

buffers. More local patterns of area effect are further revealed, eg more mixed land use is associated with higher levels of walking in some but not all areas of the city, suggesting that the significance and magnitude of associations between built environment characteristics and walking are not the same across space.

**Discussion:** Application and findings of the three approaches lead to distinct yet complementary conclusions about the environmental determinants of physical activity and the scales at which they may be operating. Findings are discussed in terms of their implications for public health practice and policy, eg acquiring and inventorying data on population health as well as area characteristics for surveillance purposes, developing and implementing health promotion and prevention strategies based on extent data at the local and at different geographical levels, and evaluating policy interventions aimed at changing the local environment. The challenges of targeting actions at the local area level are underlined and examined in light of recent national (UK and Canada) and international recommendations and guidance to create environments conducive to physical activity.

### 011 THE 2008 GREAT NORTH RUN AS PUBLIC HEALTH INTERVENTION: PARTICIPANT CHARACTERISTICS AND CHANGES IN PHYSICAL ACTIVITY AND BODY MASS INDEX FROM 20 WEEKS BEFORE TO 20 WEEKS AFTER THE EVENT

J Adams, M White. *Institute of Health and Society, William Leech Building, Newcastle University, Newcastle upon Tyne, UK*

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**Background:** Mass participation sporting events are often proposed as methods of promoting physical activity and decreasing obesity. Little research has explored who takes part in such events or if participation leads to sustained behaviour change. The Great North Run (GNR), from Newcastle upon Tyne to South Shields (13.1 miles), is the UK's largest mass participation sporting event.

**Objectives:** To describe the characteristics of non-elite runners in the 2008 GNR, and document group-level changes in physical activity and body mass index (BMI) between 20 weeks before (time 1) and 20 weeks after (time 2) the event.

**Design:** Age, gender and postcode of residence for all 2008 GNR non-elite runners was provided by the organisers (n = 51 185). Links to online surveys were sent to all non-elite runners via email at times 1 and 2. These collected information on age, gender, current physical activity levels (using the short International Physical Activity Questionnaire, IPAQ), self reported height and weight, and postcode of residence. IPAQ responses were used to categorise physical activity over the past seven days as low, moderate or high. Postcodes of residence were used to assign Index of Multiple Deprivation data to those runners living in England (91.7% of all non-elite runners).

**Results:** Median age of all 51 185 non-elite runners was 35.6 (IQR 28.4 to 43.7) years, 58.9% were male and 53.5% of those living in England lived in the least deprived 40% of areas. 3018 participants responded to the survey at time 1 and 2851 at time 2. Respondents to both surveys were slightly older and less likely to be male than all non-elite runners but had a similar deprivation profile. Among respondents at time 1, physical activity was categorised as high in 65.0% and moderate in 29.2%; median BMI was 24.0 (IQR 22.0 to 26.3). At time 2, physical activity was categorised as high in 68.0% and moderate in 21.8%. Median BMI was 24.0 (IQR 21.9 to 26.3).

**Conclusions:** The typical GNR participant is male, mid-30s, lives in an area of low deprivation, has a "normal" BMI, and is moderately or highly active. Group-level differences in physical activity and BMI between those responding at time 1 and 2 were minimal. The repeat cross-sectional design means that individual-level conclusions cannot be drawn. GNR participants are not those who could most benefit from increased physical activity. The GNR may provide a focus for maintaining activity and BMI, but there is

little evidence that participation leads to sustained group-level improvements in either measure.

### 012 HEALTHY EATING AND PHYSICAL ACTIVITY CHOICES IN SOCIO-ECONOMICALLY DISADVANTAGED WOMEN: THE ROLE OF HEALTH LITERACY

J Edwards, C Jackson, F Cheater, J Holt, M Robinson. *School of Healthcare, University of Leeds, Leeds, UK*

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**Background:** The Public Health White Paper recognises the need to help individuals to make informed decisions about healthy eating and physical activity. However, one in five people in the UK cannot interpret basic health information. Poor health literacy is associated with socio-economic disadvantage and compounds health inequalities. Interventions to promote informed decision-making for healthy eating and physical activity commonly ignore patient health literacy. Indeed, there is a lack of research into health literacy and lifestyle choices as well as poor understanding of how different population groups seek, interpret, critically analyse and use information to make informed lifestyle decisions. This novel study explored health literacy for healthy eating and physical activity decisions in socio-economically disadvantaged women. We focused on women because they typically have responsibility for family health. Improving health literacy in disadvantaged communities may confer greatest public health benefit.

**Methods:** Eighty five women living in deprived areas of three northern cities were theoretically sampled to provide a diversity of age, ethnicity and educational background. Rootman's health literacy model provided the theoretical framework for the study. Semi-structured interviews explored how women seek, understand, trust and use healthy eating and physical activity information/advice to make informed decisions. Interviews were recorded, transcribed verbatim and are currently being analysed using the Framework approach.

