

## Poster Abstracts

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(P – 1)

### A promising anti-prostate cancer profile of stinging nettle (*Urtica dioica*) extract

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**Objective:** *Urtica dioica* (UD) or stinging nettle is a perennial plant from the family Urticaceae. It is widely used globally as a natural remedy to promote prostate health; but the anti-prostate cancer mechanisms of UD are yet to be fully elucidated. In the present study, we evaluated the cytotoxic profile of an aqueous extract of UD in the LNCaP human prostatic carcinoma cell line.

**Methods:** LNCaP cells were exposed to the aqueous UD extract for 24 hours in triplicate at concentrations ranging from 50–200 µg/ml. Control cells were exposed to culture media only. Cell viability was then assessed following this treatment protocol using the MTT assay. DNA fragmentation, mitochondrial membrane potential, reactive oxygen species generation (ROS) as well as PARP cleavage was also assessed in the treated cultures in order to elucidate the mechanisms of UD induced cytotoxicity.

**Results:** A significant ( $p < 0.05$ ) and dose dependent cytotoxic effect of the UD extract was observed in LNCaP cells. Cell death was executed through depolarization of mitochondria and apoptosis evidenced by DNA fragmentation and PARP cleavage. *Urtica dioica* treatment also significantly increased ROS generation in LNCaP cells; implicating oxidative stress as a cytotoxic modality.

**Conclusion:** Our findings confirm a potent cytotoxic effect of the aqueous extract of UD which may represent a novel therapeutic approach for the treatment of prostate cancer.

(P – 2)

### Investigation of the effect of *Cassia occidentalis* (piss-a-bed) extract on diuresis

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**Objective:** To investigate the effect of aqueous extracts of *Cassia occidentalis* on diuresis in Sprague-Dawley rats.

**Methods:** Aqueous extracts of the leaf and seed of *Cassia occidentalis* were prepared and examined for effects on diuresis in adult Sprague-Dawley rats (male, 200–250 g) using invasive and non-invasive models. In the metabolic cage model (non-invasive), groups of rats were dosed orally with the leaf extract (100 mg/kg), seed extract (10 mg/kg), furosemide (10 mg/kg) and saline (control) and placed in metabolic cages. Urine volume was measured over a four-hour period. In the urinary bladder cannulation model (invasive), rats were anaesthetized with urethane and their bladders catheterized for collection of urine. Saline was infused intravenously (1 mL/min) and effects of *Cassia occidentalis* leaf extract (100 mg/kg), seed extract (10 mg/kg), furosemide (10 mg/kg) on urine volume were determined.

**Results:** In the metabolic cage model, the mean urine volumes  $\pm$  SE (mL) after administration of furosemide, *Cassia occidentalis* leaf and seed extracts were  $3.18 \pm 0.71$ ,  $2.12 \pm 0.32$  and  $1.82 \pm 0.30$ , respectively which were significantly different ( $p < 0.05$ ) from saline control ( $0.49 \pm 0.20$ ). In the urinary bladder cannulation model, the cumulative mean percentage changes in urine volume in one hour were furosemide ( $3478.76\% \pm 0.23$ ), *Cassia occidentalis* leaf extract ( $1022.84\% \pm 0.20$ ) and seed extract ( $661.80\% \pm 0.49$ ). In both models of diuresis, furosemide showed the greatest efficacy, followed by the *Cassia occidentalis* leaf and seed extracts.

**Conclusion:** The aqueous extracts of the leaf and seed of *Cassia occidentalis* showed significant diuretic activity in both invasive and non-invasive animal models and therefore supported claims of its ethno-traditional use as a diuretic.

### (P – 3)

#### **An investigation of the anti-inflammatory properties of *Croton linearis* (wild rosemary)**

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**Background:** Ten plants used in folklore practice were screened for anti-inflammatory properties using the bovine serum albumin (BSA) method in which greater than 20% anti-denaturation of protein can be an indication that an extract shows anti-inflammatory properties.

**Objectives:** To assess the anti-inflammatory efficacy of three extracts of *Croton linearis* (methanol, ethyl acetate and hexane) pre-screened by the BSA spectrophotometric method.

**Method:** A stock solution of 0.4% (w/v) of BSA (pH of 7.6 to 6.4) using glacial acetic acid was added to the samples and heated to 72 °C for 10 minutes. At room temperature, absorbencies were read at 660 nm. Extracts inhibiting denaturation greater than 20% over the range of concentrations were considered as having anti-inflammatory properties. Methanol, hexane and ethyl acetate extracts of *Croton linearis* were prepared and assessed by BSA method for denaturation capacity. The carrageenan rat paw oedema model was used to test the anti-inflammatory effect of the hexane extract (50 mg/kg). Saline and aspirin were used as controls.

**Results:** Hexane extract of *Croton linearis* showed promise of anti-inflammatory activity based on the BSA assay. The extract further reduced inflammation induced by carrageenan lambda in the rat model,  $p < 0.05$  in comparison with saline control.

**Conclusions:** The hexane extract of *Croton linearis* caused a reduction in paw volume in the presence of carrageenan lambda and compares favourably with the efficacy of aspirin.

### (P – 4)

#### **An investigation of the acute anti-inflammatory properties of *Rivina humilis***

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**Objective:** To investigate the acute anti-inflammatory properties of *Rivina humilis* (RH) using the carrageenan rat paw oedema model.

**Methods:** Eighteen Sprague-Dawley rats were obtained from the Basic Medical Sciences Animal House. They

were assigned to three groups  $n = 6$  each: saline group, *Rivina humilis* (RH) group and ibuprofen group. Each group was administered the respective treatments then each group of animals was injected with 0.1 ml of a 1% carrageenan solution in the sub-plantar region of the right hind paw. The change in paw volume was measured from the ankle using the Ugo basile plethysmometer over a four-hour period. The standard error of the mean (SEM) of the percentage change in paw volume was calculated and compared using student's *t*-test; the differences between the SEM were considered statistically significant with a *p*-value of  $< 0.05$ .

**Results:** The saline group showed a continuous increase in the paw volumes over the four-hour period. Both the ibuprofen and the RH groups showed a reduction in the mean percentage change in the paw volume. The effects of the ibuprofen lasted throughout the four hours while the effect of the RH was seen at 135 minutes following the injection of the carrageenan and lasted for approximately 90 minutes. A *p*-value of 0.004 was obtained for both the RH group and the ibuprofen group when compared to the saline group, indicating a statistically significant reduction in the paw volume. A *p*-value of 0.880 indicated no statistically significant difference between the ibuprofen and RH groups.

**Conclusion:** *Rivina humilis* administered at a dose of 200 mg/kg in the rats reduced the oedema formed due to the carrageenan injected suggesting that this plant extract possesses anti-inflammatory properties.

### (P – 5)

#### **Investigation of the anti-convulsant potential of the fluid from the bud of the *Spathodea campanulata* plant**

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**Objective:** To investigate the effect of the fluid from the bud of the *Spathodea campanulata* plant on pentylenetetrazol (PTZ)-induced convulsions in mice.

**Methods:** Thirty-six mice were obtained from the Animal House at The University of the West Indies and divided equally into six groups. Each group received the respective treatment of saline (10 ml/kg), phenytoin (2 mg/kg), *Spathodea campanulata* (SC) [50 mg/kg], SC (100 mg/kg), SC (200 mg/kg), or a combination of phenytoin and SC (2 mg/kg + 200 mg/kg). Treatments were administered by intraperitoneal injection. All animals were treated 30 minutes before the administration of PTZ (70 mg/kg); following which animals were observed for an additional 30 minutes.

**Results:** The fluid from the bud of *Spathodea campanulata* did not prevent the induction of seizures by PTZ; how-

ever, the higher doses (100 and 200 mg/kg) delayed the onset of seizures. Administration of the plant fluid (100 and 200 mg/kg) also reduced the number of deaths resulting from seizures induced by PTZ ( $p < 0.05$ ). Phenytoin provided the greatest protection against PTZ-induced convulsions as it delayed the onset and reduced the duration of seizures. Phenytoin also reduced the number of deaths caused by the PTZ-induced convulsions.

**Conclusion:** The fluid from the bud of *Spathodea campanulata* was found to be efficacious in protecting against death in PTZ-induced seizures in mice.

