

interaction between famine exposure and genetic risk scores with regard to BMI outcomes. Analyses with weighted risk scores confirm these patterns. Common genetic variants related to BMI do not explain the association between prenatal famine and adult BMI in our study population.

P1-35 ON THE USE OF EMPIRICAL LIKELIHOOD BASED METHODS TO ACHIEVE BALANCE ON MEASURED CONFOUNDERS

doi:10.1136/jech.2011.142976c.29

G Luta,* A Dragomir, A Barbo, C Loffredo. *Georgetown University, Washington, DC, USA*

Introduction One of the limitations of the statistical methods that use propensity scores, such as those involving adjustment for the propensity score, matching, subclassification, and inverse probability of treatment weighting, is that they do not achieve exact balance with respect to the measured confounders. Empirical likelihood is a nonparametric method with desirable statistical properties that is perfectly suited to perform the reweighting of the data as to achieve exact balance on measured confounders.

Methods We describe statistical methods that use empirical likelihood to construct weights that add up to one and produce exact balance when applied to the data. For the case involving only categorical confounders, the empirical likelihood based methods produce weights similar to those generated by the inverse probability weighting or standardisation methods. The new methods can handle both categorical and continuous confounders in a unified manner, and allow the incorporation of balancing constraints ranging from simple equalities of means/proportions to more complex constraints related to the comparison of distributions.

Results Under different scenarios of interest, we perform simulations to compare the statistical properties of the proposed method with the inverse probability weighting method. For comparative purposes we also use both methods to evaluate the association between cardiac malformations and birthweight using data from the Washington-Baltimore Infant Study.

Conclusion The proposed empirical likelihood based method performs well and should be used as complementary to the currently available propensity score based methods.

P1-36 DATA SOURCES ON DRUG SAFETY EVALUATION: A REVIEW OF RECENT PUBLISHED META-ANALYSIS

doi:10.1136/jech.2011.142976c.30

^{1,2}C Alves, ^{1,3}F Batel-Marques, ^{1,3}N Craveiro, ^{2,3}A F Macedo.* ¹*School of Pharmacy, University of Coimbra, Coimbra, Portugal;* ²*Health Sciences Research Centre, University of Beira Interior, Covilhã, Portugal;* ³*Central Portugal Regional Pharmacovigilance Centre, AIBILI, Coimbra, Portugal*

Introduction Harmful effects of medicines should be reviewed with similar rigour as therapeutic benefits. Most evidence on harms is obtained from post marketing surveillance, so the use of meta-analysis to pool safety information presents challenges of inherent biases and differences in study designs. Yet, it's crucial to provide an accurate safety profile of pharmacological interventions. We aimed to describe the data sources of published meta-analysis of adverse drug effects.

Method We searched meta-analysis published in the last 5 years in six medical journals with the highest impact factor. All the meta-analysis focussing primarily on adverse effects of pharmacological interventions, with pooled results, were included and the characteristics assessed.

Results A total of 61 meta-analysis were included, 16 were published in JAMA, 13 in Lancet, 11 in BMJ, 10 in Ann Intern Med, nine in Arch Intern Med and two in NEJM. Of these 90.2% (n=55) included

only experimental studies, two included only observational studies and four meta-analysis comprised both type of studies. Less than half (47.5%; n=29) of the meta-analysis assessed the quality of the included studies according to specified recommendation statements, and only 18 (29.5%) considered unpublished studies.

Conclusion The majority of meta-analysis of adverse drug effects included only experimental studies, less than half assessed their quality and few considered unpublished studies. These results reinforce the need for methodological research to clarify the role of meta-analysis in Pharmacovigilance and evaluate how to pool safety information from different surveillance methods, to provide an accurate safety profile of pharmacological interventions.

P1-37 WITHDRAWN

P1-38 MODELLING THE FUTURE BURDENS OF CHRONIC DISEASE THE LESSONS FROM FORESIGHT AND BEYOND

doi:10.1136/jech.2011.142976c.31

¹T Marsh,* ²K McPherson, ¹M Brown, ¹K Rtveladze. ¹*National Heart Forum, London, UK;* ²*University of Oxford, Oxford, UK*

Introduction As the prevalence of chronic diseases continues to climb, the challenges of quantifying the impact of this epidemic to inform decision makers becomes more urgent. Drawing on experiences of work in England, USA, Brazil, Mexico and Russian Federation we will demonstrate how the application of micro simulation modelling can lead to a systematic understanding of the associated morbidities, economic burden and inform policy makers form effective strategies and build the political will for change.

