STRATIFICATION OF AREA OF RISK FOR DENGUE IN METROPOLITAN AREA OF PARAGUAY

1 I Allende,* 1,3 M F Pina. 1 Instituto de Engenharia Biomédica, Porto, Portugal; 3 Escola Superior de Tecnologia da Saúde do Porto—ESTSP, Porto, Portugal; 2 Serviço de Higiene e Epidemiologia, Faculdade de Medicina da Universidade do Porto, Porto, Portugal. *Correspondence: 1 I Allende, Instituto de Engenharia Biomédica, Porto, Portugal. E-mail: i.allende@ FEUP.UL.pt

Abstract

Objective To explain mortality rates of patients hospitalised due to dengue in the metropolitan area of Asuncion, Paraguay. Methods 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 Asuncion 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. 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.

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


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.
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. 62.2% 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 justice 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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1L Andrisi, 1M P Basciu, 1C Cardia, 1M S Cantini, 2M R Faedda, 2F Argiolas.  
1University of Cagliari, Cagliari, Italy; 2Health Care Management, “Businco” Hospital, ASL8, Cagliari, Italy

**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** 594 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 (52%), 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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R Araki,* 1M Hanyuu, M Satoh, S Shibazaki, Y Ohno, H Suzuki. Community Health Science Centre, Saitama Medical University, Moroyama, Saitama, Japan

**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 (X 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 inequal 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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1J Araujo, 1C Lopes, 1E Ramos, 2Department of Hygiene and Epidemiology and Cardiovascular Research & Development Unit, University of Porto Medical School, Porto, Portugal; 2Institute of Public Health, University of Porto, Porto, Portugal

**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 (β) 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 54% and 35%, 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 [β = −0.152 (−0.224; −0.080)] in females and [β = −0.206 (−0.296; −0.117)] in males. The opposite association was found among those who desired a larger image [β = 0.176 (0.081; 0.272)] in females and [β = 0.113 (0.023; 0.203)] in males. Similar results were found with BF%. However, after adjustment for adiposity measures at 15 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.