#### (P – 6)

##### **A comparison of the effect of potassium adaptation on un-inephrectomized rat treated with deoxycorticosterone acetate (DOCA) and L-NG-nitroarginine methyl ester induced hypertensive models**

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**Objective:** To compare the effects of potassium adaptation on un-inephrectomized rats treated with deoxycorticosterone acetate (DOCA) and sodium chloride (DOCA-salt hypertensive rats) and L-NG-nitroarginine methyl ester (L-NAME) induced hypertension.

**Methods:** Hypertension was induced through removal of the left kidney and implanting a 200 mg DOCA pellet subcutaneously with a 0.9% salt diet and 50 mg/kg ip L-NAME, while 0.75% potassium was used in the supplementation groups for eight weeks. Blood pressures were measured non-invasively, oxidative stress parameters and serum electrolytes were analysed and vascular reactivity was assessed with isolated tissue organ bath experiments.

**Results:** Potassium adaptation caused a significantly ( $p < 0.05$ ) lowered blood pressure and non-significantly elevated serum potassium concentration. It correlated with lipid peroxidation which was significantly decreased ( $p < 0.05$ ) in the L-NAME and potassium groups but not in DOCA-salt hypertensive rats. Vascular reactivity was significantly ( $p < 0.05$ ) increased in the hypertensive models, but decreased with potassium adaptation. Potassium ion channel modulators caused significantly ( $p < 0.05$ ) elevated vasoconstrictions in the L-NAME group compared to the DOCA salt group.

**Conclusion:** Potassium adaptation reduces blood pressure elevations but not successfully in all hypertensive models like the DOCA-salt hypertensive rats. The moderate increase in the serum potassium concentration may account for the hyperpolarization of vascular smooth muscle and antioxidant characteristics leading to a reduced blood pressure in some hypertensive models.

#### (P – 7)

##### **Assessment of antipsychotic therapy in the management of male cannabis users presenting to the University Hospital of the West Indies with psychotic episodes**

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**Objective:** To assess the impact of cannabis use on the efficacy of antipsychotic therapy in male patients presenting with psychotic episodes.

**Methods:** Male subjects, 18–40 years old, admitted to the psychiatric ward of the University Hospital of the West Indies (UHWI) between February and May 2013, diagnosed with schizophrenia, schizophreniform disorder, and positive for  $\Delta^9$ -tetrahydrocannabinol were recruited for the study. On day 1, consenting patients were assessed using the Brief Psychiatric Rating Scale (BPRS) by the psychiatric consultant. Consequent to the findings of the BPRS, patients were prescribed seven days of an oral antipsychotic medication (typical/atypical). Patients were reassessed using the BPRS on days three and seven. Statistical analysis involved student's *t*-test and repeated measure analysis of variance.

**Results:** Twenty patients were recruited, mean age of  $26.00 \pm 5.96$  years. Patients were grouped based on the daily chlorpromazine equivalent (CPZE) given on day one, into CPZE1 (100–300 mg;  $n = 8$ ) and CPZE2 (375–888.8 mg;  $n = 12$ ). There was no significant difference in the total BPRS score between groups ( $41.38 \pm 16.47$  for CPZE1 versus  $49.42 \pm 25.58$  for CPZE2;  $p = 0.44$ ); similar findings were obtained for positive ( $26.75 \pm 9.27$  versus  $31.83 \pm 17.30$ ;  $p = 0.46$ ) and negative ( $14.63 \pm 7.73$  versus  $17.58 \pm 9.74$ ;  $p = 0.48$ ) symptom components of the BPRS. For patients in CPZE1, there was no significant decrease in total BPRS score ( $F = 0.07$ ,  $df = 2$ ,  $p = 0.93$ ) over the study period. For CPZE2, significant reduction in total BPRS scores was achieved ( $F = 7.12$ ,  $df = 2$ ,  $p = 0.01$ ), contributed by significant decrease in both positive ( $F = 5.64$ ,  $df = 2$ ,  $p = 0.02$ ) and negative ( $F = 7.53$ ,  $df = 2$ ,  $p = 0.01$ ) symptom components of the BPRS.

**Conclusion:** This study confirms for the first time that male cannabis users presenting with psychotic disorders may not achieve optimal therapeutic benefit within seven days with CPZE doses of 300 mg or less. As such, it appears that initiating treatment with CPZE doses of greater than 300 mg will provide better therapeutic outcomes for this patient population.

**(P – 8)**

**Determining the knowledge and attitude of final-year medical students toward adverse drug events reporting**

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**Objective:** To assess the knowledge and attitude of final-year medical students toward adverse drug events (ADE) and ADE reporting.

**Method:** A questionnaire was designed to evaluate the students' knowledge of the adverse events of drugs, attitude toward ADE reporting, training in the methods for reporting ADE and awareness of ADE reporting. The questionnaire was randomly administered to 90 final-year University of the West Indies, Mona medical students *via* face-to-face contact. Data collected were analysed by descriptive statistics using the Statistical Package of the Social Sciences version 18 (SPSS 18).

**Results:** Of 90 questionnaires administered, 86 were returned completed. All respondents were of the view that an adverse effect to a drug can occur in any patient on medication and that the reporting of ADE was important. While 81.4% (n = 70) indicated that they had, in the past year, noticed the occurrence of ADEs, 96.5% (n = 83) indicated that they had never seen a healthcare professional complete an adverse event report form. The majority of the participants 94.2% (n = 81) reported that they had not received training on the methods of reporting ADEs. Only 14% (n = 12) correctly indicated that the Ministry of Health (MOH) was the regulatory body responsible for ADE monitoring and 2.3% (n = 2) were aware of the MOH PharmWatch form for ADE reporting. Most, 86.0% (n = 74), were of the view that lectures on the importance of reporting ADE should be included in the medical programme. The students' knowledge of the adverse effects of 10 commonly prescribed drugs – diclofenac, enalapril, atorvastatin, procainamide, spironolactone, nifedipine, heparin, phenytoin, levofloxacin and zidovudine was assessed. The correct adverse effect was selected by the majority of students in all instances except atorvastatin and levofloxacin.

**Conclusion:** The study demonstrates the need to implement training in reporting of adverse drug events for undergraduate medical students.

**(P – 9)**

**Medical ethics in healthcare: perspectives of radiology personnel at the University Hospital of the West Indies**

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**Objective:** To analyse the perceptions of medical ethics among healthcare personnel at the Radiology Department at the University Hospital of the West Indies.

**Methods:** The participants in the study included all categories of staff and radiography students at the Radiology Department at the University Hospital of the West Indies. Self-administered questionnaires consisting of 20 items were used to collect data for the study. Descriptive statistics were used to analyse data.

**Results:** There were 58 participants, 20 males and 38 females. Among the males, 17 (85%) disagreed that taking a course in medical ethics is a waste of time, while 35 (92%) of the females also disagreed. Only four (7%) of the participants agreed that medical ethics is based on common sense only. Fifty-six (97%) of the participants agreed that patients must be provided with full explanation of radiographic procedures that will be done. Thirty-four (59%) respondents agreed that radiology personnel should keep promises made to patients at all times. The majority of the participants (95%) indicated that on the job, they make decisions based on what is best for the patients. Forty-seven (81%) of the participants indicated that on the job, they either rarely or never used their feelings, rather than ethical reasoning to make crucial decisions.

**Conclusion:** Medical ethics as perceived by the participants is important in helping healthcare personnel to make decisions on the job. Further research is needed to ascertain whether the views expressed are consistent with what happens in practice.

**(P – 10)**

**A cohort analysis of the performance of the first two graduating classes of the Bachelor's degree programme in Diagnostic Imaging (Radiography)**

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**Objective:** To critically evaluate the performance of the graduating classes of 2009 [cohort 1], and 2010 [cohort 2], all of whom graduated with first-class honours.

**Method:** This was a retrospective study. Data were retrieved from The University of the West Indies (UWI)-generated grade sheets for 2006–2009 and 2007–2010, respectively.

