

P1-319 A MULTILEVEL APPROACH FOR STUDYING THE ASSOCIATION BETWEEN NEIGHBOURHOOD CHARACTERISTICS AND SELF-RATED HEALTH IN THE BRAZILIAN PRÓ-SAÚDE STUDY

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Introduction Few studies examine the influence of neighbourhood characteristics on self-rated health (SRH), particularly in middle-income countries such as Brazil. We examine the association between neighbourhood of residence indicators of socioeconomic position and individual self-rated health in the Pró-Saúde cohort study, adjusting for group and individual characteristics.

Methods A multilevel approach using hierarchical modelling was applied to analyse the relationship between neighbourhood indicators of socioeconomic position and self-rated health in 3054 University employees living in Rio de Janeiro city who participate in the Pró-Saúde study. Neighbourhoods (n=621) were created using the SKATER algorithm, a tool for area regionalisation to group small areas (TerraView software). Census tracts were grouped based on four census tract indicators and a minimum population of 5000 living in the delimited neighbourhood.

Results Adjusting for individual factors, such as individual income per capita, educational level, age, sex, ethnicity, health related behaviours and the presence of chronic diseases, low neighbourhood income level and a higher number of inhabitants per residence were significantly associated with poor SRH. Subjects living in neighbourhoods with medium income level were 34% more likely to rated their health as poor. Those living in areas with a higher density of persons per household were 50% more likely to report poor SRH.

Conclusion Following adjustment for individuals factors neighbourhood context influenced SRH in this study; poor neighbourhood socioeconomic conditions are associated with poor SRH.

P1-320 EFFECTS OF A 6 MONTH COMMUNITY-BASED LIFESTYLE MODIFICATION PROGRAM ON METABOLIC PARAMETERS AND DIETARY PATTERNS IN THE RURAL JAPANESE OVER 40 YEARS OLD

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Introduction In Japan, a new screening and intervention program specifically targeting the metabolic syndrome has been conducted since April 2008. The aim of the study was to evaluate the effects of a 6 month lifestyle modification program on metabolic parameters and dietary patterns in the rural Japanese over 40 years old.

Methods 159 rural inhabitants over 40 years old with metabolic syndrome risk factors, were randomly allocated into intensive intervention (n=79) and standard care control (n=80) groups. The subjects in the intervention group participated in a 6-month lifestyle modification program consisting of health education, exercise, diet, or counselling every month with self-monitoring body weight, blood pressure and fasting blood glucose (FBG) everyday, whereas those in the control group participated in a standard care program consisting of health education without self-monitoring. Food frequency questionnaires and health examination were conducted before and after the program.

Results The participants in the intervention group showed significant reductions in daily intake of carbohydrates (p<0.05) and fruits (p<0.01), body weight (p<0.001), waist circumference (p<0.001), systolic and diastolic blood pressure (both p<0.001), FBG (p<0.05),

haemoglobin A1c (p<0.05), triglyceride (p<0.001) and a significant gain in HDL-cholesterol (p<0.001), whereas those in the control group showed significant reductions only in body weight (p<0.001), waist circumference (p<0.001), systolic and diastolic blood pressure (p<0.05 and p<0.001, respectively). The men in the intervention group showed significant reductions in daily intake of alcohol (p<0.05).

Conclusion The intensive intervention program was more effective in reducing multiple metabolic parameters and dietary consumption than the standard care one.

P1-321 STATISTICAL MODELLING TECHNIQUE IN FORECASTING OF PALLIATIVE ONCOTHERAPY LOAD IN HOSPITALS

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Background An increase in cancer incidence in developing countries is expected in future and the number of cancer patients requiring palliative treatment will also rise in Nepal. Estimation of trends is very essential for the planning of future requirements in any healthcare programme.

Method This retrospective study analysed the records from the Radiotherapy Department at Manipal Teaching Hospital, Pokhara, Nepal to calculate the number of cancer patients who received palliative treatment with radiotherapy between September 2000 and December 2008. Statistical modelling techniques were applied for forecasting of future trends.

Results Of 1001 cancer cases, 363 patients received radiotherapy with palliative intent during the study period. Excluding the constant term from the equation, the Logarithmic model was the best fitted, with R²=0.727, p=0.002 for the forecasting of cancer patients receiving palliative treatment. Using this model, the number of cancer cases receiving palliative radiotherapy at the hospital in the year 2015 was estimated to be 68. Thus, the number of patients requiring radiotherapy with palliative intent shows a pattern of increasing trend over the coming years.

Conclusion The data analysed in the present study indicates an increasing future trend of patients requiring palliative therapy at the centre. Therefore, in the future, there could be a discrepancy between the requirement and capacity of care to these patients. Government and healthcare agencies of Nepal must ready themselves to promote better strategies for adequate provision to the cancer patients receiving palliative treatment in the coming years.

P1-322 STATISTICAL MODELLING IN THE PREDICTION OF KALA-AZAR IN NEPAL

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Background Kala-azar (Visceral Leishmaniasis) is endemic in 12 Terai districts of Nepal. More than 5.6 million people living in these districts are believed to be at risk of developing Kala-azar. The objective of this study was to predict future trends in Kala-azar using available data.

