

Public Health III

Chairpersons: B Bain, E Le Franc

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Disparities in hypertension in populations living in the Caribbean: A systematic review and meta-analysis*NP Sobers, L Bishop, K Lewis, JC Critchley, TA Samuels, N Unwin**Faculty of Medical Sciences, The University of the West Indies, Bridgetown, Barbados; Population Health Research Institute, St George's, University of London; George Alleyne Chronic Disease Research Centre, Caribbean Institute for Health Research, The University of the West Indies, Bridgetown, Barbados; UKCRC Centre for Diet and Activity Research (CEDAR), MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Cambridge, UK Email: Natasha.sobers@cavehill.uwi.edu***Objective:** This study sought to assess the distribution of hypertension prevalence, awareness and control by known social determinants for populations living in the Caribbean.**Methods:** We searched Medline, Embase and five databases through the Virtual Health Library, for Caribbean studies published between 2007 and 2016. PRISMA guidance on reporting systematic reviews on health equity was followed. Only quantitative studies ($n > 150$) were included. Meta-analyses using random effects models were performed for gender distributions only.**Results:** Out of 2883 articles screened, 114 required full text review and 31 described the distribution of hypertension prevalence (31), awareness (6) and control (4) by one or more social determinants. Social determinants studied were gender (31 articles), education (6), ethnicity (5), occupation (4), income (3), marital status (2), residence (2) and employment status (1). Of the articles with low risk of bias which examined hypertension prevalence by gender, four found higher rates in women and two reported higher rates odds ratio (OR) of 0.96 and 95% CI of 0.67, 1.38. Five of six studies found that compared to women, men were less likely to be aware of their diagnosis OR 0.44, 95% CI (0.20, 0.94). Among those on treatment, men were less likely to be controlled: OR 0.58, 95% of CI 0.45, 0.76.**Conclusion:** There was a paucity of literature on distribution of hypertension by social determinants other than by gender. Markedly, lower awareness and control in men indicates a need for more effective strategies to improve screening and treatment in Caribbean men.

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Analysis of trauma cases at the tertiary care hospital in Georgetown, Guyana, in support of the development of a trauma centre: A four months retrospective study*P Edwards, T Bovell**PAHO/WHO Guyana Country Office, Georgetown, Guyana; Accident and Emergency Department, Georgetown Public Hospital Corporation, Georgetown, Guyana Email: edwardsp@paho.org***Objective:** To study trauma cases at the Georgetown Public Hospital, Guyana between September and December 2017 in support of the development of a trauma centre.**Methods:** A retrospective study was done with analysis of 2946 trauma cases from the Trauma Registry, Georgetown Public Hospital, Guyana. Templates were generated in MS Excel sheet with univariate and bivariate analyses conducted.**Results:** There were 2946 trauma cases which represented 20.1% of all cases with a female to male ratio of 1:2.8. For the four months, the number of cases peaked at 20–24 years with 410 (13.9%) cases; the working population, 15–54 years, was affected by 67.8% (1996/2946) of all the trauma cases; the mechanisms of injury were assaults, falls and motor vehicle accidents. Overwhelmingly, the triage scores were identified as urgent and approximately 16% were admitted to Ward with a resulting mortality of 9.5% whereby the female to male ratio was 1:2.7. Motor vehicle accidents, falls and burns accounted for a combined 77.8% mortality. There were a total of 12.4% (364/2946) trauma cases referrals from all 10 Regions with referrals predominantly from Regions 4, 5 and 3.**Conclusion:** A little over one of every five cases of all patients was a trauma case with males more than twice as much impacted those aged 20–24 years were most affected through assaults, falls and motor vehicular accidents and the overwhelming majority was urgent. The analysis is supportive of the development of a trauma centre to reduce death or permanent disability and to better serve patients.

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Methicillin resistant *Staphylococcus Aureus* in the primary healthcare system in Barbados and its susceptibility patterns with co-trimoxazole

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Objective: To assess the prevalence of methicillin resistant *Staphylococcus aureus* (MRSA) in the primary healthcare system in Barbados and to determine its susceptibility patterns with Co-trimoxazole.

Methods: Swabs were conveniently collected from the eight polyclinics and their satellite clinics in Barbados between 2013 and 2016. These swabs were taken from various anatomical locations and were analysed at the Winston Scott Public Health Laboratory utilizing the following test methods: catalase test, coagulase test, antimicrobial disk diffusion test, conventional polymerase chain reaction (PCR) and agarose gel electrophoresis. Data were analysed using the WHONET 5.6 software programme.

Results: Swabs (n = 193) collected from wounds, nasal and abscesses showed 71%, 8.8% and 6.2% MRSA positivity, respectively. Regarding the antimicrobial susceptibility testing, resistance was observed in erythromycin (100%), ciprofloxacin (97.4%), clindamycin (13%) and co-trimoxazole (5.7%). No resistance to vancomycin was seen. The panton valentin leukocidin (pvl) gene was detected in 97.9% of the isolates, the mecA gene in 2.1% and the mecC gene (0%). The D-zone effect was observed in 4.7% of the isolates tested. All isolates were catalase and coagulase positive.

Conclusion: In Barbados, > 90% of CA-MRSAs were sensitive to co-trimoxazole, while > 90% were resistant to erythromycin and ciprofloxacin which are the two antibiotics commonly used in outpatient therapy for skin and soft-tissue infections. All beta-lactam antibiotics were resistant; therefore co-trimoxazole should be considered as the antibiotic of choice. Frequent monitoring of susceptibility patterns of MRSA and the formulation of a definitive antibiotic policy should be established.

