# Communicable Diseases/HIV

***Chairpersons: I Potter, L Indar***

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## Perceptions and beliefs regarding the Mosquito-Chikungunya – Fever connection among St Catherine Residents in Jamaica

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**Objective:** To describe perceptions and beliefs of a sample of Jamaican community residents about Chikungunya fever transmission, prevention and treatment.
**Design and Methods:** Forty-two adults aged 30–50 years were purposively recruited to participate in four focus group discussions. Six persons from these groups and six others were interviewed individually to explore perceptions and beliefs about Chikungunya, its transmission, prevention and management. Thematic manual data analysis was done.
**Results:** Participants perceived themselves as being at risk for Chikungunya which they thought was serious and severe. Only a few participants in focus groups and two persons interviewed individually used scientific reasons to justify their beliefs about transmission, prevention and management of the disease. Others had varying explanations that were contrary to scientific knowledge embodied in public education content. They implied that the health-care system was tardy and lacked knowledge about the epidemic. With respect to transmission, the perception was that you 'catch it' because it is 'going around', it is 'airborne' and the authorities were unfairly 'blaming mosquitoes'. Emerging issues about management of the disease were that 'an unprepared healthcare system', left people with no alternative but to use 'home remedies' and 'poly-pharmacy' including over the counter and unknown medicine. Effective prevention measures were believed to be 'boosting immunity', 'taking pain medication before infection' and 'stay away from it'.
**Conclusions:** Participants perceived themselves at risk for Chikungunya fever which they considered serious. Their perceptions and beliefs about spread, prevention and management of the disease differed markedly from standard information.

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## Cohort study for clinical and epidemiological follow-up of patients with arthralgia post chikungunya referred to a Rheumatology clinic at a tertiary hospital in Trinidad and Tobago (ChikArt)

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**Objective:** To describe the arthralgia post Chikungunya (ChikV) infection in patients referred to a Rheumatology Clinic at a tertiary hospital in Trinidad.
**Design and Methods:** Patients referred to the clinic for arthralgia and prior probable ChikV infection were surveyed. Demographic and clinical data were collected.
**Results:** Fifty-two patients referred between October 2015 and May 2016 were recruited, forty-four (n = 44) had a positive ELISA ChikV IgG and thus, were included in the analysis. The median recruitment date was 15.5 months post probable ChikV infection, with an interquartile range (IQR) of 4.5 months. Thirty-four (77.3%) were female, while ten (22.7%) were male. Median age was 64 years with an IQR of 14.5 years. In the acute episode, 72.0% reported fever and 90.0% severe joint pain. The joints most affected were knees, 27.6%, shoulders, 18.4%, wrists, 15.7% and ankles, 13.1%. The involvement was bilaterally, 70.6% more than unilaterally, 29.4%. Osteoarthritis, 29.5%, was the most common prior rheumatologic condition. Co-morbidities had no statistically significant impact on arthralgia post ChikV infection ($p > 0.05$). A majority (77.3%) of patients reported a significant negative-effect on their activities of daily living (ADL) due to persistent arthralgia, mainly attributed to pain, 29.4% or pain and stiffness, 50.0%.
**Conclusions:** Our data shows that patients referred to a Rheumatology Clinic for arthralgia post ChikV infection, are likely to be females more than 45 years of age. The joints most involved are the knees, shoulders, wrists and ankles, in a symmetrical distribution. Persistent arthralgia post ChikV has a significant negative impact on patients' ADL.

