

**Results** 90/147 and 132/166 of patients enrolled onto “UgWHO03” and “WHO07” respectively and were able to provide adequate sputum for culture. For UgWHO03: five cases of smear negative PTB and four cases of smear positive PTB diagnosed by algorithm and three cases by culture. For WHO07: 18 cases of smear negative PTB and seven cases of smear positive PTB diagnosed by algorithm and 1 case by culture. Sensitivity for smear-negative PTB increased non-significantly from 62.5% to 94.7% ( $p=0.065$ ), specificity was maintained (99% vs 98%, not significant).

**Conclusion** Sample size was limited by the ability to provide sputum but there was a non-significant trend towards increased sensitivity which approached significance. This suggests that in the context of a more rapid pathway this algorithm may be beneficial.

**P2-485 IMMUNOGENICITY OF PANDEMIC INFLUENZA A (H1N1) MONOVALENT VACCINE IN PATIENTS ON LONG-TERM HAEMODIALYSIS**

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**Introduction** Influenza is a potentially serious infection among haemodialysis (HD) patients, and the antibody response to vaccines among HD patients is thought to be weaker than that in healthy people. We conducted this study for the purpose of evaluating the immunogenicity and reactogenicity of the pandemic vaccine among patients on long-term HD.

**Materials and Methods** During the 2009–2010 influenza season, 170 HD patients (108 men, 62 women; mean age:  $62.2 \pm 13.2$  years, mean and max duration of HD: 12.3 and 35 years, respectively) received two doses of monovalent inactivated unadjuvanted vaccine. Immunogenicity of the vaccine was evaluated according to conventionally used international criteria (EMEA, 1997; FDA, 2007).

**Results** The geometric mean of HI titre 4 weeks after vaccination increased from a pre-vac level of 7.0 to 32.5 for the first injection, and to 37.8 for the second injection. The sero-conversion rate was 48% and sero-protection rate was 54% for the first injection, and 53% and 57% respectively for the second injection. The occurrence of systemic rash was significantly higher compared with healthy adults.

**Conclusions** A two-shot influenza vaccination series showed a booster effect and achieved the EMEA criteria at the first vaccination. No serious adverse events were detected, but systemic rash occurred frequently. A Dysfunction in detoxification ability due to the patients' renal disease may have caused this.

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**P2-486 ENVIRONMENTAL TEMPERATURE VARIATION AND MORBIDITY: A META-ANALYSIS**

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**Introduction** The relationship between temperature and mortality has been well documented in the literature, with studies examining the effects of both temperature variations and extremes. The impact of temperature on morbidity however has received far less attention. In particular, to date there has been no study of the existing literature examining the effect temperature has on morbidity.

**Methods** This study incorporates a review and meta-analysis of the literature on the relationship between temperature and morbidity. Utilising a number of different electronic databases, a comprehensive search was performed, the results of which were filtered against pre-defined selection criteria. Subgroups were defined according to type of morbidity and whether a heat or cold effect was examined. The studies were combined using both fixed and random effects models to examine both heterogeneity and the effect of a unit change in temperature.

**Results** 37 studies were selected to be included in the review. Studies only listing correlations were analysed separately from those reporting actual responses in morbidity per unit change in temperature. In particular, for hot effects an increase in  $1^\circ\text{C}$  resulted in an increased risk of morbidity (RR: 1.002, 95% CI 1.001 to 1.003), and similarly for a  $1^\circ\text{C}$  decrease in temperature for cold effects (RR: 1.003, 95% CI 1.002 to 1.005).

**Conclusion** This study provides a thorough survey of the literature relating to the effects of temperature on morbidity. The mean effects of temperature were found from relevant studies, along with an examination of important subgroups.

**P2-487 POPULATION CHANGES, SOCIAL DISPARITIES AND CHILD HEALTH IN LATIN AMERICA**

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**Introduction** America Latina -a region known for its social disparities- is currently experiencing a profound demographic and epidemiological transition. In such sense, this paper seeks to analyse the relationship between social inequalities, demographic changes and child health in Latin America.

**Methods** Information about population and health was obtained from diverse official sources; different statistics like ratios among extreme socioeconomic groups or countries (ordered in quartiles according to Human Development Index 2007) were calculated to quantify the difference in health indicators among countries or in selected countries.

**Results** Despite the observed population ageing in recent years, this study reveals that the population under 15 years old in Latin America in 2030 will be only slightly lower to the existent in 1990; furthermore, child population's will be increased in poorest countries of the region. Data reflects large differences in health indicators: in 2008, infant mortality rate in quartile of the poorest countries almost triplicate the rate of the richest quartile; inside each studied country, notables differences related with poverty are also observed: in all the cases, the infant malnutrition rate or the <5 mortality rate are much higher in poorest population's quintile that in the richest quintile.

**Conclusions** The above-mentioned aspects evidence a dramatic inequity in child health -related to social disparities-, something more relevant since in absolute terms, Latin American population <15 will maintain similar levels in next decades and that in the poorest countries -or in the poorest regions in each country—child population's will be higher.

**P2-488 DENTAL CARIES IN A PORTUGUESE SAMPLE OF SCHOOLCHILDREN**

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**Background** Dental caries is the most prevalent disease worldwide. The objective of this study was to determine the mean of decayed/

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missing/filled in permanent teeth (DMF-T index) and in primary teeth (dmf-t index) and verify the association with oral health behaviours and socio-demographic factors in children aged 5–12 years old.

