prevalence was 5.8% (3.9—7.7%) among all those with no qual- ifications and the SII had increased from 1.0, in 1995, to 3.9; (from 1.8 to 5.1 among women). The prevalence of obesity increased across the surveys with minimal change in the inequality gap. among those with no qualifications the prevalence increased from 23.3% (21.2—25.3%) at baseline to 31.2% (26.5—35.8%) in 2008. In the corresponding years the SII for obesity had increased from 10.7 to 13.0. Difficulties in reporting alcohol consumption trends arise from changes in recording practices between surveys; approaches will be presented.

Conclusions Individuals of lower socio-economic status continue to carry the heaviest burden of CVD risk factors. There has been little, if no reduction in the inequality gap over time; indeed for some factors it may be growing.

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032 RELATIVE IMPORTANCE OF SMOKING, PHYSICAL ACTIVITY AND SCREEN-BASED ENTERTAINMENT IN EXPLAINING SOCIO-ECONOMIC INEQUALITIES IN CARDIOVASCULAR DISEASE RISK

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Objective To assess the extent to which smoking, moderate-to-vigorous physical activity (MVPA), and screen-based entertainment (SBE) explain the association between socio-economic position (SEP) and CVD risk.

Design Cross-sectional health examination survey linked to mortality data.

Setting The Scottish Health Survey 2003 is a survey of a random sample of the general population living in private households in Scotland.

Participants The cross-sectional component of this study included 2782 adults aged 16 and over who had complete information on all socio-economic and clinical measures used to calculate the SEP score and the cardio-metabolic risk score. The longitudinal component of this study considered 4621 respondents, aged 35 and over who consented to having their records linked to National Health Service administrative data.

Main outcome measures We calculated the percentage of the association between lower SEP and CVD risk that smoking, MVPA, and SBE explain in two ways: a) cross-sectionally using a cardio-metabolic risk score (based on total cholesterol, HDL cholesterol, HbA1c, C-reactive protein, BMI, waist, hypertension) dichotomized as three or more / less than three risk factors as the main outcome, and b) longitudinally with CVD (fatal/non-fatal) events as the main outcome. The main exposure variable in both sets of analyses was a composite SEP score (based on social class, income, and education). A total of 179 incident cardiovascular events including deaths, which occurred over 19 864 person years, an average of 4.3 years, was used in the analysis.

Results In both sets of analyses, SBE explained a larger percentage of the association between SEP and CVD risk than either smoking or MVPA. In the cross-sectional analysis, SBE accounted for 30.0% of the association between lowest SEP and having a cardio-metabolic risk score of three or more, followed by MVPA (16.4%) and smoking (10.9%). A similar pattern emerged from the longitudinal analysis, where SBE emerged as the largest contributor, accounting for 30.4%, to explaining the association between lowest SEP and increased risk of having a CVD event. Smoking explained the next highest percentage (26.7%) and MVPA the least (14.6%). The fully adjusted model with all three variables explained 52.5% of the relationship.

Conclusion Since SBE explains a larger proportion of the association between SEP and CVD risk than smoking or MVPA, public health policies aimed at reducing inequalities in health should include guidance on reductions of sedentary behaviour in addition to guidance already available on smoking cessation and the promotion of physical activity.

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033 SOCIO-ECONOMIC TRENDS IN CARDIOVASCULAR RISK FACTORS IN ENGLAND, 1994—2008

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Objective Recent large falls in Coronary Heart Disease (CHD) mortality rates have been attributed to reductions in behavioural and physiological risk factors, particularly smoking, cholesterol and high systolic blood pressure (SBP), and also to the increasingly widespread use of cardiological treatments. Such gains, however, have been partially offset by unfavourable trends in Body Mass Index (BMI), diabetes and physical inactivity, possibly exacerbating inequalities. Using data from the Health Survey for England from 1994 to 2007, we therefore examined differentials in CHD risk factors across socio-economic groups over recent years.

