western Germany has not yet been elucidated due to the scarcity of population-based data on CVD morbidity and risk factors.
Objective: To provide data on the distribution of CVD and its risk factors in an elderly general population in eastern Germany as compared to a western German population.
Methods: Cross-sectional data of 1779 East German participants of the population-based CARLA Study aged 45–83 at baseline were used to calculate sex- and age-specific means of risk factors, disease prevalence, and expected 10-year risk of fatal CVD to be compared with the data of 4261 participants of the south-west German KORA study. Risk of fatal CVD was calculated using the Systematic Coronary Risk Evaluation (SCORE) Germany algorithm which is based on sex, age, systolic blood pressure (SBP), current smoking, and cholesterol levels.
Results: There were no clear differences in age-specific mean body mass index (BMI) and smoking prevalence between CARLA and KORA subjects (except for higher smoking prevalence in 45–54 year old CARLA subjects), and only a slightly higher predicted 10-year CVD mortality in CARLA as compared to KORA subjects. Mean 10-year risk of fatal CVD in CARLA increased from 0.57% (95% CI 0.39 to 0.75%) in 45–49 year-old to 3.5% (3.0 to 3.9%) in 60–64 year-old women as compared to 0.37% (0.33 to 0.41%) and 2.91% (2.71 to 3.12%) in KORA respectively. However, the prevalence of diabetes and hypertension, and mean SBP were considerably higher in CARLA subjects across all sex–age-groups as compared to KORA subjects. For example, the prevalence of hypertension in CARLA increased from 55.4% (48.6 to 63.3%) in 45–54 year-old to 84.2% (79.3 to 89.2%) in 65–74 year-old women, while it was 36.7% (32.3 to 41.1%) to 61.5% (56.5 to 66.5%) in KORA, respectively. The prevalence of diabetes across 10-year age-groups in CARLA women increased from 4.9% (1.9 to 7.9%) in the 45–54 year-old to 19.1% (13.8 to 24.5%) in the 65–74 year-old as compared to 2.4% (1.0 to 3.8%) to 8.1% (5.3 to 10.9%) in KORA, respectively. Moreover, within narrow categories of BMI, CARLA subjects consistently showed a considerably higher waist-to-hip-ratio than KORA subjects.
Conclusions: Our results support the hypothesis that an especially high prevalence of diabetes and hypertension and other components of the metabolic syndrome may explain the excess CVD mortality in eastern Germany which is not accurately reflected in SCORE.

Methods in ethnicity research

088 INVESTIGATING THE ASSOCIATION BETWEEN ETHNICITY AND SURVIVAL FROM BREAST CANCER USING ROUTINELY COLLECTED HEALTH DATA: CHALLENGES AND POTENTIAL SOLUTIONS

[1]A Downing, [1,2]D Forman, [1]JD Thomas, [1]RM West, [3]G Lawrence, [1]MS Gilthorpe. *[1]Centre for Epidemiology & Biostatistics, University of Leeds, Leeds, UK; [2]Northern & Yorkshire Cancer Registry & Information Service, St James's Institute of Oncology, Leeds, UK; [3]West Midlands Cancer Intelligence Unit, Public Health Building, University of Birmingham, Birmingham, UK*

doi:10.1136/jech.2009.096735j

Background: Previous studies have reported differences in survival from breast cancer by ethnic group. Some of these studies have taken information on ethnicity from routinely collected data, such as Hospital Episode Statistics (HES). There are several problems associated with using ethnicity from HES data, such as multiple ethnicities being recorded for a single patient with multiple hospital visits, and missing data. This study will investigate methods to overcome these problems in order to assess the relationship between ethnicity and survival from breast cancer.
Data and Methods: 48 234 breast cancer patients diagnosed between 1997 and 2003 were identified from a linked cancer registry-HES dataset for two regions of the UK. Where multiple ethnicities were recorded for a patient a single ethnicity was allocated according to the last recorded and most popular code. The data were also expanded to include all available hospital episodes (and all ethnicity information) for each patient (452 061 "episode-level" records). Ethnicity was missing in 16% of the patient-level records and 26% of the episode-level records. Multiple imputation (10 iterations) of missing ethnicity using age, stage, socioeconomic background and census area ethnic make-up as predictors was undertaken for the "last recorded", "most popular" and "episode-level" data. Survival analysis (up to end 2006) was carried out using the imputed datasets.
Results: Across the two regions, 97.2% of the patients with a known ethnicity were White, 1.6% were South Asian and 0.8% were Black. White women were slightly older at diagnosis than the other groups, whilst Asian women had a higher proportion of early stage tumours, but these differences were not significant. Using "last recorded" ethnicity, unadjusted survival was higher in the Asian group compared to the White group (HR 0.77, 95% CI 0.66 to 0.92). After adjustment for age and stage this survival difference was no longer significant (HR 0.98, 95% CI 0.82 to 1.16). The results were similar using "most popular" ethnicity. Using the "episode-level" data to assign probabilities for each patient, unadjusted survival was again higher in the Asian group (HR 0.72, 95% CI 0.62 to 0.89) compared to the White group, but after adjustment survival was similar in the two groups. There was also some evidence of worse survival in the Black group compared to the White group (HR 0.98, 95% CI 0.98 to 1.39 after adjustment).
Conclusions: Assessment of the association between breast cancer survival and ethnicity presents many challenges. Previous research in this area may have reported biased results, because of missing data and the failure to use all available information.

