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Parallel Session A

Cancer and geography

001 IS THERE A US PROSTATE CANCER BELT?

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Background and objective Several chronic diseases display geographic patterns of increased incidence or mortality in the southern US. State- and county-level maps describe increased prostate cancer mortality in a band of states spanning from Washington, DC, to Louisiana. A recent report has documented that birth in the so-called Stroke Belt (SB) region in the southern US predicts mortality from stroke independently of residence in a SB state in adulthood, when stroke onset is most common. Several studies have suggested that early-life risk factors may influence prostate cancer incidence and mortality, but no known prior research has examined whether place of birth within the US predicts prostate cancer related outcomes. The objective of this study is to assess the association between birth in the SB and subsequent mortality from prostate cancer.

Methods Prostate cancer specific mortality (underlying cause of death only) rates in the year 2000 for African-Americans and whites born in the continental US and aged 65–95 were calculated by linking national mortality records with population data in strata defined by birth state, state of residence at the census, race, sex, and age. Birth in a SB state (North Carolina, South Carolina, Georgia, Tennessee, Arkansas, Mississippi, or Alabama) was cross-classified against SB residence at the 2000 Census.

Results Adjusting for SB residence in 2000, odds of prostate cancer mortality were significantly elevated by 19% (OR 95% CI 1.11 to 1.27) for African-Americans born in the SB compared to those who were not born in the SB. Those who lived in the SB in 2000 experienced 9% (OR 95% CI 1.01 to 1.18) increased odds of prostate cancer mortality compared to those who did not reside in the SB in 2000, adjusting for birth in the SB. These associations were not observed among whites.

Conclusions These findings suggest important roles for geographically patterned childhood exposures—for example, differences in social or environmental conditions, or behavioural norms in diet, physical activity and smoking. Because of segregation patterns in the American South, it is possible that African American men born in the South are more subject to these types of exposures than white men born in the South. Alternatively, the differences in associations between whites and blacks may be an artefact of differential migration patterns. Future research should assess the additional influence of socio-economic status, cancer incidence, stage at diagnosis and survival time after diagnosis.

002 UPTAKE OF BREAST SCREENING: WHERE YOU LIVE ALSO MATTERS

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Objective To determine if area of residence is an independent factor influencing uptake of breast screening.

Design Record linkage study combining anonymised data from the National Breast Screening System and the Northern Ireland Longi-

tudinal Study with cohort attributes as per their 2001 census return. Five mutually exclusive areas were defined; the Belfast metropolitan area (BMA) (comprising 21% population) and the remaining parts the four Health Boards responsible for the organisation and promotion of screening but not part of the BMA.

Setting All women enumerated at the 2001 Census of Northern Ireland.

Participants 37 059 women aged 48–64 at the time of the census who had been invited for routine breast screening during the 3 years following the census.

Main outcome measure Attendance for routine breast screening in the 3 years following the census.

Results Overall uptake was 75% during the study period. In the fully adjusted model uptake was lower among women aged 60 and over, not currently married and among women whose general health was “not good” in the year before the census. Uptake was related to car ownership and housing tenure but not to educational status or NS-SEC. Even after adjustment for all other demographic and SES factors there was significant variation in uptake among Health Boards; uptake was lowest in the Eastern Board (OR 0.61, 95% CI 0.56 to 0.66, compared to the Northern Board) and lower again in the BMA (OR 0.49, 95% CI 0.45 to 0.53). The reduction in Belfast was evident across most social strata and was confirmed with maps and use of different definitions of “city”.

Conclusions Linkage of screening data to census-based longitudinal studies is an efficient and powerful way to increase the evidence base on sources of variation in uptake within the UK. This study shows that the lower breast screening uptake rate in and around the city is of concern as it affects a large number of women. It requires further investigation. The lower attendance rates are not due to socio-economic factors and appear to be independent of factors related to organisation of the service. Possible reasons and solutions for this problem will be discussed at presentation.

003 DEMOGRAPHIC ANALYSES OF PRIMARY BONE CANCER IN 0–49 YEAR OLDS IN GREAT BRITAIN, 1980–2005: A SMALL-AREA APPROACH

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Objective To examine geographical patterning in the incidence of primary bone cancers diagnosed in 0–49 year olds in Great Britain (GB) during the period 1980–2005. The analyses focussed on the two most common types in this age range, osteosarcoma and Ewing sarcoma. We specifically aimed to analyse putative associations with area characteristics including deprivation and population density.

Design The study accessed multiple data sources including population census, digital boundary, postcode directories and time series of Townsend deprivation scores. Incidence data from the 10 regional cancer registries in GB were accessed and analysed by census small-area level (census ward level for England and Wales; postcode sector level for Scotland).

Setting GB.

Participants Data from patients (0 to 49 years) diagnosed with a primary bone cancer between 1st January 1980 and 31st December 2005 and registered with one of the 10 regional cancer registries in GB.

Main outcome measure Negative binomial regression was used to examine the relationship between incidence rates and population density, Townsend deprivation index (and its components). The