Methods The Health Survey for England (HSfE) is an annual, nationally representative health interview and examination survey containing a core element — which includes risk factors such as smoking and BMI as well as biomarkers like blood pressure and saliva cotinine — and a regularly repeated disease module. In 1998, 2003 and 2006 the HSfE focused on CHD risk factors. Socio-economic circumstance (SEC) was defined by grouped quintiles of residential deprivation. A series of regression models were used to analyse the influence of SEC and time on risk factor levels, sepa- rately for each gender. Interaction terms were used to test whether risk factor trends differed between SEC groups.

Results SEC gradients in risk factors were most pronounced for current smoking, fruit and vegetable consumption, BMI (women only) and diabetes (women aged 55—74). Recent trends present a mixed picture. Smoking and SBP declined year-on-year for most SEC groups; cholesterol levels fell significantly between 2003 and 2006; and (beneficial) physical activity and fruit and vegetable consump- tion increased. However, mean BMI and diabetes prevalence among older age-groups increased across all SEC groups. Despite favourable trends in major risk factors across all social groups, the inequality gap remained essentially unchanged between 1994 and 2007.

Conclusions Persistent SEC differentials in major risk factors (smoking and poor diet) highlight an important priority for more effective policies for healthy food and tobacco control. Furthermore, research is now crucial to quantify the extent to which these persistent inequalities in CHD risk factor levels might explain the substantial inequalities observed in CHD mortality.

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034 ASSOCIATION OF NEIGHBOURHOOD SOCIO-ECONOMIC STATUS AND INDIVIDUAL SOCIO-ECONOMIC STATUS WITH CARDIOVASCULAR RISK FACTORS IN AN EASTERN GERMAN POPULATION — THE CARLA STUDY 2002—2006

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Background/objectives Socio-economic status (SES) has long been recognized as determinant of cardiovascular risk factors and disease. Recent studies suggest an association of neighbourhood SES with

risk factors independent of the individual's own SES, but the mechanisms have not fully been understood. Our aim was to assess the association of neighbourhood and individual SES with cardiovascular risk factors in an Eastern German population with exceptionally high cardiovascular mortality and unemployment rates.

Methods We used cross-sectional data of 1779 inhabitants of the city of Halle (Saale), aged 45—83 years, who participated in the population-based CARLA study. We calculated linear mixed models to assess the age-adjusted influence of neighbourhood SES (defined as neighbourhood-specific unemployment rates for 39 administrative districts of the city) and individual SES (defined as number of education years) on smoking (defined as number of currently smoked cigarettes/day), systolic blood pressure (SBP), and body mass index (BMI). Spatial dependencies within and between neighbourhoods were adjusted for by using ICAR models.

Results The unemployment rate ranged from 6.3 to 35.3% between neighbourhoods. For smoking, there was a statistically significant increase of 0.11 cigarettes smoked/day per 1% increase in the neighbourhood's unemployment rate in men (95% CI 0.09 to 0.12), and a decrease of 0.59 per increase in education years (CI −0.62 to −0.56), but a weaker association in women (regression coefficients (β) for unemployment rate and education years 0.054 (CI 0.039 to 0.067), and −0.21 (CI −0.24 to −0.19)). There was no statistically significant association of SBP with SES in men (β=−0.07 (CI −0.22 to 0.08) for unemployment rate, and −0.15 (CI −0.69 to 0.38) for education years), while in women, there was a statistically significant decrease in SBP of 0.79 mmHg per increase in education years (CI −0.82 to −0.76), and an increase with unemployment rate (β=0.04, CI 0.03 to 0.06). BMI was statistically significantly associated with education in men and women (0.11 decrease in BMI per increase in education years in men (CI −0.14 to −0.08), and 0.35 in women (CI −0.38 to −0.33)), but only for women with unemployment (increase in BMI per 1% increase in unemployment rate 0.008 (CI −0.008 to 0.02) in men, and 0.036 (CI −0.38 to −0.33) in women. Spatial correlations within and between neighbourhoods were small for all of the assessed outcomes.