**Results:** A total of 41 students (cohort 1 = 23, cohort 2 = 18) were evaluated, with male:female ratio of 3:8, and mean age of 19.5 years. At the end of year 1, 65.2% of students in cohort 1, and 88.8% of students in cohort 2 passed all subjects. The modal grade range was 60–69% for both cohorts. At the end of year 2, 18 students (87%) in each cohort passed all subjects, with modal grade range of 60–69% in cohort 1, and 70–79% in cohort 2. In the final year,

all students in both cohorts passed all subjects, with a modal grade range of 70–79% for both. Although the pass-mark was 40%, only 20% of passes in both cohorts were in the range 40–49%. The modal grade point average (GPA) at the end of the programme for both cohorts was 3.90–4.00, achieved by 13 students [56%] in cohort 1 and nine students [50%] in cohort 2. Four students (17.3%) from cohort 1 and two students (11.1%) from cohort 2 attained GPAs in the range 4.00–4.15.

**Conclusion:** Both cohorts performed creditably for the duration of their programmes, with cohort 2 performing marginally better in the first two years. However, in the final year, more students from cohort one achieved higher GPA scores.

#### (P – 11)

### **Evaluating the knowledge and application of the principles of universal precautions among 2<sup>nd</sup> and 3<sup>rd</sup> year student radiographers at the School of Medical Radiation Technology**

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**Objective:** To assess the understanding of, and the utilization of the principles of universal precautions among student radiographers at the School of Medical Radiation Technology.

**Methods:** This is an analytical survey, using a convenience sample. Participants completed a 16-item, self-administered questionnaire. Data analysis was done using SPSS® for Windows®, version 14.

**Results:** The response rate was 60.86% (n = 28), with male:female ratio of 5:9, and mean age, 19.5 years. Ninety-six per cent of respondents correctly identified the recommended hand-washing protocol. Seventy-five per cent of respondents correctly identified the protocol for dealing with a sharps injury. Three respondents (10.7%) suggested that used needles should be re-capped. Thirty-two per cent of respondents selected 1:10 bleach for cleaning cassettes, immobilizing devices and table surfaces, while 39.28% chose full strength bleach. Fifty per cent of respondents correctly indicated that spillages should be covered with 1:10 bleach and then wiped with disposable material, while 25% chose 1:30 Savlon and 25% chose 70% alcohol. Fifty per cent of respondents said that soiled linen should be soaked in bleach, then bagged. Forty-three per cent of respondents said that used disposable gloves and protective clothing should be placed in hazardous waste, while 69% of respondents correctly said that broken glass is never placed in regular garbage. There was no statistical difference between the responses given by the two groups [year 2 and year 3 students] ( $p = 0.21$ ).

**Conclusion:** The findings suggest that  $\leq 50\%$  of the sample have a reasonable grasp of some aspects of universal precautions. There is uncertainty regarding the appropriateness of some commonly used cleaning solutions for dealing with spillages.

#### (P – 12)

### **Telecommunication technology: complement to chronic disease compliance**

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**Objectives:** To formulate and evaluate a text messaging system to improve compliance of diabetic patients attending St Jago Park Health Centre, St Catherine.

**Method:** A prospective cohort of 200 patients with diabetes was invited and consenting participants were randomized to intervention (n = 44) and cohort (n = 46) groups. Pre-scheduled, group-specific texts for intervention and control cohorts and respective family members were sent en masse via e-mail. Outcome and impact assessments before and after a three-month period were conducted through biophysical parameters and questionnaires.

**Results:** Eighty-eight participants were enrolled, 6 (11%) males and 82 (89%) females, mean age  $60.15 \pm 11.3$  years (range 25–92 years). Post-intervention, 67, 59 and 49 participants, respectively completed posttest questionnaires, anthropometry and blood tests. Hypertension and hypercholesterolaemic rates were 81.5% and 36.5%, respectively. Phone calls were preferred to texts (49.1% vs 12.3%) in the 55 to 85-year old age group; the reverse was observed in the 25 to 54-year olds (22.6% vs 42.9%), but only 5% of the entire recruit rejected texts. Compliance with medication improved by 10.9% in the intervention compared to a 3.3% ( $p < 0.05$ ) decline in control groups.

**Conclusion:** Text messaging is a useful and feasible adjunct to consultations for patient education and encouragement. Cost, convenience and ease of application, supported by a Jamaican cellular subscription rate of 116%, increases sustainability, and has potential for improvement in control of diabetes and hypertension in busy primary care facilities.

(P – 13)

**Prevalence of orthostatic hypotension among ageing patients on antihypertensive and antidepressants and assessment of the risk of falls**

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**Objectives:** To evaluate the prevalence of orthostatic hypotension (OH) and risk of falls among older patients on antihypertensive or antidepressant medications.

**Methods:** Patients  $\geq 60$  years, on antihypertensive or antidepressant drugs and attending the Community Health and Psychiatry Health Centre were recruited from February 2011 to March 2012. Patients unable to stand or who had Parkinson's disease were excluded. Patients were grouped as OH positive by reduction systolic blood pressure (SBP) of  $\geq 20$  mmHg or diastolic blood pressure (DBP) of  $\geq 10$  mmHg within three minutes of standing. Risk of falls was assessed using Time Up and Go (TUG) test and Tinetti Performance-Oriented Mobility Assessment (POMA) Tool. Descriptive statistics involved use of mean and standard deviation, Mann-Whitney U and Pearson's correlation was used for inferential statistics.

**Results:** Of the 100 patients recruited (97 females, 3 males), 20% (95% confidence interval = 12.2–27.8) were OH positive. They were significantly older ( $77.3 \pm 8.0$  versus  $72.4 \pm 8.2$  years,  $p = 0.019$ ) and had higher sitting SBP ( $160.0 \pm 12.6$  versus  $143.5 \pm 18.1$  mmHg,  $p < 0.001$ ). There was high correlation between the POMA scores and the TUG times (Pearson's  $r = -0.733$ ,  $p < 0.001$ ). Orthostatic hypotension positive patients had significantly higher TUG times ( $22.0 \pm 6.3$  s versus  $17.8 \pm 7.1$  s;  $p < 0.020$ ) and lower POMA scores ( $20.4 \pm 5.4$  versus  $23.8 \pm 4.3$ ;  $p < 0.001$ ).

**Conclusion:** There is a high prevalence of OH among ageing patients on antihypertensive and antidepressant drugs and they are at a greater risk of falling. Therefore, it is imperative to monitor ageing patients on antihypertensive and antidepressant drugs for these possible adverse events.

(P – 14)

**Prevalence of medication non-adherence in diabetics attending two health centres in Kingston, Jamaica**

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**Objective:** Adherence is critical for glycaemic control in diabetics. Prevalence of non-adherence in Jamaica was 30% in 1999. This study aimed to determine the current prevalence and associated factors of non-adherence amongst diabetic patients attending selected clinics in Kingston.

**Methods:** A cross-sectional study was conducted. Two health centres were selectively chosen in Kingston – Edna Manley and Harbour View. Convenience sampling of all diabetic patients who attended the diabetic clinics was performed. Sample size was 260. An interviewer-administered questionnaire was utilized. Adherence was measured by patients' self-reports of medication usage in the previous week. The Chi-squared test was used to determine significance of associations.

**Results:** Seventy-six per cent of participants were female and 24% were male; 93.8% were Type 2 diabetics. More than 95% of patients were over the age of 40 years. Approximately 32% of participants were employed. The prevalence of medication non-adherence was 33%. The statistically significant factors associated with non-adherence were more than five medications prescribed ( $p = 0.007$ ), use of alternative medicine ( $p = 0.001$ ) and the lack of health insurance or health benefit ( $p = 0.01$ ). Factors which were not significant included duration of illness, comorbid illness, depression, cost of medication, affordability, persons who bought medication, type of medication, medication present on person and knowledge of HbA1c.

**Conclusions:** Medication adherence remained unchanged since 1999. Physicians may assist patients to increase levels of adherence by prescribing combination medication, education about access to health insurance or other available health benefits and investigating patients' use of alternative medication.

(P – 15)

**Epidemiology of diabetic foot infections at the University Hospital of the West Indies, 2012**

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**Objective:** This report examined the epidemiology and antibiogram of isolates from diabetic foot specimen. This information was useful to guide antibiotic therapy, which is essential for controlling the infection and avoiding major limb loss.

**Methods:** A retrospective review of laboratory records of wound/tissue samples from patients with diabetic foot infections (DFI), between July and December 2012 at the University Hospital of the West Indies (UHWI), Jamaica, was done. Identification and susceptibility testing of isolates was done using the Vitek 2 (bioMerieux, Durham,

NC). The results were compared to similar data collected six years ago.