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A study on the prevalence, molecular characteristics and antimicrobial susceptibility patterns of methicillin resistant *Staphylococcus Aureus* in hospitalised patients in the Queen Elizabeth Hospital, Barbados

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Objective: To study the prevalence, molecular characteristics and antimicrobial susceptibility patterns of methicillin resistant *Staphylococcus aureus* (MRSA) in hospitalised patients in the Queen Elizabeth Hospital, Barbados.

Methods: Methicillin resistant *Staphylococcus aureus* isolates were conveniently collected in the Microbiology Department at the Queen Elizabeth Hospital. Identification and antibiotic resistance were performed using the Micro-Scan dried gram positive panel. The molecular characteristics were analysed using the multiplex polymerase chain reaction, for amplification of the mecA, mecC gene, panton valentin leukocidin (pvl) and spa genes.

Results: One hundred isolates were identified as MRSA. All isolates were sensitive to vancomycin, rifampin, linezolid and trimethoprim/sulfamethoxazole. Eighty-two per cent of the isolates were sensitive to Clindamycin. All isolates were resistant to Ceftriaxone and Ciprofloxacin. Ninety isolates were resistant to Erythromycin, with two isolates showing inducible Clindamycin resistance. A total of 77/100 isolates showed the presence of the mecA and spa genes. The pvl gene was present in 76/77 isolates. A further 15 isolates showed amplification of the spa and pvl gene only. The remaining eight isolates showed no amplification of the spa mecA/ C and pvl genes.

Conclusion: The prevalence rate was determined as 19.7% for the period of study. The presence of the pvl gene and the high susceptibility antibiotic profile to the non-β lactam antibiotic was a predictor that the isolates were of the community acquired strain. These two factors are markers associated with community origin of MRSA in hospitalized patients at the Queen Elizabeth Hospital.

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Toxocara canis in puppies and their public health significance in Grenada

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Objective: To determine the prevalence of *Toxocara canis* in dogs below one year old. What is the prevalence of *Toxocara canis* in puppies using fecal flotation in Grenada? There is a significant burden of *Toxocara canis* among puppies in Grenada.

Methods: A cross-sectional study of 306 puppies was done across all six parishes in Grenada. Puppies were selected after a referral system and informed consent from members of the community centres across all parishes. Samples collected were examined using fecal flotation with centrifugation technique. All parasitic eggs and larvae were visualized under the microscope at 40 x magnification.

Results: One hundred and forty-seven out of 306 (48%) puppies were positive for *Toxocara canis*. 142 (57%) and five (9%) of puppies less than seven months old and more than seven months old were positive, respectively. The oldest puppy found infected was 10 months of age while

Toxocara canis eggs were identified in puppies as young as two weeks old. All 35 puppy owners interviewed did not deworm the puppies, 97% did not have the adults spayed or neutered and 68% allowed for the puppies to freely roam in the environment. 6.5% of persons considered Toxocara canis to be a health risk, 3.3% were aware of the clinical toxocariasis syndromes and 64.5% identified the route of transmission for human infection.

Conclusion: There was a high prevalence of Toxocara canis among puppies in Grenada. This burden presented a significant zoonotic threat to public health. The puppy deworming protocol should be included as part of the mandatory registration and vaccination programme for the Dogs Control Act in Grenada. An education and promotion campaign towards prevention and control strategies in schools should be included for Toxocara canis.

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Risk assessment for potential outbreak of Aedes-borne diseases and mosquito identification in districts of Georgetown, Guyana

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Objective: To map the current risk status of Georgetown using the Breteau Index (BI) calculation.

Methods: A total of 3200 houses were investigated in 32 districts of Georgetown for mosquito breeding sites. The types of breeding sites were recorded in a special data collection sheet. Aedes larvae collected from the districts were raised to adults under control conditions. Samples of the adults were stored in Alcamphor beads for molecular analysis in future. A map was then created to show the distribution of Aedes mosquitoes using Epi Info software and the BI was calculated using the formula: $BI = (\text{number of positive containers} / \text{Number of houses inspected}) \times 100$. The calculated BI of every district when put together indicates either one of the following risk status: transmission blocked (BI is less than 5), transmission risk (BI is more than or equal to 5 but less than 10), outbreak risk (BI is more than or equal to 10 but less than 20) or regional epidemic risk (BI is more than or equal to 20). The results from BI calculation were used to create a risk map using Epi Info software.

Results: This study proved that 18 districts were at regional epidemic risk while outbreak risk was expected in three, transmission risk was likely in no more than eight and transmission was blocked in only three. Moreover, only Aedes aegypti mosquito was found in Georgetown, city Guyana.

Conclusion: The potential risk for contracting Aedes-borne diseases in Georgetown Guyana was highly possible.

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Social and environmental factors on the health of Caribbean people in and out the Region

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Objective: This study examined the environmental context and factors contributing to poor mental and physical health, including sources of stress and other health conditions among Caribbean people.

Methods: Population-based samples on Caribbean descendants collected in the United States of America (USA), Guyana and Jamaica were analysed. A modified version of the World Health Organization Composite International Diagnostic Interview (WHO CIDI) defined by the Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) was administered to assess substance abuse and major depression disorder. Physician-diagnosed physical health including hypertension, as well as self-rated health were also examined. Multivariate logistic regression analytic procedure was used to explore the influences of physical and mental health.

Results: Gender was predictive ($p < 0.01$) of hypertension across contexts. Environmental sources of stress including discrimination and neighborhood violence were associated with health among Caribbean people residing in the Caribbean region and the USA. Major depressive disorders (AOR = 4.19; 95% CI: 2.17, 8.10) and hypertension (AOR = 0.704; 95% CI: 0.587, 0.845) made both positive and negative contributions to fair or poor self-rated health.

Conclusion: The study provides evidence of the need to explore other sources of stress that are generally discussed but are under-explored in empirical studies.