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## *Aedes aegypti* transmitted arboviral outbreaks in Grenada: 2001–2016 – *quo vadis?*

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**Objective:** Assess and compare predictive symptoms, temporal and spatial aspects of three *Aedes aegypti* transmitted outbreaks in Grenada, Zika virus (ZIKV) 2016, Chikungunya virus (CHIKV) 2014 and Dengue virus (DENV) 2001−2002.
**Design and Methods:** Following informed consent, people with suspected symptoms who requested a blood draw were tested by reverse transcription polymerase chain reaction (RT-PCR) and enzyme-linked immunosorbent assay (ELISA) serology to confirm a diagnosis of ZIKV, CHIKV and DENV and rule out other arboviral infections.
**Results:** Two hundred and twenty-three (41%), 426 (86%) and 301 (57%) patients tested positive during 32, 13 and 23 week outbreaks of DENV-3, CHIKV and ZIKV. Incidence rates were highest in St George, St David, and St Mark and St George, respectively. Rash was more commonly observed in ZIKV followed by CHIKV and DENV-3 cases (OR ZIKV to CHIKV and DENV-3 = 4.9, 95% CI= 3.6 to 6.7 and 1.8, CI= 1.6, 2.0, respectively. OR for CHIKV and DENV-3= 2.7, 95% CI- 2.0 to 3.8). Petechia was observed more commonly in ZIKV than DENV-3 cases (OR 3.2, 95% CI= 1.1 to 9.7). Repeated outbreaks cause significant morbidity and economic costs related to illness and vector control.
**Conclusions:** Despite rigorous *Aedes aegypti control arbovirouses* transmitted by this vector have occurred in Grenada. Novel virus introduced into the immunologically naïve population attack rates appears to result in a 60 to 80% exposure rate and outbreaks cease when herd immunity is comprehensive enough to retard significant ongoing transmission.

New methods for the prevention of outbreaks must be explored if future arbovirus attack rates are to be mitigated. These include efforts to speed up diagnosis, geographical mapping, and newer vector control methods.

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## Metabolic syndrome among HIV-infected adults receiving antiretroviral therapy at the National Care and Treatment Centre, Georgetown

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**Objective:** To determine the prevalence of Metabolic syndrome (MetS) among HIV-infected adults receiving antiretroviral therapy.
**Design and Methods:** A four-month cross-sectional study was conducted among 350 HIV-infected patients at the National Care and Treatment Centre, using physical examinations (*ie*: waist circumference) together with clinical and laboratory information derived from their charts to identify MetS, which was defined using the 2009 IDF-AHA Harmonised Criteria. Informed consent was received from all participants before the interview was conducted. Student's *t*-test and Chi-squared analysis were used for between-group comparisons of continuous and categorical variables, respectively. All *p*-values were double-sided and $p < 0.05$ was considered statistically significant.
**Results:** Mean age (SD) of the population was 44 (11) years. Metabolic syndrome was seen in 112 patients yielding a prevalence of 32% (95% CI 28, 33%). Prevalence was higher in female (48.6%) than in male (20.4%) patients ($p = 0.02$); there were more females (62%) with MetS than males (38%). Most MetS cases ranged between the ages of 38 to 57 years. Low-HDL cholesterol levels (76.3%), elevated fasting blood glucose (56.3%) and hypertriglyceridaemia (46.9%) were the most prevalent individual MetS components in this population. This was followed by elevated abdominal obesity (30.0%) and high blood pressure (8.9%). Male patients had higher prevalence of hypertriglyceridaemia, low-HDL cholesterol and hypertension than females.
**Conclusion:** Just below half of the participants met the criteria for MetS. Metabolic syndrome was associated with a substantially increased prevalence of diabetes and dyslipidaemia in this specific cohort. Early screening of people living with HIV for MetS and its components is recommended.