**Results:** Of 806 wound/tissue samples, 3% (26) were from patients with DFI; all were adults. Seventy-seven per cent were gender specified, with 65% being male. No pathogens were isolated from 4% (1/26) of the samples, 46% (12/26) had a single pathogen and the remainder were polymicrobial. Gram negative bacilli (GNB) predominated, accounting for 58% (18/33) of isolates; 36% (12/33) were Gram positive cocci (GPC) and 6% (2/33) were yeasts. The most commonly isolated organisms included *Proteus* spp, *Morganella* spp, *Enterobacter* spp, *S aureus* (including 1 MRSA) and *Streptococcus* group D. A similar profile of isolates was found six years ago. The majority of patients were susceptible to most antibiotics tested. Most GPCs were susceptible to Augmentin; most GNBs were susceptible to piperacillin-tazobactam, cephalosporins and aminoglycosides.

**Conclusions:** Over the last six years at the UHWI, no major change in the epidemiology of DFI has been seen. Interventions should continue to involve the use of broad spectrum antibiotics, covering likely pathogens. Empiric coverage for yeasts is not routinely recommended.

#### (P – 16)

##### **The clinical outcome of pregnant women with degenerating fibroids: a four-year review**

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**Objectives:** To determine the relationship between degenerating fibroids and adverse obstetrical outcomes.

**Methods:** This was a four-year retrospective analysis of the medical records of all patients with a clinical or ultrasound diagnosis of fibroid degeneration in pregnancy who delivered or aborted between the periods July 2008 to June 2012. The records of gravid patients with fibroids with no evidence of degeneration during this period were also collected and analysed. Information pertaining to patient demographic data, antenatal care, intrapartum delivery and complications was abstracted. The data were analysed using Stata 12. Analysis of variables was done comparing means and standard deviations for continuous variables such as age and fibroid size and comparing median and range for nonparametric variables such as parity and number of hospitalizations. Logistic regression analysis was used to determine which factors are most associated with degenerating fibroids and complications of this problem.

**Results:** One hundred and sixty-five cases were analysed. Thirty-three per cent of patients (n = 56) had an ultrasound and/or clinical diagnosis of degenerating fibroids. There

was an association found between the clinical diagnosis of degenerating fibroids and ultrasound findings indicative of degenerating fibroids ( $p = 0.000$ ). Only four patients (7%) with a clinical diagnosis of degenerating fibroids did not have a corresponding ultrasound diagnosis ( $p = 0.01$ ). Patients with degenerating fibroids had their pregnancies complicated by post-partum haemorrhage more often. There was a significant relationship between threatened preterm labour ( $p = 0.006$ ), however, degenerating fibroids was not associated with an increased occurrence of pre-term birth.

**Conclusions:** This study showed that degenerating fibroids can contribute to maternal morbidity by increasing the risk of post-partum haemorrhage and threatened preterm labour.

#### (P – 17)

##### **The stages of exercise behaviour change of patients with chronic diseases**

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**Objectives:** The purpose of the study was to determine the stage of exercise behaviour change of persons with chronic diseases and how this related to exercise self-efficacy and demographic factors.

**Method:** One hundred out-patients at the University Hospital of the West Indies were interviewed using the 24 item Exercise: Stage of Change Questionnaire. The Exercise Self-Efficacy Questionnaire was also administered.

**Results:** Seventy-five per cent of the sample was female, half (50%) were in the age group 51–65 years and most (65%) had one chronic condition. Fifty-one per cent was in the contemplation stage of exercise behaviour change and 29% in the maintenance stage. Mean self-efficacy score was 51.4 (18.64). The one-way ANOVA showed that mean self-efficacy scores of persons in the action and maintenance stages were significantly higher than those in the contemplation stage ( $p = 0.037$  and  $p < 0.001$ , respectively). Age, gender and number of chronic conditions were not significantly related to stage of change.

**Conclusion:** Most patients suffering from chronic conditions are presently thinking about starting a regular exercise programme but have not yet done so. Continued effort is necessary to improve their self-efficacy for exercise and move them toward making exercise a way of life, given its importance in chronic disease management.

(P – 18)

**How aware are the students of The University of the West Indies of the risks of a sedentary lifestyle?**

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**Objective:** To determine university students' knowledge of the risks of sedentary lifestyles and their exercise practice. Also, to explore relationships between knowledge, practice and selected variables.

**Method:** Participants for this cross-sectional study were selected based on the inclusion and exclusion criteria. They signed the consent form and then completed the questionnaire. Data were analysed using the SPSS (version 20). Relationship between gender, exercise practice (yes/no) and faculty (medical/non-medical) with mean knowledge score was analysed using the *t*-test, while age (continuous) and knowledge scores were analysed using the Pearson's correlation coefficient. The relationship between demographic variables (gender, marital status, age [groups]), faculty (medical/non-medical) and exercise practice (yes/no) was analysed using Chi-square.

**Results:** One hundred and fifteen students participated in the study. The majority were between the ages of 18 and 21 years (*n* = 91, 79.1%), were female (*n* = 63, 55%), single (*n* = 107, 93%), from the Faculty of Medical Sciences (*n* = 77, 67%) and reported exercise activity (*n* = 66, 57.4%). Mean knowledge score was  $72.5\% \pm 12.1$  (range 46% to 92%); 4.3% (*n* = 5) failed with a grade below 50%.

There was a statistically significant difference between gender and exercise practice [yes/no] (*p* = 0.051). More males were involved in exercise practice than females. Relationships between age, gender, faculty and students' knowledge were not found to be of statistical significance.

**Conclusion:** Results showed that students were knowledgeable of the risks of a sedentary lifestyle, and that male students more than female students were likely to exercise.

(P – 19)

**Issues in the use of plain-film measure of cardiothoracic ratio as an indicator of cardiac size and function – a review of the literature**

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**Objective:** To investigate issues in the use of plain-film measure of cardiothoracic ratio (CTR) as an indicator of cardiac size and function.

**Method:** Radiology texts and peer-reviewed medical journal articles obtained from The University of the West Indies

(UWI) electronic database were used to compile the information.

**Results:** Plain-film measure of CTR as an indicator of cardiac size and function has been conducted over many decades, but has been debated in literature in light of several issues impacting its accuracy. These issues include imaging techniques employed, patient considerations, and the knowledge and experience of radiologists in the interpretation of plain-film cardiac images. The impact of imaging techniques lies in the patient's posture, the degree of rotation of the chest, the radiographic projection, radiographic beam geometry, adequacy of exposure factors and the respiratory phase in which the image was recorded. Patient considerations lie in the phase of the cardiac cycle in which the image was recorded, thoracic deformity, congenital variations, body habitus, patient age, gender and race, the presence of intra-abdominal or sub-diaphragmatic diseases, pregnancy and state of nutrition. The impact of knowledge and experience of radiologists lies in reduced interest and awareness in plain-film interpretation of patients' cardiac status due to the availability of high-technology modalities such as ultrasound, computed tomography (CT) and magnetic resonance imaging (MRI) scanning. **Conclusion:** Literature suggests ambivalence in the use of plain-film measure of CTR as an indicator of cardiac size and function. While plain-film CTR measurements require confirmative follow-up investigations, it remains a rapid, cost-effective and safe screening procedure in epidemiological studies.

(P – 20)

**Patterns of traumatic ocular morbidity at the University Hospital of the West Indies**

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**Objective:** To determine the patterns of ocular trauma presenting to the eye clinic at the University of the West Indies (UHWI).

**Methods:** This was a prospective observational study. Consecutive patients with ocular trauma were recruited. Data were collected on patient's age, gender, affected eye, aetiology of trauma, place of trauma, surgical intervention and visual acuity. A questionnaire was filled in by the medical doctor.

**Results:** There were 23 (28.8%) females and 57 (71.2%) males recruited. The ages ranged from 9–64 years old (mean  $32.4 \pm 14.8$  years) for males and 3–56 years (mean  $31 \pm 16.9$  years) for females. There were 84 eyes of 80 patients. The right eye was affected in 53% of patients. The most common place of injury was the home in both



males (40.4%) and females (65.2%). Work was the second most common place for sustaining an ocular injury for males compared to road traffic accidents in females. Blunt trauma was the cause in 37% and chemical injuries in 10%. Accidental injuries occurred in 61.9%, 20.3% were self-inflicted and 17.8% as a result of assault; 36.9% required hospitalization, of which 87% were males. Fifteen per cent of patients had previous eye trauma; of these, 91.7% were males.

