

**P1-72 STRATIFICATION OF AREA OF RISK FOR DENGUE IN METROPOLITAN AREA OF PARAGUAY**

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Dengue constitutes a severe public health problem worldwide, especially in most tropical countries where environmental conditions favour the development and proliferation of *Aedes aegypti*.

**Objective** To identify priority areas of risk in various areas creating a numerical scale designated as low, moderate or high risk.

**Methodology** A retrospective descriptive study was done of historical accumulated cases during the years 2006–2007, 2008–2009, 2009–2010. The capital city and surrounding districts were selected for the study and the following indicators were calculated: the mean incidence rates of the three epidemic periods; the general house larval infestation rate by district before the SE 14-2010 (peak of the last epidemic); and the historical movement of different serotypes in each district.

**Results** Nine districts met the condition of population density. The average incidence rates of the three periods makes Asunción first with 636.60 and Luque last with 167.69 per 100 000 inhabitants. The house larval infestation rate is in all districts of the metropolitan area >1%. The highest is 18.46% in Fernando de la Mora and the lowest 4.94% in Mariano Roque Alonso (MRA). The history of viral circulation shows that in the metropolitan area three serotypes, DEN 1, DEN 2, and DEN 3 have circulated. In the nine Metropolitan districts, four are at moderate risk and five are at high risk.

**Conclusion** This epidemiological risk scale for dengue fever may be useful for the allocation of resources in a more rational way and address the actions with a risk approach.

**P1-73 CAN IN-HOSPITAL FATALITY RATES FOLLOWING HIP FRACTURES BE EXPLAINED? A META: REGRESSION ANALYSIS**

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**Introduction** The risk of death increases following a hip fracture.

**Objective** To explain mortality rates of patients hospitalised due to hip fracture, according to multiple co-variables.

**Methods** A systematic review on Medline was conducted and studies were included if data for in-hospital fatality rates, following a hip fracture admission (ICD-10 S72.0–S72.2 or ICD-9-CM 820), was available for patients older than 50 years. Prospective cohorts were considered when appropriate data were available; experimental, review and case studies were excluded as well as studies comparing different treatments. Studies involving specific populations such as cancer or patients with kidney problems were also excluded. Studies published between 2010 and 2000 were considered. Economic, social, health and demographic data were retrieved from OECD—Organisation for Economic Co-operation and Development. A meta-regression was conducted.

**Results** Preliminary results lead to 21 studies selected, 15 analysed, from 11 different countries, comprising a total of 710 886 cases of hip fractures. Sample sizes differ greatly between studies: 155 to 574 482. Most data refers to no earlier than 1996. Data available presented heterogeneity regarding age groups, availability of information by sex and period of collection. Case fatality rates range from 0.7% in Formosa (2001) to 14% in England (2002–2005).

**Conclusions** Heterogeneity observed in fatality rates could be explained by a number of variables including allocation of medical resources. Meta regression will allow knowledge incorporation, accounting for sample size and explanation of several covariates.

**P1-74 IS IRON INTAKE DURING EARLY PREGNANCY ASSOCIATED WITH SIZE AT BIRTH? INSIGHTS REVEALED THROUGH STRUCTURAL EQUATION MODELLING**

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**Introduction** Iron deficiency during early pregnancy is associated with adverse birth outcomes. Results of studies investigating the relationship between dietary iron intake during pregnancy and birth size are conflicting.

**Methods** We aimed to investigate the association between iron intake during pregnancy and birth size in a prospective cohort of 1274 pregnant women (18–45 years) in Leeds, UK, where iron supplements are not routinely recommended during pregnancy. Dietary intake was reported in a 24 h recall administered by a midwife at 12 weeks gestation. Dietary supplement intake was ascertained using dietary recall and three questionnaires throughout pregnancy.

**Results** 80% of women reported dietary iron intake below the UK Reference Nutrient Intake of 14.8 mg/day. 24%, 15% and 8% reported taking iron-containing supplements in the first, second and third trimesters respectively. Women with dietary iron intake >14.8 mg/day were more likely to be older, have a university degree and take daily supplements during the first trimester. They were less likely to be smokers and live in a deprived area. Structural equation modelling was used to analyse the relationship between iron, vitamin C intakes and birth size taking into account socio-economic status and smoking using Mplus software. The model showed excellent fit ( $\chi^2=2.7$ ,  $p=0.8$ ,  $df=5$ ,  $RMSEA<0.001$ ). The directions of the causal paths were the same as the apriori model.

**Conclusion** The positive effect of iron status on customised birth size is influenced by both iron and vitamin C intakes. Using SEM describes the relevant relationships in a more holistic way than traditional regression modelling.

**P1-75 THE 2009 LEBANESE NATIONAL MAMMOGRAPHY CAMPAIGN: RESULTS AND A CRITICAL APPRAISAL**

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**Introduction** The Lebanese Ministry of Public Health (MoPH) has been organising subsidised annual mammography campaigns every October, since 2002, in all participating radiology centers (public and private) in Lebanon.

**Methods** This paper describes the characteristics of women (from all over Lebanon) attending the 2009 MoPH mammography campaign, explores factors influencing first-time participation, and assesses the campaign's effectiveness. Data from 83 mammography centers on 10 953 women (during October–December 2009) were analysed. The data were collected by the technicians, using a closed-ended structured questionnaire. Analysis revolved on descriptives, bi-variate and multivariate logistic regression.