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**Monitoring the effectiveness of prevention of mother-to-child HIV transmission in Trinidad a small middle income Country, 2013–2016**

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**Obective:** The purpose of this study was to conduct outcomes and effectiveness evaluations to better understand mother-to-child (MTCT) programme impact among a subset of health facilities in Trinidad.
**Design and Methods:** A facility-based prospective observational study was conducted among pregnant women attending antenatal care (ANC) clinics in 10 randomly selected health facilities in North Trinidad serving a population of 75 000. Data were collected from all women attending the antenatal clinics. Outcomes of interest included, proportion actually tested, the proportion of newly identified HIV-positive women and HIV-positive babies.
**Results:** A total of 7174 women were followed from January to June 2016, and 2015 and 2014. A total of 109 women were HIV-positive while pregnant. All of which were referred for specialist obstetric care. All gave birth to an HIV-negative baby, thus, recording zero transmission rates. Both mother and baby were followed at the health facility after delivery for one-year.
**Conclusion:** In conclusion we provide evidence that currently available tools to significantly impact the HIV epidemic affecting children are effective.

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**Antimicrobial potential of azardirachta indica (Neem) and syzygium cumini (Jamun) seeds against microbial pathogens from diabetic foot**

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**Objectives:** The main aim of this study was to identify the phytochemicals and chemical constituents in the crude extracts by gas chromatography-mass spectrometry (GC-MS) and to identify the possible antimicrobial activities of azadirachta indica and syzygium cumini seeds against diabetic foot pathogens in Guyana.
**Design and Methods:** Microorganisms were isolated from the pus sample of diabetic foot ulcer at the diabetic foot clinic. Minimum inhibitory concentration of the plant extract was tested by the two-fold serial dilution method.

Azadirachta indica and syzygium cumini crude extracts were analysed using a Thermo Scientific TRACE GC ULTRA. Tests were also done to identify the phytochemicals.
**Results:** The total chemical constituents that were present in ethyl acetate crude extract were: methyl 14-methyl-pentadecanoate; 2-furancarboxaldehyde, 5-(hydroxy-methyl); 8, 11-octadecanoic acid methyl ester; hexa-decanoic acid, methyl ester; 9-octadecenoic acid (Z), methyl ester; heptadecanoic acid, 16-methyl-, methyl ester.

A total of 53 pathogens were isolated with the most common aerobic isolates were *Pseudomonas* sp, 11 (20.8%), followed by *Escherichia* coli, 9 (17.0 %), *Klebsiella* sp and *Proteus* sp each, seven (13.2%) and *acinetobacter* sp, four (7.6%). *Staphylococcus* aureus isolated was seven (13.2%). Syzygium cumini showed a mean zone of 2 and 31 mm and MIC of 25–100 mg/mL. Azardirachta indica obtained a mean zone of five and 25 mm and an MIC of 12.5–100 mg/mL.
**Conclusions:** Azadirachta indica and syzygium cumini showed a good antimicrobial property against diabetic foot pathogens.

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**The lingering occurrence of leprosy in Trinidad into the 21st Century in Trinidad**

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**Objective:** The aim of this study was to track the occurrence of Hansen's disease (HD), to define the attainment of the goal of elimination, and to describe the ongoing epidemiological features of leprosy in the first decade of the 21st Century.
**Design and Methods:** The data for the study was derived from the National Hansen's Disease Registry of the Ministry of Health for the period 1972–2015. The annual cumulative incidence rate (CIR) per 10 000 population as well as prevalence was used to measure the occurrence of HD for the period 1972–2015. In order to test a statistically significant trend Poisson regression was used. The Mann-Kendall test was used to determine the significance of trends, a $p$-value of $< 0.05$ was considered significant.
**Results:** A peak CIR occurred in 1973 *ie* 1.3 per 10 000 population (95% CI 1.5, 1.1). Subsequently from 1974, the CIR for HD in Trinidad declined steadily, realizing a decline of 86%. There were no major outliers except for two small peaks 1994 and 2001; hence no smoothing techniques or transformations were necessary. The Mann-Kendall test was highly significant for trends ($p = 0.01$). In addition the prevalence rate also fell to < 1 per 10 000 population.

**Conclusions:** Consequently Trinidad and Tobago has met The World Health Organization (WHO) criterion for the elimination of HD *ie* < 1 case per 10 000 population since 1974.