**Conclusions:** Males are at a higher risk for traumatic ocular morbidity. The majority of eye injuries occur in the home environment, less commonly the workplace and are accidental. Therefore, they can be avoided by the use of eye protection or care with interpersonal and work related activities.

#### (P – 21)

##### **Admitting elderly patients to the intensive care unit - why bother?**

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**Objective:** To determine the demographic and clinical profile of elderly patients admitted to the intensive care unit (ICU) at the University Hospital of the West Indies and to identify any associations between this and patient outcome.

**Methods:** A retrospective cohort of 122 patients aged 60 years and over, admitted to the ICU between July 1, 2011 to June 30, 2012 was conducted. Data collected from medical records were stored and analysed using SPSS version 12. Univariate analysis, independent sample *t*-tests and multivariate analysis using one-way analysis of variance (ANOVA) were performed. Relationships were analysed using Pearson's Chi-squared or Fisher's exact tests.

**Results:** Of the 122 patients, 76 (62.3%) were males; mean age was  $70.6 \pm 7.3$  years; 70% had more than one chronic medical illness. Most were admitted for multi-system support ( $n = 44$ , 36.1%) or ventilatory support ( $n = 32$ , 26.2%). The mean Acute Physiology and Chronic Health Evaluation (APACHE) II score was  $22.8 \pm 10.3$ , indicating moderately severe illness. Two-thirds (63.9%) had short ICU stays ( $< 7$  days), with 46 (37.7%) of all patients not surviving. There was no statistically significant increase in mortality with advancing age ( $p = 0.71$ ) or gender ( $p = 0.38$ ). Lowest mortality was recorded with planned admissions (17%; RR = 0.37; CI = 0.17, 0.80;  $p = 0.01$ ), short ICU stays (16%; RR = 0.37; CI = 0.15, 0.95;  $p = 0.04$ ) and those not requiring multi-system or ventilatory support (25%; RR = 0.6; CI = 0.2, 1.32;  $p = 0.15$ ).

**Conclusion:** Not all critically ill elderly patients admitted to ICU have a poor prognosis. Age alone is not associated with increased mortality and should not be a basis for denying ICU care.

#### (P – 22)

##### **Recall of preoperative anaesthesia information given to patients by anaesthesia providers in three tertiary referral centres in Kingston, Jamaica**

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**Objectives:** To evaluate patients' recall of preoperative anaesthesia information and to explore whether patients desired more information about the anaesthetic procedure.

**Methods:** A cross-sectional, 26-item questionnaire-based survey, conducted by the researcher, was used to evaluate the recall of standardized preoperative anaesthesia information in 150 adult patients undergoing elective general or regional anaesthesia in the main operating theatres of Kingston Public Hospital (KPH), Victoria Jubilee Hospital (VJH) and the University Hospital of the West Indies (UHWI). Data were stored and analysed using SPSS, version 17.

**Results:** Recall was adequate in 92% (138) of the respondents. A higher proportion of respondents at the UHWI (98%) had adequate recall score compared to those at the KPH (87%) and VJH (90%),  $p = 0.04$ . However, the level of recall was not found to be significantly associated with socio-demographic factors, occupation ( $p = 0.44$ ), educational level ( $p = 0.55$ ), whether the patient previously had an anaesthetic procedure ( $p > 0.05$ ), nor the time since their last anaesthetic procedure ( $p = 0.44$ ). Among the respondents, 94.7% (142) considered it their right to know about the anaesthetic process, 76.7% (115) agreed that they would like to know more about the anaesthetic drugs and side effects and 55.3% (83) agreed that a separate consent form for anaesthesia would improve their knowledge of the procedure. The majority, 89.3% (134), reported feeling adequately informed about the anaesthetic process.

**Conclusion:** There was a high level of recall of preoperative anaesthesia information. Most patients now consider it their right to know about their anaesthetic care and are interested in more clinically relevant aspects of their anaesthetic care.

(P – 23)

**Arthroscopy in children and adolescents**

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**Objective:** To determine the indications for arthroscopic surgery in patients less than 18 years old and to document the pathologies found at surgery and their relationship to participation in competitive sports.

**Methods:** Patients under 18 years who had arthroscopic surgery between January 1, 2008 and December 31, 2012 at the University Hospital West Indies were identified, and data collected retrospectively from the department surgical log and patients' charts.

**Results:** Forty-four patients were identified: 25 males and 19 females, mean age 14.2 (range 3–17) years. There were 39 knees, four shoulders and one hip arthroscopy. The most common pathologies were meniscal tears 14 (32%), osteochondritis dissecans 8 (18%) and anterior cruciate ligament tears 7 (16%). Diagnostic arthroscopy was done in 20% of cases for joint pain and 11% of patients had non-specific synovitis, 5% patients had chondromalacia, 2% had a slap tear and 2% a tumour. Participation in football (20%) was found to be the most common cause of injury leading to surgery. Other sports involved were netball, hockey, swimming, basketball, discus throwing and rugby. Although the injuries did not necessarily occur during competition, they occurred while playing the sport.

**Conclusion:** Meniscal injuries were the most common pathology found in children and adolescents presenting for arthroscopy. Football was the sport most frequently associated with injuries requiring arthroscopic treatment.

(P – 24)

**Establishing an endovascular aneurysm repair service in Jamaica: challenges and early outcomes**

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**Objective:** To present a review of the first five patients who underwent endovascular aneurysm repair (EVAR) in Jamaica, and document the feasibility and early outcomes of EVAR in Jamaica.

**Methods:** A retrospective review of the first five EVAR procedures in Jamaica was performed by analysis of medical records and imaging studies.

**Results:** Four patients had infrarenal aortic aneurysms necessitating bifurcated aortic endografts and one patient had a ruptured iliac aneurysm necessitating an aortauniiliac

device. The first EVAR was performed in May 2011, with vascular access *via* small groin incisions. To date, the patient remains well, with no evidence of continued complication such as endoleak or aneurysm sac expansion. Subsequently, two patients underwent percutaneous EVAR in March 2012 without any complications during the first year of follow-up. Endovascular aneurysm repairs performed in 2013 had no perioperative major complications, but medium and long-term outcomes are not yet known.

**Conclusion:** Based on the first five cases and early outcomes, we conclude that EVAR is safe and feasible in Jamaica. Issues related to patient selection, intraoperative and postoperative imaging modalities with focus on the use of ultrasound, as well as procedural affordability and availability within the Caribbean context, will all be discussed. We will also discuss the way forward as we attempt to expand the Jamaica and Caribbean endovascular programme.

(P – 25)

**Outcomes of rescue cerclage at the University Hospital of the West Indies – a retrospective study**

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**Objective:** To review the outcomes of rescue cerclage at the University Hospital of the West Indies.

**Methods:** This was a five-year retrospective study based on medical records of all patients who had urgent or rescue cerclage during the study period 2007 to 2011. The main outcome variables included patients' age, gestational age at suture insertion, degree of cervical dilatation and cervical length, gestational age at cerclage removal, gestational age at delivery, mode of delivery and pregnancy outcome. Associations were made between cervical characteristics at the time of cerclage insertion and an additional gestational age of six and 10 weeks gained and delivery less than or greater than 28 weeks gestation. A *p*-value of < 0.05 was considered statistically significant.

**Results:** A total of 207 women were treated for cervical insufficiency. The maternal age distribution ranged from 16 to 48 years with a mean age of 29.87 years. For the study period, 72.9% of patients with a cervical dilatation of < 3 cm delivered at ≥ 28 weeks compared to 20.8% of patients with a cervical dilatation ≥ 3 cm (*p*-value = 0.008). Delivery at ≥ 28 weeks gestation was greater among women with a cervical length of ≥ 1 cm (80% *versus* 20%) compared with women with a cervical length of < 1 cm (*p*-value = 0.007).

**Conclusions:** The findings of this retrospective study demonstrated that in patients who require urgent/rescue cerclage placement, the perinatal outcomes are superior in

those whose cervical length and dilatation is  $\geq 1$  cm and  $< 3$  cm, respectively.

