

Environmental and Occupational Health

Chairpersons: C Landis, S Bidaisee

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Estimated effects of climate variables on transmission of malaria, dengue and leptospirosis within Georgetown, Guyana

C Boston, R Kurup
University of Guyana, Georgetown, Guyana
E-mail: cecilboston@ymail

Objective: To analyse meteorological data (temperature, rainfall and relative humidity) and vector-borne diseases (malaria, dengue and leptospirosis) to determine trends that may exist between and among variables within the Georgetown area.

Subjects and Methods: This study took on a retrospective approach which used data from the Ministry of Health and Ministry of Agriculture, Hydro-meteorological Department, to assess the true nature of the relationship between climate and vector-borne diseases (malaria, dengue and leptospirosis) within the Georgetown area. Correlation and regression analysis was done using SPSS version 13.

Results: The results yielded weak positive correlation between climate variables and vector-borne disease with strongest correlation between *P. falciparum* and *P. malariae*. Leptospirosis showed positive correlation with humidity and dengue showed positive correlation with all three climate variables measured. Projections showed that with a 1 increase in temperature, 1% increase in relative humidity and 50 mm increase in rainfall, there would be significant increases in malaria and leptospirosis.

Conclusion: There have been theories that suggest a connection between climate variables and vector-borne disease but conclusive evidence does not exist. In this present study, the need for research that yields more unwavering results is highlighted. There is no doubt that climate variables influence vector-borne diseases. Therefore, it is recommended that an interdisciplinary approach be taken to ensure reliability and foster a better understanding between climate variables and vector-borne diseases.

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Mercury pollution in Suriname – A threat to family health

P Ouboter, W Hawkins, M Lichtveld
Anton de Kom University of Suriname, National Zoological Collection/Environmental Research Center, Paramaribo, Suriname; Tulane University, School of Public Health and Tropical Medicine, New Orleans, LA, USA
E-mail: p.ouboter@uvs.edu

Objective: To examine the magnitude of mercury pollution of the aquatic environment in Suriname, to demonstrate that most mercury contamination originates from small-scale gold mining and to show the adverse health effects of mercury exposure in human population of the interior.

Subjects and Methods: In geographically dispersed locations across Suriname, bottom sediment and fish were analysed for mercury. To demonstrate the anthropogenic source of the mercury, core samples in flood plains were analysed to determine the pattern of mercury levels with depth. Mercury exposure was documented in five village communities through dietary surveys and hair analysis.

Results: Both bottom sediments and predatory fish were often above international norms in most areas of Suriname, including outside the mining area. All samples taken at marine mud flats were low in mercury. Core samples from coastal flood plains showed decreasing levels of mercury with depth. Mercury levels in the human population were elevated, but on average below the US Environmental Protection Agency Benchmark Dose. The highest levels occurred in a village upstream of any gold mining, isolated from access to other parts of the country.

Conclusions: Most of Suriname is polluted with mercury, directly resulting from unsafe small-scale gold mining practices, or indirectly through water or wind deposition. The pattern of mercury in core samples demonstrates the anthropogenic source of the mercury. Villagers in the interior of Suriname show elevated levels of mercury, levels depending on the amount of local fish consumed and therefore on the degree of isolation of the village.

O – 51**Prevalence of overweight and obesity and intentions of healthcare workers of the public community clinics on New Providence, The Bahamas**

A Dorsett-Williams, M Frankson, C Chin, C Farquharson, S Pinder-Butler

The University of the West Indies, School of Clinical Medicine and Research, The Bahamas (UWI SCMR), Nassau, Bahamas

E-mail: *alexya_d@hotmail.com*

Objective: To determine prevalence of overweight and obesity and weight control intentions of healthcare workers (HCWs) of the public community clinics on New Providence, The Bahamas.

Subjects and Methods: Using a cross-sectional study design, 163 HCWs of eight clinics were surveyed. Participants completed a questionnaire indicating weight control intentions and had weight, height and abdominal circumferences measured. Data were analysed using IBM SPSS, v 21.

Results: Of 163 participants, 92.0% (150) were females. Overall, mean (\pm SD) age was 44 (\pm 11.10) years. Healthcare workers were grouped into three main categories: physicians 8.0% (13), nurses 41.1% (67) and other HCWs 50.9% (83). The majority (68.5%; 111) of the participants had high-risk abdominal circumferences. Combined prevalence of overweight and obesity was 81.6% (133); 26.4% (43) were overweight and 55.2% (90) obese. Of the males, 23.1% (3) were overweight and 69.2% (9) obese. Of females, 26.7% (40) were overweight and 54.0% (81) obese. More than half (55.8%; 91) of HCWs misperceived their body mass index (BMI); 85.3% (139) of HCWs had weight concerns, 48.2% (67) were in a planning phase of change, another 48.2% (67) were in an action phase and a small percentage, 3.6% (5), were not ready to make any changes. Most (90.7%; 147) participants expressed a greater willingness to participate in a workplace healthy lifestyle programme, mean wellness inclination score of 15.3 (\pm 3.78).

Conclusions: Healthcare workers had high-risk abdominal circumferences. Prevalence of overweight and obesity was 81.6%. Many misperceived their BMI, were concerned about their BMI status and were inclined to make changes for a healthier weight.

O – 52**Socio-economic health disparities in tobacco smoking among Afro-Caribbean adults: Findings from the Jamaica Health and Lifestyle Survey 2007–2008**

NR Bennett, TS Ferguson, NO Younger-Coleman, DK Francis, RJ Wilks, EN Harris, MY MacLeish, LW Sullivan

Epidemiology Research Unit, Tropical Medicine Research Institute, The University of the West Indies, Kingston, Jamaica, West Indies; Department of Medical Education, Morehouse School of Medicine, Atlanta, GA, USA; The Sullivan Alliance, Alexandria, VA, USA

E-mail: *nadia.bennett@uwimona.edu.jm*

Objectives: To evaluate whether education attainment or occupation class was associated with the prevalence of tobacco smoking among Jamaican adults.

Subjects and Methods: This study was a secondary analysis of data collected from the Jamaica Health and Lifestyle Survey 2007–2008 (JHLS-II) and included participants who were 25–74 years old. Data on current tobacco smoking, highest educational attainment and usual occupation were collected using an interviewer-administered questionnaire. Poisson regression models were used to estimate sex-specific, age-adjusted prevalence and prevalence ratios (PR).

Results: Analyses included 2299 participants (696 men, 1603 women) with mean age of 42.9 years. Prevalence of current smoking among men and women was 25.8% and 7.8%, respectively ($p < 0.001$). Age-adjusted prevalence of current smoking in men was highest in the primary education group (36.5%) and lowest in the post-secondary education group (10.2%), p (trend) = 0.003. Among women, prevalence was highest among those with junior secondary education (10.2%) and lowest among those with primary education (4.7%), p (trend) = 0.014. Using post-secondary education as the reference category, age-adjusted PR showed statistically significant two- to three-fold higher prevalence of current smoking for all the lower education groups among men. Prevalence ratios for women were lower and not statistically significant. Disparity patterns for occupation were similar, with statistically significant higher age-adjusted prevalence among men in the lower occupational categories, but not among women.

Conclusion: There are large socio-economic disparities in tobacco smoking among men, but less so among women in Jamaica. Interventions to reduce smoking should consider these socio-economic disparities.