**Findings:** Emerging themes suggest that women *access* lifestyle information/advice through various sources including community groups, health centres, media, family and friends. Many report a lack of available information on physical activity. *Understanding* of the components of healthy eating (eg 5-a-day) and physical activity (eg 5 weekly bouts of 30 minutes) varies markedly across women and is challenged by confusing, mixed messages in the media and health literature. Many women find practical demonstrations, eg of what constitutes a "portion" in combination with oral delivery of information as helpful for understanding. *Trustworthy* sources of lifestyle information include the NHS, family and friends. Interestingly whilst women were wary of commercially-produced health information, they trusted Weight Watchers. Finally, women talked about how their *use of information* to make healthy choices is often constrained by issues peripheral to health literacy, eg family circumstances and finance.

**Conclusion:** These preliminary findings highlight the important role that health literacy plays in the adoption of healthy lifestyles. They also identify potential ways to improve the quality of support and advice provided by health, community and social care professionals.

## Inequalities I

### 013 ETHNICITY AND CANCER TREATMENT IN NEW ZEALAND: DO MAORI PATIENTS GET A WORSE DEAL?

<sup>1</sup>S Hill, <sup>2</sup>D Sarfati, <sup>2</sup>T Blakely, <sup>2</sup>B Robson. <sup>1</sup>University of Edinburgh, Edinburgh, UK; <sup>2</sup>University of Otago, Dunedin, New Zealand

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**Background:** Ethnic or racial disparities in cancer treatment have been documented in several countries and cancer types. We

examined and compared treatment of Māori (Indigenous) and non-Māori New Zealanders with colon cancer.

**Methods:** From the New Zealand Cancer Registry we identified a population-based cohort of 629 patients diagnosed with colon cancer between 1996 and 2003. We reviewed medical notes and compared surgical and oncology treatment in Māori and non-Māori patients. We adjusted treatment differences for tumour characteristics, patient comorbidity and treatment facility type.

**Findings:** Māori and non-Māori patients received similar rates of surgical resection although Māori patients were less likely to have extensive lymph node clearance (relative risk (RR) 0.25, 95% CI 0.13 to 0.50 for removal of 30 or more nodes) and were more likely to die in the post-operative period (RR 5.31, 95% CI 1.54 to 18.32 for death following elective surgery). In patients with stage III disease Māori were significantly less likely to receive chemotherapy (RR 0.69, 95% CI 0.53 to 0.91) and more likely to experience delay of at least eight weeks to start chemotherapy (RR 1.98, 95% CI 1.23 to 3.16). Treatment disparities were not accounted for by patient comorbidity or treatment facility type (public cancer centre, public non-cancer centre and private facility) although differences within facility types remain a potential explanatory factor.

**Interpretation:** Māori and non-Māori patients with colon cancer receive similar surgical treatment but Māori are less likely to receive adjuvant chemotherapy and may experience a lower quality of care. Attention to health-system factors is needed to ensure equal access and quality of cancer treatment.

#### 014 SOCIOECONOMIC DIFFERENCES IN STATIN USE AFTER DEREGULATION OF SIMVASTATIN IN THE UK: THE WHITEHALL II PROSPECTIVE COHORT STUDY

I Forde, T Chandola, MG Marmot, M Kivimaki. *Department of Epidemiology and Public Health, University College London, London, UK*

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**Objective:** To examine socioeconomic differences in statin use after deregulation of simvastatin in adults with moderate or high risk of coronary heart disease.

**Design:** Prospective cohort study.

**Setting:** 20 civil service departments in London.

**Participants:** 3631 men and women (mean age 62.7 years) with moderate or high 10-year risk of CHD according to Framingham risk score.

**Main Outcome Measures:** Statin use, both prescribed and over the counter; recall of personal CHD risk.

**Results:** Based on medical screening, 2451 participants were at high CHD risk and 1180 at moderate risk. Of the high-risk participants, 54% reported using prescribed statin. This rate did not differ between employment grades (an index of socioeconomic position) after adjusting for age and sex; South Asian participants, however, were more likely to report using prescribed statin than White participants (odds ratio 1.73, 95% CI 1.28 to 2.36). Three percent of high-risk participants reported using over the counter statin with participants from low (OR 0.11, 95% CI 0.01 to 0.88) and middle (OR 0.54, 95% CI 0.29 to 1.00) employment grades being less likely users than those from high employment grades. Among moderate-risk participants, 8% reported using over the counter statin; we found no variation by employment grade or ethnicity in this group. 37% of high-risk participants recalled their CHD risk. After adjusting for age, sex and cognitive function, South Asians were significantly less likely to recall than White participants (OR 0.65, 95% CI 0.46 to 0.93) and middle (OR 0.74, 95% CI 0.61 to 0.89) and low (OR 0.52, 95% CI 0.37 to 0.74) employment grades participants less likely to recall than those from high employment grades.