**(P – 26)**

**The effect of misoprostol on the active phase of labour: does misoprostol result in an abnormally increased rate of progress in the active phase of labour?**

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**Objective:** For half a century, prostaglandins have found usage as agents for the induction of labour. Low cost and biochemical stability at room temperature have made misoprostol the agent of choice in Jamaica. Numerous anecdotal reports suggest induction with misoprostol is associated with an increased rate of progress during the active phase of labour and in some cases precipitous labour. There is, however, alarmingly scarce evidence to substantiate these reports. It was the aim of this study to determine if misoprostol induction results in an abnormally accelerated rate of progress in the active phase of labour.

**Method:** A retrospective cohort study design was used for the investigation. A cohort of patients induced with misoprostol was compared to a time-matched control group of women who had spontaneous labour during the period July 2012 to December 2012 at the University Hospital of the West Indies.

**Results:** Misoprostol induction was associated with a faster rate of progress among study participants. The rate of progress during the active phase of labour was 2.0651 cm/hour among patients induced with misoprostol compared to 1.28 cm/hour in the control group with a mean difference of 0.782 cm/hour. This difference in rate, however, did not achieve statistical significance ( $p$ -value 0.075).

**Conclusions:** Misoprostol may be associated with an increase in the rate of active labour. This, however, was not conclusively proven by this study. Further research with a larger sample size is needed to further investigate these findings.

**(P – 27)**

**Trends in maternal mortality at the University Hospital of the West Indies 2001–2011**

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**Objectives:** To review all maternal deaths between 2001 and 2011 to make evidence-based interventions to reduce maternal mortality at the University Hospital of the West

Indies (UHWI).

**Methods:** This was an ongoing analysis of maternal deaths at the UHWI between 2001 and 2011. Deaths were classified as direct, indirect, late or coincidental according to the World Health Organization (WHO) classification.

**Results:** There were 69 maternal deaths within the specified criteria and 25 477 live births thereby giving a maternal mortality ratio (MMR) of 271 per 100 000 live births. Thirty of these patients were transferred to the UHWI at a critical stage. The adjusted MMR for that period was 239 per 100 000. The highest MMR was recorded in 2008 at 561/100 000 and the lowest MMR in 2003 = 134/100 000. The causes for direct deaths were pre-eclampsia/eclampsia (MMR 47.1/100 000), deaths due to obstetric haemorrhage (MMR = 31.4/100 000) and venous thromboembolism and amniotic fluid embolism (MMR = 7.9/100 000 each). Leading indirect deaths were sickle cell disease (MMR = 47.1/100 000) and cardiac disease (MMR = 35.3/100 000). There were seven coincidental deaths reported for the period. Thirty-nine per cent of deaths occurred in women unbooked to UHWI.

**Conclusion:** The maternal mortality ratio at the UHWI between 2001 and 2011 has remained above that needed to achieve the millennium development goal for reduction of maternal deaths.

**(P – 28)**

**The effect of haemoglobin concentration on maternal and fetal outcome**

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**Objectives:** To determine: (a) fetal and maternal outcome in relation to maternal haemoglobin level, (b) the range of haemoglobin level in each trimester, (c) the prevalence of anaemia [haemoglobin level  $< 10.5$  g/dL], (d) the number of patients who required blood transfusions, (e) gestational age at delivery in relation to haemoglobin level and prevalence of preterm delivery, (f) incidence of pre-eclampsia in relation to haemoglobin level, (g) the prevalence of intra-uterine growth restriction and the haemoglobin ranges at which it occurs, (h) Apgar score in relation to haemoglobin level and (i) the number of admissions to the Neonatal Care Unit.

**Methods:** This was a two-year retrospective study of the patients who booked and delivered in the University Hospital of the West Indies during the period of January 2008–January 2010. A total of 857 eligible participants were reviewed. Patients with haemoglobinopathies, haematological malignancies and multiple pregnancies were excluded from this study.

**Results:** Mean haemoglobin levels of each trimester were 12.01 g/dL, 11.49 g/dL and 11.13 g/dL. The risk of low birthweight in relation to first and third trimester haemoglobin was  $p = 0.195$  and  $p = 0.073$ . Preterm delivery related to first trimester haemoglobin levels was  $p = 0.283$  and third trimester was  $p = 0.03$ . Among 45 pregnancy-induced hypertension cases, 95.7% had first trimester haemoglobin greater than 10.5 g/dL and 2 (4.3%) had haemoglobin less than 10.5 g/dL ( $p = 0.540$ ). Twenty-four patients who developed pregnancy-induced hypertension were anaemic in the third trimester ( $p = 0.99$ ) and there were 47 preeclampsia cases.

**Conclusion:** The pre-term delivery was associated with first trimester low haemoglobin level and postpartum haemorrhage was associated with low third trimester haemoglobin. The first trimester anaemic patients had more postpartum haemorrhage. The risks of pre-eclampsia, pregnancy induced hypertension, urinary tract infection, low birthweight, intrauterine growth restriction, low Apgar scores, admission to special care nursery and risk of blood transfusion were not related to maternal first and third trimester haemoglobin.

#### (P – 29)

##### **Management of obstetric anal sphincter injuries at the University Hospital of the West Indies 2007–2012**

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**Objective:** To determine whether recommendations made by Cawich *et al* in 2006 toward decreasing obstetric anal sphincter injury (OASI) related morbidity had led to a decrease in the prevalence of such morbidities at the University Hospital of the West Indies (UHWI) from 2007–2012.

**Methods:** A cross-sectional study was designed to determine the morbidity experienced by patients with OASI using the Cleveland clinical incontinence score (CCIS). The CCIS score ranges from 0 to 20. A CCIS score greater than 7 indicates faecal incontinence. The ‘early’ CCIS score determined morbidity within six months of OASI repair whilst the ‘late’ CCIS score identified morbidity occurring > six months post repair. A sample size of 30 patients was determined by statistical analysis using an 80% power and an alpha value of 0.05.

**Results:** There were 8108 vaginal deliveries between November 2007 and December 2012. A total of 18 patients had OASIs. Only 13 patients (72.2%) were able to be contacted and interviewed by telephone. Eleven (84.6.1%) of the interviewed patients had an ‘early’ CCIS score of 0; one (7.7%) patient had a score of 1, and one patient (7.7%) had a score of 11. All late CCIS scores were 0.

**Conclusion:** The prevalence of OASI has remained unchanged since 2006 at 0.2%. A decrease in OASI morbidities, however, occurred from 43% in 2006 to 7.7% in 2012. Cawich’s recommendations did not account for the fall in morbidities ( $p > 0.05$  for all variables examined).

#### (P – 30)

##### **Audit of hysterectomy done at Victoria Jubilee Hospital**

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**Objective:** To assess the indications and outcomes of all elective hysterectomy done between the period January and December 2011.

**Methods:** Patient information was collected from the docket re: demographics, pre-existing conditions, patient’s outcome intraoperatively and postoperatively. This was then analysed using Stata statistical system.

**Results:** The median age was 47 years, with significant right skewing. Uterine fibroids were the most common indication (70.39%). Abdominal approach was the most common (87.98%) with vaginal route 12%. There was no mortality but 13.3% of patients had complications, with haemorrhage being the most common (12.02%), followed by bowel injury and obstruction (3.44%). Vaginal hysterectomy was associated with a smaller blood loss of 200 ml compared to 350 ml in patients undergoing abdominal hysterectomy. This, however, was not significant ( $p$ -value for the Chi-squared test = 0.523). A linear regression model was done for blood loss on pre-operative haemoglobin (Hb), uterine size, length of surgery and age. All predictors were significant except for age ( $r$ -squared = 0.42). A preoperative Hb  $\geq 12$  g/dL was associated with less blood loss than preoperative Hb  $< 12$  g/dL.

**Conclusion:** Uterine fibroids are the commonest indications for hysterectomy. Abdominal hysterectomy is predominantly performed at our institution, while vaginal hysterectomy appears to be associated with less complications.

#### (P – 31)

##### **Antibiotics use in postpartum vaginal laceration**

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**Objective:** To ascertain the benefit of using antibiotics in the immediate postpartum period for mothers with vaginal laceration.

**Methods:** This was a prospective study design. Mothers who delivered vaginally and sustained laceration were

alternately assigned to one group receiving antibiotics and another group not receiving antibiotics. These patients were observed at week 1 post delivery for features of infection, such as pain, fever, purulent discharge and unravelling of the sutures. Fifty mothers participated in the study and three were lost to follow-up.