**Results** The mean age of women was 49 years. 84.1% of the women were married, 13.6% had some form of university education, and 40.7% were current smokers. 82.9% had ever breast fed, 36.9% were

ever users of OCP, and 20.7% were ever users of HRT. 8.9% had an aunt on the mother's side with breast cancer, 8.8% had a sister, and 7.3% had a mother. 68.2% were participating for the first time. 88.8% considered the price acceptable. Television messages and a friend were the most common methods of campaign exposure. Women who participated previously compared to those participating for the first time: were significantly more likely to be older, of higher educational levels, non-smokers, and with a family history of breast cancer.

**Conclusion** It is essential that governments critically appraise these campaigns in order to enhance outreach, social injustice and equity among the population as well as to ensure better service delivery, capacity and quality.

**P1-76 HAI SURVEILLANCE IN SARDINIA, ITALY: POINT-  
PREVALENCE SURVEY IN A REGIONAL ONCOLOGY CARE  
CENTRE**

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**Introduction** A point-prevalence survey of adult patients was conducted from 14 July to 16 August 2010 in the "BUSINCO" Hospital, a regional primary oncology care centre, to measure the prevalence of Healthcare-Associated Infections (HAIs).

**Methods** The study consisted of a first phase (30 days), conducted using a daily monitoring system ward by ward and a second phase, starting after hospital discharge and lasting 30 days. International standardised criteria and definitions for the surveillance of HAI were used (CDC).

**Results** 394 patients were surveyed and the mean length stay was 8.5 days (extra stay of 12.5 if HAI). The most common HAIs were primary bloodstream infections (32%), in bone marrow transplantation unit due to coagulase-negative staphylococci, followed by urinary tract (27%), respiratory tract (18%) and surgical site (14%) infections. The use of antibiotics in class I operations (clean), showed that 63 patients (57%) received inappropriate prophylactic treatment. A univariate analysis (HAI vs several risk factors: length of stay, urinary catheter, mechanical ventilation, central intravenous catheter) showed a statistically significant association ( $p < 0.005$ ). The multiple logistic regression only showed a significant correlation between HAI and length of stays.

**Conclusions** Data obtained from this study are representative of an individual setting and our selected activity (immunocompromised patients), necessarily leads to different results than a general hospital. Direct costs of hospitalisation have been proposed as a better method for estimating the cost of hospital-acquired infections and the questionnaire used in this study was added to the hospital discharge registry as a daily routine HAI surveillance tool.

**P1-77 MATHEMATICAL AND AGENT-BASED ANALYSES UPON  
EPIDEMIOLOGICAL DIVERSITY OF THE INCIDENCE OF 2009  
NOVEL H1N1 FLU (H1N1) AMONG SCHOOL CHILDREN  
WITHIN AND AMONG SMALL REGIONAL COMMUNITIES,  
SAITAMA, JAPAN**

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**Introduction** We examined the epidemiological diversity on the incidence of H1N1 within and among small regional communities using surveillance data and agent-based simulations.

**Methods** We investigated 27 elementary and junior high schools in Moroyama-town and Sakado-city located in the central part of Saitama Prefecture, Japan. The surveillance system was built on a www server. Agent-based modelling and simulations were performed using AnyLogic 6.5.1 (XJ Technologies, St.Petersburg).

**Results** By the end of March 2010, cumulative incidence rate (CIR) of H1N1 among school children reached 30% and 34% in Moroyama and Sakado, respectively. There was no considerable difference between epidemic curves in these neighbouring town and city. On the other hand, in the individual schools, the CIRs ranged 16%–51% even if the schools are closely located. To examine the cause of this diversity, we performed agent-based modelling and simulations assuming unequal probability of infection within and outside of schools. Repetitive simulations gave CIRs of 23%–44%, indicating that the CIRs of the small population communities may considerably vary even though all the agents were assumed to have the same susceptibility to infection.

**Conclusion** The granularity of surveillance/analyses/prevention should be finer than in the past to achieve the most effective policies against influenza and similar communicable diseases in the local communities. The cause of this diversity can be explained in part by the stochastic nature of infection transmission processes in the small populations shown by the agent-based simulations. Relevance of the other issues, for example, environmental factors, vaccination, intrafamilial infection, etc, is currently under investigation.

**P1-78 BODY IMAGE DISSATISFACTION AT EARLY  
ADOLESCENCE AND CHANGES IN ADIPOSITY  
THROUGH ADOLESCENCE**

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**Objective** To prospectively study the effect of body dissatisfaction on changes in adiposity during adolescence.

**Methods** We studied 1490 Portuguese adolescents evaluated at 13 and 17 years, under a population-based cohort (EPITeen). Body dissatisfaction was defined as the difference between perceived and desired body image, assessed by Stunkard figures at 13 y. BMI z-scores were computed based on CDC percentiles and body fat percentage (BF%) was assessed using bioelectric impedance. The association between body dissatisfaction and changes in adiposity was computed using linear regression models [regression coefficients ( $\beta$ ) and (95%CI)] and adjusted for adiposity measures at 13 y.

**Results** At age 13 y, 39% of females desired a thinner image and 16% desired a larger image. Among males the proportions were 34% and 33%, respectively. In crude analysis, compared with adolescents who did not have body dissatisfaction, BMI z-scores significantly decreased among adolescents that desired a thinner image [ $\beta = -0.152$  (-0.224; -0.080) in females and  $\beta = -0.206$  (-0.296; -0.117) in males]. The opposite association was found among those who desired a larger image [ $\beta = 0.176$  (0.081; 0.272) in females and  $\beta = 0.113$  (0.023; 0.203) in males]. Similar results were found with BF%. However, after adjustment for adiposity measures at 13 y, these associations lose significance.

**Conclusion** We found an association between body image at 13 y and changes in adiposity. The desire of a thinner image was associated with a decrease in adiposity and the desired of a large image associated with an increase. However, the associations were dependent on anthropometric measures at age 13.