## P1-21 CLUSTER RANDOMISED TRIALS IN A HEALTHCARE DATABASE: UTILISING ELECTRONIC PATIENT RECORDS FOR INTERVENTION RESEARCH

[1]A Dregan,* [2]L McDermott, [3]G McCann, [2]L Yardley, [3]T van Staa, [1]M Gulliford, [1]e eCRT Research Team. [1]King's College London, Primary Care and Public Health Sciences, London, UK; [2]University of Southampton, Southampton, UK; [3]GPRD Division, Medicines and Healthcare products Regulatory Agency, London, UK

**Introduction** Cluster randomised trials (CRTs) may have limited power because of the correlation of individual responses within clusters and the allocation of only small numbers of clusters. This ongoing study evaluates whether a CRT may be implemented utilising the electronic patient records of the general practice research database (GPRD) that includes large numbers of UK family practices.

**Methods** The trial aims to reduce antibiotic prescribing for respiratory illness in primary care, randomising practices between intervention of decision support or none. The primary outcome is the proportion of consultations for respiratory illness with antibiotics prescribed. In GPRD in 2006, the proportion was approximately 39% for all RTIs; 47 practices per group will be required to detect a 5% absolute difference in this measure.

**Results** Research governance approvals for all primary care organisations in England and Scotland were facilitated through the Central System for Permissions. All GPRD family practices in England and Scotland were invited to participate. In the first 4 months of the study, 71 family practices were consented. Random allocation is by minimisation controlling for region and practice size. Practices allocated to the active intervention have software installed remotely to provide decision support prompts for family doctors. The intervention will continue for 12 months. Outcomes will be analysed through analysis of data for diagnosis and prescriptions recorded into GPRD.

**Conclusions** Healthcare databases may be used to facilitate CRTs by providing data to inform trial design, a sampling frame for recruitment, as well as data for monitoring and outcome evaluation.

## P1-22 WHICH MEASURES OF SOCIO-ECONOMIC POSITION PERFORM MOST CONSISTENTLY ACROSS ETHNIC GROUPS? RETROSPECTIVE COHORT STUDY USING CENSUS DATA LINKAGE

[1]C Fischbacher, [2]G Brin, [2]N Bansal,* [2]J Pearce, [2]R Bhopal. [1]Information Services Division, Edinburgh, UK; [2]University of Edinburgh, Edinburgh, UK

**Introduction** Ethnic health inequalities are substantial but incompletely understood. Some studies have attributed ethnic inequalities to socio-economic status (SES) and adjusted ethnic comparisons SES measures. In the absence of individual level data, area level deprivation measures are routinely used for this purpose. However it is not clear whether these or other available SES measures perform similarly across ethnic groups. We examined the association between educational, occupational and economic indicators and incident cardiovascular disease (CVD) in ethnic groups in Scotland.

**Methods** We obtained educational, occupational and economic indicators for those aged over 30 years and resident in Scotland in April 2001 (n=2.97 million) using the Scottish Census. Data on first CVD events up to April 2008 obtained from hospital discharge and mortality databases were combined with census sources using probability linkage methods. In each ethnic group we examined associations between CVD rates and SES indicators.

**Results** There were marked SES differences between ethnic groups but the SES measures were differently associated with health. In men individual educational qualification and highest household occupational group were most consistently associated across ethnic groups with CVD. Among women individual educational qualification and individual occupational group were the most consistent measures. Areal deprivation, car ownership, household tenure and employment status performed much less consistently.

**Conclusions** Studies of ethnic inequalities should take account of SES. Area measures of material deprivation do not predict cardiovascular outcomes consistently across ethnic groups. Educational level may provide a better means of taking account of such differences.

## P1-23 ANALYSIS OF CHANGING EFFECT OF CLIMATE ON HEALTH OVER LONG PERIOD OF TIME: METHODOLOGY AND APPLICATION

[1]M Friger,* [2]O Nadav, [1]L Novack, [2]G Soifer. [1]Ben-Gurion University of the Negev, Beer-Sheva, Israel; [2]Bar-Ilan University, Ramat-Gan, Israel

**Introduction** Recently, analysis of health effects of climate change has become a global issue. This new and complicated problem calls for a new approach, since existing models cannot analyse changing effect of climate on health outcomes over a long period of time. We suggest methodology of analysis and estimation of changing effect of climate on health outcomes over time and apply it to estimating the effect of meteorological changes and hospitalisation and hospital mortality rates through a long time-period.

**Methods** Data on daily hospitalisation and hospital mortality (all-cause and specific) rates for 16 years were obtained from a database of the medical center providing tertiary care to the most population of Southern Israel. Regional daily average temperature and humidity were used as meteorological variables. Three different methodologies have been developed:

1. Constructing and comparing trend functions adjusted to possible confounders of health and meteorological variables, using harmonic analysis based on generalised linear models.

2. Estimating the effect of meteorological variables on health, changing over time by using numeric derivations.

3. Constructing special spline models for analysis of significant changes in time, based on conventional meteorological health effect models.

**Results** The health and meteorological variables were characterised by increasing and non-linear trends. The trends of hospitalisation and age-adjusted hospital mortality rates are strongly and significantly associated with the trends of temperature and humidity.

**Conclusion** Increased health outcomes are significantly associated with increased heat and humidity in our region. Similar findings were obtained by three proposed methodologies.

## P1-24 JOINED UP DATA FOR JOINED UP THINKING—PRESCRIPTION DATA AS A SURVEILLANCE TOOL FOR DIABETES MORBIDITY

N Gallagher,* D O'Reilly, C Hughes. Queen's University, Belfast, UK

The introduction of a prescribing database as a new tool for disease surveillance (March 2009—March 2010), and its future potential for record linkage. The assessment of population health has traditionally focused on mortality data because it is readily available and there are systematic methods of data collection which are recognised