**Results:** The mean (SD) age was 23.96 years. Most persons had no pain upon review (61.70%). The worst pain experienced (using the pain scale of one to 10) was six, which involved 8.51% of the study population, with only 12.77% of patients requiring analgesia for pain control. Those who received antibiotics comprised 51.06% of the study population while 48.94% were not given antibiotics. Febrile morbidity occurred in three patients (6.38%), with 93.62% being afebrile, and only one patient had wound disruption. Of the patients with fever, 33.33% did not receive antibiotics, while 66.67% were from the antibiotics group ( $p = 0.609$ ). Of the patients with fever, 66.67% had a first degree laceration, while 33.33% had a second degree laceration ( $p = 0.593$ ).

**Conclusion:** First and second degree laceration will have a good outcome with or without antibiotics; antibiotics and analgesia might be unnecessary.

#### (P – 32)

##### **Improving Papanicalou smear recall at the University Hospital of the West Indies**

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**Objective:** To determine whether the introduction of a stamp based patient recall system over a one-year period (January 2012–December 2012) would lead to a decrease in the percentage of patients with abnormal Pap smear results who remained unaware of them.

**Methods:** A one-year prospective observational study was designed to determine whether the institution of a ‘stamp’ which enabled recording of patient contact information could lead to the above objective. After having Pap smears done, patients’ cytology forms were stamped and their contact information was recorded. Patients with abnormal Pap smear results were subsequently called to come in for review. After one year of using the stamp, the percentage of patients with abnormal results who remained unaware of them was determined and compared to results from the preceding two years where the stamp was not in place. A sample size of 165 patients per group was determined by statistical analysis using an 80% power and an alpha value of 0.05.

**Results:** In 2010 and 2011, a total of 4798 Pap smears were done in the Obstetrics and Gynaecology Department. A total of 254 (5.2%) Pap smears had abnormal results of which 15 (5.9%) patients remained unaware. In 2012, post

the introduction of the stamp, a total of 2311 pap smears were done. Of this total, 74 (3.3%) patients had abnormal results of which only one (1.4%) patient remained unaware.

**Conclusion:** A clinically significant fall was observed in patients with abnormal Pap smear results who remained unaware of them from 5.9% to 1.4% post the introduction of the stamp. This was, however, not statistically significant ( $p = 0.134$ ).

#### (P – 33)

##### **Evaluating sexual function in women with abnormal cervical smears attending the colposcopy clinic at the University Hospital of the West Indies**

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**Objective:** To evaluate sexual function in those patients referred to the colposcopy unit at the University Hospital of the West Indies (UHWI) for abnormal cervical smears and whether the impact of colposcopic evaluation resulted in sexual dysfunction in these women. Establishing the relationship between this diagnosis and this form of examination and treatment can allow for more focussed counselling and preparation of Jamaican women undergoing colposcopy and for those found to suffer from sexual dysfunction, the necessary psychotherapy can be employed.

**Methods:** This was a prospective study in which women aged 18–45 years were recruited from the cohort of patients referred to the UHWI colposcopy clinic with abnormal cervical smears. These participants were age matched against a control group of volunteers with normal cervical smears within the last month, no history of an abnormal smear and therefore not attending the colposcopy unit. The Female Sexual Function Index – a questionnaire regarding female sexual function, validated by several studies, and the McGill Quality of Life Questionnaire were administered to participants at first visit to the colposcopy clinic and again administered at six month follow-up and also to the age-matched control group at a similar interval. Study cases were grouped based on the type of intervention received.

**Results:** Thirty-three cases and thirty-two controls participated with a median age group of 26–30 years. There was no significant difference in demographics between cases and controls in marital status, body mass index or cohabitating relationship. Between groups, there was no difference in the answers given on initial evaluation (FSFI) except for question 15 which evaluated satisfaction with the sexual relationship between the patients and their partners. Fifty-nine per cent in the case group reported that they were “very satisfied” with this relationship with their partners whilst 50% of the controls reported that they were “equally satisfied and dissatisfied” with this relationship. There was no difference in the distribution of answers for

the second administration of the FSFI questionnaire. There was also no difference in the distribution of answers in each domain for Desire, Arousal, Lubrication or Pain for both cases and controls after interval review. More of the study group indicated higher scores of feeling nervous or worried than members of the control group at both initial evaluation and at the six-month review. There was no overall difference in total quality of life scores between cases or groups. **Conclusion:** There was no evidence of sexual dysfunction in patients attending the colposcopy clinic with abnormal smears as compared to the controls.

**(P – 34)**

**Knowledge, attitudes and practice regarding cervical cancer screening among clinical staff working in obstetrics and gynaecology at the University Hospital of the West Indies and the Victoria Jubilee Hospital**

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**Objective:** Cervical cancer is the second most common cancer affecting Jamaican women. Current international recommendations suggest screening every three years. This study aims to investigate the knowledge, attitudes and screening compliance among female nurses and doctors working in the obstetrics and gynaecology departments of these institutions.

**Method:** A cross-sectional study using questionnaires was done. The sample population included female nurses and doctors employed to Obstetrics and Gynaecology at the University Hospital of the West Indies as well as the Victoria Jubilee Hospital.

**Results:** Of 121 participants, 51% correctly identified cervical cancer as the most common cancer in Jamaican women, 68% knew the purpose of the Pap smear (to check for precancerous lesions of the cervix) and 77.8% were of the impression that screening was to be carried out yearly. Given six of the known risk factors for cervical cancer, only 1.7% of respondents were able to identify all six. Although only a half (50.4%) considered themselves at risk of developing cervical cancer, 82.64% reported having been screened in the past. The most commonly stated factor deterring compliance with screening was difficulty finding the time to get it done.

**Conclusions:** In spite of the fact that many do not consider themselves at risk of developing the disease, they do demonstrate a relatively good practice as it relates to cervical cancer screening. Interventions to improve compliance should be designed to update knowledge and make screening more convenient.

**(P – 35)**

**Survival rates and reproductive traits of Jamaican women diagnosed with ovarian carcinoma**

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**Objective:** To determine unique reproductive features and survival rates associated with ovarian carcinoma in a population of Jamaican women seen at the University Hospital of the West Indies between 1993 and 2009.

**Methods:** Patients with ovarian carcinoma (cases) and benign ovarian tumours (controls) were initially identified from pathology reports. Interviewer-administered questionnaires and medical records provided reproductive and clinical data for a sub-sample of 73 patients (36 cases, 37 controls). Associations between variables were quantified using Chi-squared with Yates' correction and Fisher's exact tests.

**Results:** Over the period 1993 to 2009, 69 cases were identified (age range: 20–81 years; mean: 54 ± 3 years; mode 63 years). Of the 36 analysed cases, 47% were diagnosed with early stage ovarian carcinoma (stages I and II) and of these, 75% survived ≥ 5 years post-diagnosis, often disease-free. In contrast, only 14% of the patients diagnosed with advanced stage disease (stages III and IV) survived ≥ 5 years ( $p < 0.004$ ). The remaining 86% of this group died within three years of diagnosis. One-third of cases had a family history of gynaecological, breast and prostate cancers; however, this frequency did not differ significantly from the 22% of controls who showed similar familial traits. No association was found between parity, number of ovulatory years, and duration of lactation, use of hormonal treatment and risk of ovarian cancer development. Years of survival also did not differ significantly with number of ovulatory years or carcinoma subtype.

**Conclusion:** Early-stage diagnosis is associated with longer periods of survival of Jamaican women with ovarian carcinoma.

**(P – 36)**

**Locally advanced breast cancer in Jamaica: prevalence, disease characteristics and response to preoperative therapy**

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**Objective:** To assess the prevalence of locally advanced breast cancer (LABC) at the University Hospital of the West Indies, and to determine disease characteristics and response to pre-operative chemotherapy.

**Methods:** We obtained a list from the Medical Records Department of all new Haematology/Oncology clinic patients from the two-year period 2006 to 2007 and retrospectively reviewed available charts to identify patients with a breast cancer diagnosis. These charts were further reviewed to determine breast cancer TNM stage (based on tumour size, nodal status and metastatic work-up). Oestrogen receptor (ER) and Her two test results were recorded. Progesterone receptor testing was unavailable during the period under study. For patients referred for pre-operative chemotherapy for LABC, we reviewed treatment and follow-up records to ascertain clinical and pathologic response rates and outcomes.