089 RECRUITING SOUTH ASIANS TO A RANDOMISED TRIAL (PREVENTION OF DIABETES AND OBESITY IN SOUTH ASIANS) FOR THE PREVENTION OF DIABETES: THE CHALLENGES AND ACHIEVEMENTS

A Douglas, on behalf of the PODOSA Investigators Group *Public Health Sciences Section, University of Edinburgh, Edinburgh, UK*

doi:10.1136/jech.2009.096735k

Background: Despite recommendations to do so, few clinical trials focus on ethnic minority groups. There are concerns that data from general trials may not apply to them. PODOSA (Prevention of Diabetes and Obesity in South Asians) is a rare example of a prevention trial in European South Asians. The prevalence of type 2 diabetes among UK South Asian adults is extremely high.
Objectives of the Trial: To assess the feasibility and cost-effectiveness of the PODOSA lifestyle intervention (see below).
Methods: PODOSA is a cluster randomised controlled trial evaluating a family based, ethnically tailored, lifestyle intervention aiming to reduce the incidence of diabetes in people of Indian and Pakistani origin by reducing weight and increasing physical activity. Recruitment is via several channels. Eligible participants are those found to have impaired glucose levels (and therefore at high risk of developing diabetes) on an oral glucose tolerance test. The intervention group receives 15 contacts with a dietician over three years. The control group has 4 dietetic contacts. The dieticians' toolkit contains culturally tailored resources on diet and exercise.
Results: Recruitment commenced in July 2007 and plans to finish around August 2009. The trial has enjoyed support from individuals, community and religious organisations, media, leaders and health professionals. 122 families, with 135 people at high risk of diabetes and 101 family volunteers, have been recruited at the time of writing. Recruitment into the screening component of the trial has been slow, taxing and expensive. Referrals from NHS professionals have been few, and responses to radio, newspaper and website based publicity trivial. The response to written invitations has also been low. Face-to-face recruitment both with individuals and groups, has proved successful. 95% of those eligible have entered the trial.

Conclusion: The trial is challenging, both in terms of recruitment, and motivating behaviour change. The presentation will elaborate on the recruitment experience into a trial evaluating the effectiveness of interventions in ethnic minority populations.

090 UNDER-REPORTING OF TOBACCO USE AMONG BANGLADESHI WOMEN IN ENGLAND; A CROSS-SECTIONAL STUDY

M Roth, A Aitsi-Selmi, H Wardle, J Mindell. *Department of Epidemiology and Public Health, University College London, London, UK*

doi:10.1136/jech.2009.096735l

Objective: To investigate the prevalence of under-reported use of tobacco among Bangladeshi women and the characteristics of this group.
Design: Cross-sectional surveys.
Setting: Private households in England.
Participants: 996 Bangladeshi women aged 16 years and above, 302 with a valid saliva sample and 694 without, in the 1999 and 2004 Health Surveys for England.
Main Outcome Measure: Prevalence of under-reported tobacco use (estimated using self-reported tobacco use and cotinine level from a saliva sample). Predictors of tobacco use status: self-reported user; cotinine-validated non-user; or under-reporting user.
Results: 15% of Bangladeshi women with a saliva sample under-reported their personal tobacco use. Under-reporting users were similar to self-reported users in terms of socio-demographic, socio-economic, and tobacco-related variables, except for being much more likely to report chewing paan (a mixture of betel leaf, lime and areca nut) without tobacco (47% vs. 9%, $p<0.001$). Under-reporters differed significantly from cotinine-validated non-users in most respects, including age, birth country, education level, level of spoken English, language of the interview, chewing paan without tobacco, and presence of relatives in the interview. Regression analyses confirmed that under-reporters did not differ significantly from self-reported users regarding age, education level, or exposure to passive smoking. Under-reporters were generally older and less likely to be educated above O level compared with cotinine-validated non-users. Both self-reported users (odds ratio 0.11, 95% CI 0.04 to 0.30) and cotinine-validated non-users (odds ratio 0.42, 95% CI 0.20 to 0.89) were far less likely to report chewing paan without tobacco compared with under-reporters.
Conclusion: Contrary to our *a priori* hypothesis, under-reporters were not British-born, English-speaking young women likely to be concealing smoking but resembled self-reported tobacco users except for being much more likely to report chewing paan without tobacco. Further investigation is needed to discover whether the under-reporting was concealment or a lack of awareness that the paan they chewed contained tobacco.