Method The application of micro-simulation modelling techniques to understand the future impact of changes in trends in tobacco consumption and obesity rates and the potential impact of policy interventions.

Results The work initially undertaken for the Foresight Tackling Obesity research was instrumental in galvanising a cross government strategy in England, Healthy Weight, Healthy Lives, subsequent outputs from the simulations in the USA, Brazil, Mexico and Russian Federation should also inform policy in those countries.

Conclusion Morbidity and the economic burden of chronic disease is a practical metric for comparative assessment of health risks, as exemplified by its use by international organizations such as the World Bank, the WHO and the Organisation Economic Co-operation and Development. Nonetheless, the applications for simulation models of morbidity consequences of chronic disease can well go beyond projecting the growth of the problem to the society. A modelling framework provides a useful infrastructure for the comparative evaluation of the effectiveness and return-on-investment of potential policies aimed to alter the drivers and determinants of obesity epidemic.

P1-39 IN RANDOMISATION WE TRUST? RESEARCH REACTIVITY PRODUCES BIAS IN BEHAVIOUR CHANGE TRIALS

doi:10.1136/jech.2011.142976c.32

¹J McCambridge,* ²K Kypri, ¹D Elbourne. ¹*LSHTM, London, UK;* ²*University of Newcastle, Newcastle, New South Wales, Australia*

Introduction Behaviour change trials are increasingly important in public health. Although there has been longstanding awareness of pre-test sensitisation and the Hawthorne effect, the implications of participant reactivity in behaviour change trials are largely unstudied. The aim here is to explore the mechanisms by which biases stemming from the unintended consequences of research participation may be introduced in trials.

Methods Data from systematic reviews, dedicated methodological experimental studies and qualitative studies nested within behaviour change trials will be presented.

Results Study findings indicate: (1) the existence of previously unrecognised recruitment effects on behaviour; (2), that assessment reactivity is a widespread form of contamination in behaviour change trials; (3) that randomisation itself may induce behaviour change; and (4) that these types of effects are highly unlikely to be additive to the effect of behavioural interventions, thus leading to biased estimates of effectiveness.

Conclusions The scale of the problem, the implications for reviews of existing trials, and the reasons for the lack of development of study in this crucial area for behaviour change trials are discussed. Hypotheses and study designs are proposed to guide new research which seeks to quantify problems with existing practice in the design and conduct of trials.

P1-40 EXPERIENCE OF DISCRIMINATION IS A SIGNIFICANT ASSOCIATE OF MENTAL ILL-HEALTH IN IRISH TRAVELLERS. FINDINGS FROM THE ALL IRELAND TRAVELLER HEALTH STUDY

doi:10.1136/jech.2011.142976c.33

C McGorrian, B Quirke, C Kelleher,* All Ireland Traveller Health Study Team. *UCD School of Public Health, Physiotherapy and Population Science, Dublin, Ireland*

Introduction Traveller are an indigenous minority in Ireland, with poorer life expectancy and health status than the general population. We describe here the self-reported burden of mental ill-health and its associates.

Methods A census survey of all Travellers was undertaken, with 8492 enumerated families (80% response rate). A random subset of 1796 adults completed a health survey. Peer researchers employed a novel oral-visual computer data-collection methodology. Age and sex-adjusted logistic regression models were fitted, with one or more days of mental ill-health in the last month as the dependent variable.

Results Overall 39% of men (225/580) and 41% of women (495/1211) reported mental ill-health, increasing with age ($p=0.001$). In a multivariable model, factors associated with increased odds of mental ill-health were poorer physical health (OR 4.7, 95% CI 3.3 to 6.8), being unable to enjoy usual activities (OR 17.2, 95% CI 11.7 to 25.2), regular alcohol consumption (OR 1.5, 95% CI 1.0 to 2.3), agreeing that drugs are a community problem (OR 1.8, 95% CI 1.3 to 2.6), that nomadism is important (OR 1.5, 95% CI 1.0 to 2.2), and increasing experience of discrimination (OR 1.1 per 1-point increase in scale, 95% CI 1.0 to 1.1). Factors associated with reduced odds were male sex (OR 0.7, 95% CI 0.44 to 0.95), rural vs urban living (OR 0.5, 95% CI 0.4 to 0.8), and social supports (OR 0.84 per 10% increase in scale, 95% CI 0.75 to 0.97). AUROC was 0.92.

