

**Emerging and New  
Research in Geographies of  
Health and Impairment**

**14th Annual Conference**

Durham University,  
Department of Geography

6<sup>th</sup> – 7<sup>th</sup> April 2009

Conference Proceedings



# Panel Presentations

## Panel session 1: Society, Space and the Lifecourse

Mon 6<sup>th</sup> April 11.00-12.50, chaired by Alison Copeland

- Malcolm Campbell — Fair and Square? The spatial pattern of health and socio-economic characteristics in Northern Ireland
- Sue Easton — Social Inequality or Spatial Inequality? Exploring the life outcomes of British children born in different regions
- Joanne Cairns — Understanding the Relationship between Resilience and Health in the North East of England
- Michael Grayer — Life Expectancy Trends in London: More than deprivation?
- Susan Hodgson — Residential Mobility during Pregnancy in the North of England

## Panel session 2: Healthcare and Health Management

Mon 6<sup>th</sup> April 15.00-16.20, chaired by Alie Beale

- 1 X Anne Quesnel-Barbet — Geography of Spatial Utilization of the Health Services: A Newtonian modelling of hospital catchment areas
- Morgan Berger — Initial Results about Therapeutic and Spatial Components of Accessibility to Health Services in the Case of Haemophilia
- Sorayya Khan — Community Participation in Malaria Management in Mali
- Alison Copeland — Primary/ Community Care or Living Environment? Multilevel analysis of 'potentially avoidable' emergency admissions for the older population of Barking and Dagenham

## Panel Session 3: Modelling the Environment

Mon 6<sup>th</sup> April 16.30-17.10, chaired by Robin Jamieson

- Jurigata Lekaviciute — Urban Noise Pollution and Myocardial Infarction Risk: The use of geographic information systems (GIS) in environmental epidemiology study (case of Kaunas)
- Anesh Sukhai — Spatial and Temporal Variations in Road Traffic Fatalities in South Africa
- 2 X Anne Quesnel-Barbet — E-Atlas of Health, Planning and Sustainable Development for Information Society Development

# Panel Presentations

## Panel Session 4: Therapeutic Landscapes

Tues 7<sup>th</sup> April 11.00-12.00, chaired by Sue Easton

- Karolina Ronander — Moving Encounters: The Therapeutic Potential of Walking in Nature
- Wayne Medford — Urban Parks and their Relation to Local Residents' Health and Well-Being: Determining how environmental psychology aids the use of therapeutic landscape Concept
- Jenny Laws — Reworking Therapeutic Landscapes, Re-landscaping Therapy: an ethnography of a dissident psychiatric survivor group

## Panel Session 5: Mental Health and Problem Drug Use

Tues 7<sup>th</sup> April 14.00-15.20, chaired by Susan Hodgson

- Becky Taylor — Treatment Environments for Anorexia Nervosa: An initial review of the literature
- Magali Coldefy — French Post-Asylum Geography: The transferability of the concept of 'service dependent ghetto'
- Robin Jamieson — 'Junkies', 'Cons' and the Welfare State
- Lesley-Ann Smith — Within these Four Walls: Unfolding older, mental health service users experiences within the home spatiality

## Panel Session 6: Health Behaviours

Tues 7<sup>th</sup> April 14.00-15.20, chaired by Becky Taylor

- Claire Thompson — Obesity, Culture and the Built Environment: Making the case for a holistic approach
- Lorna Taylor — The Association between the Geography of Fast Food Outlets and Childhood Obesity Rates in Leeds, UK
- Sébastien Tusseau — Health Communication and Behaviour Change in an African Context: The importance of local context to construct AIDS prevention messages in Mali
- Absent*



## Residential Mobility during Pregnancy in the North of England

Susan Hodgson<sup>1</sup>, Mark Shirley<sup>2</sup>, Mary Bythell<sup>3</sup>, Judith Rankin<sup>3</sup>

<sup>1</sup> Lecturer in Environmental Epidemiology  
Institute of Health and Society  
Newcastle University, UK

### ABSTRACT

**Background:** Many epidemiological studies assign exposure to an individual's residence at a single time point, such as birth or death. This approach makes no allowance for migration and may result in exposure error, leading to reduced study power and biased risk estimates. Pregnancy outcomes, with short exposure windows and lag periods, are less susceptible to this bias. However data from North American populations indicate that pregnant women are a highly mobile group. We assessed mobility in pregnant women in the north of England using data from the Northern Congenital Abnormality Survey (NorCAS), a prospective, population-based register of congenital anomalies.

**Methods:** NorCAS data were extracted for 1985 to 2003. Eligible cases had a gestational age at delivery of >24 weeks (a viable delivery) (n=11,559). We assessed mobility between booking appointment (gestational age ~13 weeks) and delivery.

**Results:** Out of 7,919 eligible cases for whom addresses at booking and delivery were known, 705 (8.9% (95% CI 8.3 - 9.5)) moved between booking and delivery; the mean and median moving distance was 9.7 and 1.4km respectively. Movers were significantly younger (25.4 versus 27.3 years,  $p<0.01$ ) and lived in more deprived areas (index of multiple deprivation score 38.3 versus 33.7,  $p<0.01$ ) than non movers.

**Conclusions:** Mobility in the north of England (9%) is considerably lower than that reported in North America and the only other study from the UK (23%). Consistent with other studies, mobility was related to maternal age and socio-economic status, and the majority of moves were over a relatively short distance. While these data support anecdotal evidence that this population is comparatively stable, the mobility we have observed may still introduce misclassification or error into an exposure assessment relying solely on postcode at delivery, and migration should still therefore be considered a potential source of bias in future studies.

**KEYWORDS:** Migration; Mobility; Exposure error; Maternal residence; Pregnancy

## Geography of Spatial Utilization of the Health Services: A Newtonian modelling of hospital catchment areas

Anne Quesnel-Barbet

PhD Researcher  
Centre Hospitalier Régional et Universitaire de Lille, France

### ABSTRACT

Modelling hospital attraction is a major interest for healthcare planners. The impacts of any project can therefore be analyzed prospectively. Our aim is to build an efficient tool for observation, simulation and prediction of hospital catchment areas by medical field for health policy makers. The study covers the French Nord - Pas-de-Calais region (four million inhabitants) for the evaluation of onco-haematology and trauma orthopedics care activities with the French Medical Program of Information System (PMSI). Our geographical and mathematical model is based on the hypothesis: there is a link between recourse to health care and distance in km or in time. The "principle of least effort" is expected to hold for peripheral hospitals (non-university hospitals). We have improved Reilly's formula by using usual weight (number of beds) and also refining parameters (calculated population from one of the both algorithms: Relative Neighborhood Graph and K-means calculations). So we propose a modelling process of the spatial health services utilization in four parts. The first phase is a descriptive geographic study, from the observed situation of the catchment area, which is completed by a descriptive study of a few haematology departments. The second phase concerns the implementation of our geographical and mathematical model. In the third phase we compare the observed situations with those predicted by our model. The last part is devoted to the spatial prediction of the attraction using a simulation model for reorganization with opening, closing and aggregation of health services. After comparison and simulation steps our model appears to be robust, reliable and predictive and along with a better knowledge of the spatial utilization by specialty. It can be a new tool for development and management in health care districts and could be integrated inside a geomatics platform or/and GIS.

**KEYWORDS:** Catchment Area; Spatial Practices; Gravitational Model; K-Means Algorithm; Planning Modelling Process