% of the total costs of mass screening, have twice the yield, and identify 84% of all high risk people in the general population.

**Conclusion:** Compared with targeted screening, mass screening is a low yield, inefficient, high cost option. Targeted screening could produce most of the benefit at a much lower cost.