Conclusions Our findings confirm the previously described association of neighbourhood SES with smoking independent of individual SES, while we found inconsistent associations with SBP and BMI. The neighbourhood environment may be more relevant for behavioural than for biomedical risk factors.

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Background Although CHD mortality has declined in the UK since the late 1970s, the decline has been particularly marked among more affluent subjects. While the decline substantially reflects improvements in established coronary risk factors, little is known about how these have changed in different socio-economic groups.

Objective To examine whether socio-economic differences in coronary risk factors in Britain have changed over 20 years between 1978—80 and 1998—2000.

Design Prospective study of a socio-economically and geographically representative cohort.

Setting 24 British towns.

Participants 4132 men aged 40—59 years in 1978—80.

Main outcome measures Age-adjusted changes in coronary risk factor levels from 1978-80 to 1998-2000 according to social class were assessed. Coronary risk factors included blood pressure, cholesterol, body mass index (BMI), cigarette smoking and physical activity. Social class, based on longest-held occupation, was grouped as "non-manual" (social classes I, II, III non-manual) and "manual" (III manual, IV and V).

Results Overall, the prevalence of cigarette smoking declined and mean blood pressure and non-HDL cholesterol levels fell, while mean HDL cholesterol and BMI, and physical activity increased. The higher odds of being a current smoker in manual (lower) compared with non-manual (higher) social classes in 2000 (age-adjusted odds ratio 2.04; 95% CI 1.68 to 2.47) had not changed since 1978-80 (p for interaction social class*time 0.51). Men in manual occupations became less likely to be physically inactive compared with non-manual groups (p for interaction 0.04) and more likely to be moderate-vigorously active (p for interaction 0.005). The 20-year increase in mean BMI was 2.34 kg/m^2 in the manual compared with 2.01 kg/m^2 in the non-manual group (difference in mean change=0.33 kg/m^2; 95% CI 0.14 to 0.53; p for interaction 0.001). Mean systolic blood pressure declined more in manual than non-manual groups (difference in mean change=3.6; 95% CI 2.1 to 5.3, p for interaction <0.0001). Non-manual groups had a greater mean decline in non-HDL cholesterol (difference in mean change=0.18 mmol/l; 95% CI 0.11 to 0.25, p for interaction <0.0001) and a greater mean increase in HDL-cholesterol (difference in mean change 0.04 mmol/l; 95% CI 0.02 to 0.06, p for interaction < 0.0001).

Conclusions Since the 1980s, socio-economic differences in blood pressure and physical activity may have been reduced, while those in cigarette smoking have persisted. Socio-economic differences in BMI, non-HDL and HDL-cholesterol levels appeared to have worsened, with more unfavourable changes in lower socio-economic groups. Continuing priority is needed to improve adverse cardiovascular risk profiles in socially disadvantaged groups in the UK.

Cancer survival

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Objectives Socio-economic inequalities in survival have been reported for most adult cancers in England. The NHS Cancer Plan (2000) aimed to improve cancer patient survival, and tackle inequalities in survival between people from deprived and affluent backgrounds. Recent observations suggest some improvements in survival have accelerated since implementation of the Cancer Plan. This study investigates the efficacy of the Cancer Plan in tackling inequalities in cancer survival.

Design We examined data for all adults registered in the National Cancer Registry and diagnosed with one of 21 common cancers in England during 1996—2006 and followed up to 31 December 2007. We defined *a priori* three calendar periods of diagnosis in relation to the NHS Cancer Plan: 1996—2000 (before the Cancer Plan), 2001—03 (initialisation) and 2004—06 (implementation).

Main outcome measures One-year relative survival by sex and socio-economic group for each of the 11 calendar years was estimated using a maximum-likelihood approach. Life tables by age, sex, calendar year, deprivation category and Government Office Region were used to control for the variability in background mortality. The "deprivation gap" (quantified as the difference between survival in the most deprived and most affluent groups) was estimated with variance-weighted linear regression. Changes in the deprivation gap