**Participants and methods** A sample of 605 children aged 5–12 years old, attending twenty-seven public schools in Sátão, Portugal, was enrolled in this cross-sectional study. Clinical examinations of oral health status were carried out according to WHO criteria to determine the prevalence of dental caries and the DMF-T and dmf-t. Structured questionnaires for interviewing children on oral health behaviours and socio-demographic factors were used.

**Results** Prevalence of dental caries is 72.1%. Dental caries experience was 0.93 DMF-T and 2.99 dmf-t, higher among the female sex (3.04 vs 2.93;  $p=0.02$ ). The total DMF index was associated with residence area (rural=4.18 vs urban=3.43;  $p<0.01$ ), parents' level of education (0–4 years=4.29; 5–6 years=4.15; 7–12 years=3.69; >12 years=1.73;  $p<0.01$ ) and dental appointments in the last twelve months (no=4.24 vs yes=3.33;  $p<0.01$ ).

**Conclusions** We found a high prevalence of dental caries in primary and permanent teeth, associated with socio-demographic factors. Oral health programmes and primary preventive strategies should be considered.

**P2-489** RELATIVELY HIGH MORTALITY FOR MAORI AND PACIFIC PEOPLES IN THE 2009 INFLUENZA PANDEMIC AND COMPARISONS WITH PREVIOUS PANDEMICS

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**Introduction** There is evidence that indigenous peoples suffered disproportionately in the 2009 influenza pandemic, and we aimed to examine any such patterns for Māori and Pacific peoples in New Zealand (NZ).

**Methods** We analysed data from a national Mortality Review Committee and conducted analyses for datasets covering the 1918 and 1957 influenza pandemic periods.

**Results** In the 2009 pandemic the Māori mortality rate (2/100 000) was higher than the European New Zealander rate (1.7 and 2.6 times, depending on the method of age-standardisation and with only the latter result being statistically significant). Pacific peoples in NZ had a higher mortality rate (5/100 000) which was significantly higher than that for European New Zealanders (4.6–4.8 times). These mortality differentials for the 2009 pandemic were consistent with those seen for hospital and intensive care admissions. By comparison, the Māori mortality rate in the 1918 pandemic (4230/100 000 population) was 7.3 times the European settler rate. For NZ military personnel we estimated the mortality rate for Māori was 2.3 times the European rate. In the 1957 pandemic the Māori mortality rate (40/100 000) was 6.2 times the European rate.

**Conclusion** Mortality rates in the 2009 influenza pandemic for Māori and Pacific peoples were elevated compared to other New Zealanders. This pattern is consistent with previous pandemics, albeit with evidence for some decline in relative ethnic health inequalities over the past century. Nevertheless, the persistence of such inequalities in 2009 highlights the need for improved public health responses.

**P2-490** YOUNG CENTRAL EUROPEANS SAY I'M JUST FINE: A MULTILEVEL EXPLORATION OF GENERATIONS AND THE INFLUENCE OF POLITICAL HISTORY ON PERSONAL HEALTH FROM A GLOBAL PERSPECTIVE

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**Introduction** Few studies have investigated the East-West health discrepancy within young adults who were children during this era. We study this phenomenon and its context globally, by examining variations between world regions in personal health within generations. Socioeconomic influence is also investigated.

**Methods** World Health Survey data were analysed on adults aged 18–34 (n=91 823), and their elders aged 35+ (n=132 362). Main outcome was personal health. Main predictor variable was regions. Multilevel logistic regression was used to assess associations between personal health and regions, while accounting for individual and country-level socioeconomic factors.

**Results** Citizens of the Former Soviet Union reported the highest prevalence of poor health, globally with OR being 3.29 (95% CI 1.92 to 5.64). Central Europeans also had high odds of reporting poor health as compared to Western Europeans, but not to the global south, (OR)=1.66 (95% CI 1.07 to 2.55). Age analyses showed that a generation effect was apparent. After full adjustments of socioeconomic factors, East-West health differences were small within young adults, and became larger at each increasing age interval. This pattern was opposite for the global south.

**Conclusion** The East-West health gap is more pronounced within the Former Soviet Union citizens, rather than Central Europeans. Although the public health concern within these regions cannot be denied, it seems as though young adults might have been insulated to some extent from the ill-health effects of the political transition. Unlike their elders, they have come of age within the new regime, and might not feel as displaced from society.

**P2-491** UNDERSTANDING THE REASONS FOR FATAL DIARRHOEA: A MATCHED CASE-CONTROL STUDY ON HEALTHCARE SEEKING PATTERNS OF CARETAKER'S OF CHILDREN WITH SEVERE DIARRHOEA IN KARACHI, PAKISTAN

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Estimates place the global death toll from diarrhoeal diseases at about 1.3 million deaths in 2008, ranking second among all causes of deaths and in Pakistan alone 16% of the half million deaths in children who did not live to see their fifth birthday were caused by diarrhoea. We aimed to see the differences in the healthcare seeking behaviours of caretakers for children less than five year of age who died of severe diarrhoea compared to those with non-fatal severe diarrhoea. A mixed method study including a matched case-control study and focus group discussions was performed. Cases and their age and neighbourhood matched controls included 0–59 months old children who had fatal severe diarrhoea and non fatal severe diarrhoea respectively. Using statistical analysis system (SAS), conditional logistic regression showed that the odds of provision of appropriate care (going to a licensed doctor within 24 h from the recognition of the illness) were 80% (MORadj=0.2, 95% CI 0.05 to 0.91) less in children with fatal severe diarrhoea than in children with non-fatal severe diarrhoea. Supporting these qualitative results



## P2-488 Dental caries in a Portuguese sample of schoolchildren

N Veiga, O Amaral, J Pereira and C Pereira

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