Plenary session

091 ARE POOR MOTHERS AND THEIR INFANTS HEALTHIER IN RICHER AREAS? THE PROTECTIVE EFFECT OF AREA SOCIO-ECONOMIC DENSITY

[1]C Albor, [1]K Pickett, [2]RG Wilkinson, [3]D Ballas. *[1]Department of Health Sciences, University of York, York, UK; [2]Division of Epidemiology and Community Health, University of Nottingham Medical School, Nottingham, UK; [3]Department of Geography, University of Sheffield, Sheffield, UK*

doi:10.1136/jech.2009.096735m

Objective: To examine whether poor mothers and their infants have better or worse health when they live in affluent neighbourhoods.
Design: Cross-sectional analysis of 14 465 white mothers surveyed in the first wave of the Millennium Cohort Study, 3654 of these mothers were defined as poor. The socio-economic context for poor mothers was measured by lower super output area (LSOA)-level measures of income. UK-wide analyses used the LSOA decile ranks of the index of multiple deprivation (IMD) income domain. A subset England-only analysis of 7288 mothers used continuous IMD income domain scores.
Outcome Measures: Maternal self-rated health and limiting long-term illness (LLI), low birthweight (LBW), and preterm delivery. Logistic regression models were run separately for poor (<£10 400) and non-poor households. Models were adjusted for age, marital status, parity, urban status, duration at address, occupational class and educational attainment.
Results: For poor mothers, odds for LBW and LLI increased with every decile of area income, by 9% and 8% respectively ($p<0.05$ all models). This contrasted with findings for non-poor mothers – for whom odds decreased 6% and 5% respectively (not significant for LLI). In the subset England-only analysis, for poor mothers, area income was positively associated with LLI and LBW but significant only for LLI. Self-rated health did not vary significantly across areas for poor mothers. In contrast, for non-poor mothers, poor/fair self-rated health was negatively associated with area-level income, decreasing by 11% for each area income decile ($p<0.001$ all models and England subset). Odds of preterm delivery decreased for poor mothers by 7% per decile ($p<0.05$), but this was not significant for England-only analyses. No models examining area income in relation to preterm delivery were significant for non-poor mothers.
Conclusion: Apart from preterm delivery, health outcomes of non-poor mothers are improved when they live in more affluent areas. This is not the case for poor mothers, who do not have better self-rated health, and who have higher risk of LBW and LLI in richer areas. These findings may support a psycho-social causal model mediated by area socio-economic density. Further work is needed to test mediating pathways such as social engagement and class discrimination.

092 SECONDHAND SMOKE EXPOSURE ASSESSED USING SERUM COTININE: ASSOCIATIONS WITH MYOCARDIAL INFARCTION, STROKE AND CARDIOVASCULAR RISK FACTORS IN ADULT MEN AND WOMEN

[1]BJ Jefferis, [2]GDO Lowe, [2]P Welsh, [3]DA Lawlor, [4]S Ebrahim, [1]SG Wannamethee, [5]DG Cook, [5]PH Whincup. *[1]British Regional Heart Study, Department of Primary Care and Population Health, UCL Medical School, London, UK; [2]Division of Cardiovascular and Medical Sciences, University of Glasgow, Royal Infirmary, 10 Alexandra Parade, Glasgow, UK; [3]MRC CAiTE Centre, University of Bristol, Oakfield House, Oakfield Grove, Bristol, UK; [4]Non-Communicable Diseases Epidemiology Unit, Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, Keppel Street, London, UK; [5]Division of Community Health Sciences, St George's, University of London, Cranmer Terrace, London, UK*

doi:10.1136/jech.2009.096735n

Objectives: Second-hand smoke (SHS) exposure is associated with elevated CVD risks. Previous studies have implicated altered platelet activity or endothelial dysfunction and changes in circulating levels of HDL, homocysteine and inflammatory markers. However most studies have imprecise exposure measurements and the mechanism remains uncertain. Therefore we examine associations between cotinine, a circulating biochemical marker of SHS exposure, and CVD risk factors, incident CHD and stroke in non-smoking men and women.
Methods: 4252 men and 4286 women aged 60–79 years in parallel prospective population-based studies assessed in Primary Care centres in 25 British towns in 1998–2000, with median 7.7 year follow-up for fatal and non-fatal MI (n = 445) and stroke (n = 386). Medical history, health behaviours and demographic data were reported in questionnaires and nurses recorded an ECG, made anthropometric measurements and took fasting blood samples