**Conclusion:** Reported use of statin is considerably lower than need in all social groups although our data suggest that use of statin has largely remained socially equitable after recent changes in availability.

However, most high-risk participants are unaware of their risk, despite being informed of their risk by the study. Ethnic minorities and lower socioeconomic position groups, who are most at risk of heart disease, are significantly less likely to be aware. This is likely to impact on ability to participate in self-management and may partly explain poorer clinical outcomes.

#### 015 SOCIO-DEMOGRAPHIC PREDICTORS OF UPTAKE OF MMR IMMUNISATION IN THE LIFEWAYS COHORT STUDY

<sup>1</sup>L Jessop, <sup>1</sup>CC Kelleher, <sup>1</sup>C Murrin, <sup>1</sup>J Lotya, <sup>1</sup>D O'Mahony, <sup>1</sup>AT Clarke, <sup>2</sup>UB Fallon, <sup>3</sup>H Johnson, <sup>4</sup>G Bury, <sup>5</sup>A Murphy, on behalf of the Lifeways Cohort Study Steering Group <sup>1</sup>*School of Public Health and Population Science, Woodview House, University College Dublin, Belfield, Dublin 4, Ireland;* <sup>2</sup>*HSE Dublin Mid-Leinster Area Offices, Arden Road, Tullamore, Co. Offaly, Ireland;* <sup>3</sup>*Health Information Unit, Health Intelligence, National Population Health Directorate, HSE, Dr Steevens Hospital, Steevens Lane, Dublin 8, Ireland;* <sup>4</sup>*School of Medicine and Medical Science, The Coombe Healthcare Centre, Dublin 9, Ireland;* <sup>5</sup>*Department of General Practice, National University of Ireland Galway, University Road, Galway, Ireland*

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**Objectives:** To investigate the uptake of the first dose measles, mumps and rubella (MMR) vaccine and factors associated with not receiving this vaccine.

**Design:** Cross-Generational Cohort Study with prospective linkage to primary care and hospital health records.

**Setting:** Urban and rural settings in Ireland recruited in 2001–2003 with five years follow-up.

**Participants:** 749 singleton children with immunisation information collected from the Health Service Executive (HSE). These are 70% of the original cohort who could be matched to HSE data.

**Main Outcome Measures:** Children immunised or not with the first dose of MMR by 2007.

**Results:** MMR uptake was 88.8% overall, with 91.6% in the East of Ireland (urban) and 83.8% in the West (rural). Odds ratios, adjusted for the other factors and the cluster affect of region, for the child not receiving MMR were significant for the following independent factors; having a mother who had ever visited an alternative practitioner, OR 2.65 (1.76 to 3.98), a degree level educated mother OR 1.48 (1.07 to 2.04), an unmarried mother OR 1.97 (1.09 to 3.36), a mother who was a smoker OR 1.32 (1.04 to 1.69) or a lone parent OR 1.14 (1.13 to 1.15). Families that had 3 or more children in the household before the birth of the cohort child, OR 2.64 (1.42 to 4.91), had an income of less than £300/week OR 1.60 (1.35 to 1.91), who lived in the West of Ireland, OR 2.7 (2.47 to 2.96), or had a male child, OR 1.76 (1.74 to 1.78) were also significant factors.

**Conclusions:** These novel prospective data confirm that in addition to factors associated with disadvantage, other health practices and beliefs may influence immunisation uptake. Furthermore, the determinants are heterogeneous. In light of the controversy around the MMR vaccine, attitudes of parents are highly relevant. This information can be used to design more focused parent information and immunisation services to target differing families whose children are at increased risk of measles infection. More work is needed to investigate parental beliefs as to why boys are less likely to receive the MMR. Specific interventions are vital if the target of 95% uptake of MMR is to be reached and measles is to be eradicated from the European region by 2010.

#### 016 FOOD POVERTY AND DIETARY QUALITY: IS THERE A RELATIONSHIP?

<sup>1</sup>J Harrington, <sup>1</sup>J Lutomski, <sup>2</sup>M Molcho, <sup>1</sup>IJ Perry. <sup>1</sup>*Department of Epidemiology and Public Health, University College Cork, Cork, Ireland;* <sup>2</sup>*Department of Health Promotion, NUI, Galway, Ireland*

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**Background:** Food poverty is intrinsically linked to inadequate income, poor dietary and lifestyle habits, and health inequalities,