Methods We carried out a retrospective study using data collected from the Health Ministry records of Nepal, between 2003 and 2007. Descriptive statistics and statistical modelling were used for analyses.

Result Excluding the constant term from the equation, the logarithmic model was the best fit for predicting Kala-azar cases ($R^2=0.85$, $p=0.01$). The reported number of Kala-azar cases in 2007 differed from our projected number of cases by 68. Using a cubic equation it was estimated that there will be 2548 reported Kala-azar cases in Nepal by the year 2015.

Conclusion The number of Kala-azar cases in Nepal is predicted to increase. Curve fitting method could be an effective exploratory modelling technique for predicting cancer frequency and trends over the years. The Kala-azar control programmes should aim to reduce Kala-azar morbidity and prevent mortality by applying a primary healthcare approach which includes active community participation.

P1-323 EVALUATION OF STRATEGIES FOR PANDEMIC INFLUENZA (H1N1) CONTROL AND PREVENTION IN JAPAN BASED ON A TOTAL NUMBER SURVEY IN A CLOSED AREA SIMULATED BY MATHEMATICAL MODELS

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Introduction In 2009, we observed worldwide epidemics of pdmH1N1-flu. We made an almost complete survey of epidemic of pdmH1N1-flu in Kounu town which is isolated from others. All the children with influenza should be reported in Japan for the School-Health-Law preventing their attendance in the infectious period. We applied this epidemic to mathematical models and suggested some strategies to control infection.

Methods Subjects were children of nursery, elementary, and junior high school living in Kounu town. We estimated this epidemic by applying to Kermack-McKendrick model and Multitype epidemic models, selected the most suitable model, and changed the parameters to analyse from three preventing strategies; shortening of virus seeding by 1 day, decreasing of infectivity by 30%, and decreasing the infectivity in especially high infectivity areas to nearly other's one.

Results We estimated $R_0=1.44-6.95$ for the basic reproduction number. The model of assumed subpopulation of school and community was the most suitable, and we found a "super spreader area" on N area in this model. All the strategies could reduce total infectious population. Only when virus seeding was shortened, epidemic was also shortened. Peak infectious population was much reduced when we intervened in especially high infectivity areas.

Conclusion Most patients were treated with anti-virus and school closure was carried out. This caused the actual epidemic curve shortened and total patients were less than the estimated epidemic model. Therefore, we suggest that particularly where there is a super spreader, to isolate the patients and interruption to infectious roots are effective.

P1-324 CANCER MORTALITY RISK VISUALISATION ON THE AGE-PERIOD SPACE BY REGRESSION MODELS

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Introduction Cancer information obtained by suitable method becomes a basis of planning the effective cancer control program.

Age-Period-Cohort (APC) model is widely used in the analysis of longitudinal cancer data or prediction. This is constructed by regression model whose explanatory variables are age, period and cohort. However, this model includes the problem that these three elements are not estimated uniquely, because there is a linear dependent relationship among these elements, cf., "cohort = period—age". So there are many kinds of improvements in order to divide these three effects.

Methods To avoid difficulties, we propose to use an interaction model instead of APC model, and visualise cancer risk on the age-period space. We compare three models, that is, traditional APC model, geographically weighted regression (GW) model and interaction model. Those models can be described on Poisson regression model. To help understanding those mathematical models, we also show some scripts, which are executable in statistical software, R.

Results and conclusion Applying those regression models to the data of lung cancer in Denmark which is available as lungDK of Epi package in R and liver cancer in Japan, which is said to have strong cohort effect, cohort effects were visualised in sex effect of Denmark data and in Japanese male data.

P1-325 THE EPIDEMIOLOGY OF COMMUNITY RESILIENCE IN BRIGHTON AND HOVE, ENGLAND

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Introduction The current UK spending cuts have brought into stark light the need for the Public Sector to do more with less. A lower cost but more engaged Public Sector is embodied in the political vision of a "Big Society" which seeks to build on individual and community resilience. Knowledge of what community resilience resources are available however, is incomplete.

Methods This study presents the findings from a community resilience mapping exercise undertaken in the spring of 2011, using routine data in Brighton and Hove. The Well-being and Resilience Measure (WARM) Tool was used to map out the epidemiology of community resilience in eight domains:

- ▶ Education
- ▶ Health
- ▶ Material well-being
- ▶ Strong and stable families
- ▶ Local economy
- ▶ Public services
- ▶ Crime and antisocial behaviour
- ▶ Infrastructure and belonging

Results A series of electoral ward maps with some time trends describes community resilience in these eight domains with reference to four population groups.

- ▶ Children and young people
- ▶ Working age adults
- ▶ Older people
- ▶ Natural community groups

Conclusions We believe that this is the first time a Public Sector organisation (NHS Brighton and Hove) in England has comprehensively mapped local resilience using routine data. The approach is timely and the findings are key to understanding the public capacity to deliver the political vision of a 'Big Society' and to implement the 2010 Public Health White Paper "Healthy Lives, Healthy People", which explicitly seeks to "give communities the tools to address their own, particular needs".