Conclusions This novel study comprehensively profiles associations of mental ill-health in a vulnerable minority community.

P1-41 THE INFLUENCE OF FOREST LANDSCAPE DESIGN ON HUMAN-TICK CONTACT AS AN EFFORT TO PREVENT EXPOSURE TO TICK-BORNE DISEASES

doi:10.1136/jech.2011.142976c.34

C Meha.* *UMR 8185 Espaces, Nature et Culture, CNRS/ Paris IV/ Paris 8, Paris, France*

Background Reducing exposure to ticks is currently the most effective method of prevention of Lyme borreliosis, which appears to pose a new public health problem in heavily urbanised areas. The analysis of contacts between the routes that people adopt in forests (where ticks live) and the spaces and environments considered to be of risk (the most suitable habitat for ticks) constitutes a privileged avenue of study. There is a need to study these spatial dynamics, as well as to

study ways in which it is possible to minimise risk via the landscape and design.

Methods Two databases were created, one related to ticks that can transmit the infection and the other to trajectories of forest users. The first was fed by samples collected in the Sénart forest (France) and the second gathered descriptive data on volume and characteristics of human flow through the forest area.

Results All the data have been entered into a GIS database. A characterisation of the busiest portions of routes in relation to data on tick populations densities and distribution (and, in fact, a characterisation of individual vulnerabilities on the type of socio-demographic profile associated with these portions) has then been conducted and has enable us to model human exposure to ticks according to the locations visited by users.

Conclusions Various actions related to forest management will be discussed with the forest officers such as, for example, the relocation or closure of some trails, or the changing of points of attractions for users in the forest.

P1-42 ASSOCIATIONS OF AREA DEPRIVATION OVER THE LIFECOURSE AND PHYSICAL CAPABILITY IN MID-LIFE: FINDINGS FROM THE 1946 BRITISH BIRTH COHORT

doi:10.1136/jech.2011.142976c.35

^{1,2}E T Murray,* ³Y Ben-Shlomo, ⁴H Southall, ⁴P Aucott, ³K Tilling, ²J Guralnik, ¹D Kuh, ¹R Hardy. ¹MRC Unit for Lifelong Health and Ageing, London, UK; ²NIH/NIA/Laboratory of Epidemiology, Demography, and Biometry, Bethesda, Maryland, USA; ³Department of Social Medicine, University of Bristol, Bristol, UK; ⁴Great Britain Historical GIS Project, Department of Geography, University of Portsmouth, Portsmouth, UK

Background Recent work has shown that factors across the whole of life influence physical capability in later life. Therefore, when investigating area socioeconomic effects on physical capability, area exposures should be assessed across the lifecourse to take account changes in residence and secular trends of an area.

Methods Using data from the MRC National Survey of Health and Development, we examined the relationship between area low social class (per cent partly- or un-skilled of all occupied in a local government district) at ages 4, 26, and 53 years [residence linked to census data for years 1951, 1971, and 2001] with objective measures of physical capability (grip strength, standing balance and chair rise time) at age 53 years.

Results After adjustment for area at other years, a higher area low social class at 4 and 53 years was associated with decline in mean balance time of 4.4% (95% CI 0.6 to 8.1) and 7.6% (3.6 to 11.6), respectively, but only area at age 53 with higher chair rise time [mean change 1.8% (95% CI 0.0 to 3.6) at 53 years. Associations were reduced but still apparent after adjustment for individual occupational social class at the same three ages. There were no significant associations between area and grip strength.

Conclusions For the first time, our study shows that living in a socioeconomically deprived area in early and later life adversely affect some measures of physical capability in mid-life. Future work is needed to explore potential mechanisms of area effects by age and physical capability measures.

P1-43 BRIDGING ELECTRICAL DATA ENTRY SHEET AND STATISTICAL SOFTWARE BY STANDARD DATA MODEL

doi:10.1136/jech.2011.142976c.36

M Okada.* *Department of Epidemiology, University of Tsukuba, Tsukuba, Ibaraki, Japan*

Introduction Interoperability of collected dataset has been distress for researchers. Introduction of database management software made some improvements, however, still we need many of