**Results:** Breast cancer accounted for 68% of cancers (121 of 177). Of these, 24 (20%) were referred for pre-operative therapy for LABC. Tumour characteristics were: size >5cm (46%), Stage IIIB (36%), ER negative (41%) and Her-2 positive (12%). Forty-one per cent of patients did not receive taxane chemotherapy. Clinical and complete pathological response (pCR) rates were 89% and 11% respectively (evaluable for 19 patients). Forty-seven per cent had disease recurrence, within a median period of 11 months (range 8–18).

**Conclusions:** Locally advanced breast cancer was a common presentation of breast cancer. Pathological complete response rate was low, with high recurrence rates. Increased utilization of breast cancer screening may help detect cancer at less advanced stages, and optimizing pre-operative chemotherapy is recommended to improve response rates and ultimately survival.

**(P – 37)**

**An audit of haematology/oncology clinic services at an urban academic hospital in Jamaica**

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**Objective:** To determine the prevalence and range of disorders seen at the Haematology/Oncology Clinic of the University Hospital of the West Indies.

**Methods:** We conducted a retrospective chart review of patients referred to the clinic during the two-year period 2006 to 2007. A standardized data extraction template was used to record patient demographics (age, gender, residence) and diagnosis (grouped as benign or malignant haematological disorders, or solid tumours). Univariate analyses were used to provide descriptive summary statistics.

**Results:** Of the 626 new patients seen during the study period, 395 charts were retrievable. Most clinic attendees were female (73%); 51% resided in Kingston and St Andrew and 32% in St Catherine. Median age was 52 years (range 2–96, IQR 28). Malignant disorders comprised 62% of referrals; solid tumours (cancers) accounted for 85% of these. The most prevalent cancers were breast (70%) colorectal (17%) and gastric cancer (5%). Prostate cancer accounted for 1% of cases. The malignant or pre-malignant haematological disorders seen were: non-Hodgkin's lymphoma (9), multiple myeloma/plasma cell dyscrasias (9), Hodgkin's lymphoma (6), chronic leukaemia (6), acute leukaemia (2) and myeloproliferative disorders (1). The benign haematological disorders were anaemia (56%), platelet disorders (18%), leucocyte disorders (16%) and disorders of coagulation and haemostasis (11%).

**Conclusions:** The care of cancer patients comprised over 60% of the clinic workload. The most prevalent malignancy was breast cancer. Prostate cancer was under-represented, attributable to cross-specialty referral patterns. Expansion of cancer care and support services is recommended to address the needs of the cancer patient population.

**(P – 38)**

**Renal malignancies in Jamaica: a 30-year review**

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**Objectives:** To describe primary renal malignancies in Jamaica by gender, age at diagnosis and histological subtype.

**Methods:** The records of the Jamaica Cancer Registry were reviewed and all cases of renal malignancy reported over the 30-year period 1978–2007 were extracted. For each case, gender, age at diagnosis and histological subtype were documented and corroborated with histopathological and autopsy reports where necessary.

**Results:** There were 192 cases of renal malignancy; 18 cases (9.4%) in children (0–19 years) and 174 cases (90.6%) in adults. In adults, tumours were more common

in males (M:F ratio, 1.3:1) and in the 6<sup>th</sup> – 8<sup>th</sup> decades. Renal cell carcinoma was the commonest type in adults (83.9%, n = 146), followed by transitional cell carcinoma (6.9%, n = 12), and equal frequencies (1.1%, n = 2) of squamous cell carcinoma, leiomyosarcoma and nephroblastoma. Ten cases (5.7%) were classified as carcinoma not otherwise specified. Nephroblastoma, which accounted for 77.8% (n = 14) of cases in children, was commoner in females (M:F ratio, 1: 2.5), and exhibited a median age of 2.5 years. Mesoblastic nephroma (16.7%, n = 3) and squamous cell carcinoma (5.6%, n = 1) accounted for the remaining cases.

**Conclusion:** Among renal malignancies, parenchymal tumours occur more frequently than those arising from the pelvic urothelium. Nephroblastoma and mesoblastic nephroma are the most frequent types found in children and renal cell carcinoma in adults.

#### (P – 39)

##### **A review of salivary gland malignancies in Jamaica: 1978–2007**

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**Objective:** To describe the demographic and histological distribution of salivary gland malignancies in Jamaica.

**Methods:** All cases of salivary gland malignancies diagnosed over the period 1978–2007 were extracted from the archives of the Jamaica Cancer Registry (JCR). Data extracted from each case included age at diagnosis, gender, salivary gland location and histological subtype reclassified according to the 2005 World Health Organization (WHO) Pathological Classification.

**Results:** Of the 86 cases found, 46.5% were male and 53.5% female (M:F ratio, 1:1.5), with females more commonly affected in early adulthood (20–39 years) and males later (60–74 years). Two cases occurred in children (0–19 years). The majority of malignancies arose from major salivary glands (81.4%), most commonly the parotid gland and 10.5% arose from minor salivary glands (predominantly the palate). In seven cases (8.1%), the site was unstated. Mucoepidermoid carcinoma was the commonest histological subtype in major salivary glands (31.4%, n = 22) and adenoid cystic carcinoma in the minor salivary glands (55%, n = 5). Other histological subtypes occurring in both major and minor glands were acinic cell carcinoma (9.3%), squamous cell carcinoma (4.7%), salivary duct carcinoma (3.5%), papillary adenocarcinoma (2.3%) and malignant mixed tumour (2.3%). Several cases were reported as adenocarcinoma, not otherwise specified (8.1%) and unspecified (14.0%).

**Conclusion:** Malignancies of the salivary glands are commoner in females and they are affected primarily within the 3<sup>rd</sup> and 4<sup>th</sup> decades of life; males are affected mainly in the 7<sup>th</sup> and 8<sup>th</sup> decades. These malignancies more commonly arise from major salivary glands, particularly the parotid gland, with the mucoepidermoid subtype being the commonest.

#### (P – 40)

##### **Novel anti-inflammatory profile of *Salvia hispanica* L (*chia*) oil in complete Freund's adjuvant arthritis is mediated through reduction of C-reactive protein levels**

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**Objective:** C-reactive protein (CRP) is a key mediator in the process of inflammation, and chia oil is widely used in traditional medicine for a variety of purported curative properties. In the present study, we evaluated the anti-inflammatory effect of chia oil in complete Freund's adjuvant (CFA) arthritis in rats.

**Methods:** Female Sprague Dawley rats (250 g, n = 16) were equally separated into four treatment groups. Each group received orally their respective treatment of either chia oil (0.4 ml), chia oil (0.8 ml), diclofenac (25 mg/kg) or corn oil (0.2 ml) as control. Treatment was initiated a day before the induction of CFA arthritis and continued for 28 days. Inflammatory parameters indicative of CFA arthritis were assessed following treatment protocols; these included changes in knee swelling, femoral cartilage integrity and CRP levels in blood.

**Results:** Chia oil (0.8 ml) significantly ( $p \leq 0.001$ ) attenuated knee swelling in CFA arthritis. A significant chondroprotective effect was also observed with chia oil treatment when compared to corn oil treated controls which showed significant articular cartilage degradation and loss of typical chondrocyte arrangement. The anti-inflammatory effect observed with chia oil was comparable to that of the known non-steroidal anti-inflammatory drug diclofenac. Further, chia oil significantly lowered the levels of CRP when compared to controls ( $p \leq 0.005$ ).

**Conclusion:** These results confirm a strong anti-inflammatory effect of chia oil in CFA arthritis that is pivoted on suppression of CRP release. Taken collectively, our findings suggest potential exploitable benefits of chia oil in the treatment of inflammatory arthritis which should be further explored.



**(P – 41)**

**Production of betalactamase in common urinary pathogens at the University Hospital of the West Indies**

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**Objectives:** Betalactam antibiotics are common first line agents used against urinary pathogens. One of the most common resistance mechanisms to this class includes the production of betalactamases. This study highlights the prevalence of these enzymes at the University Hospital of the West Indies (UHWI).

**Methods:** A retrospective analysis of common urinary pathogens (*E coli* and *K pneumoniae*) was done at the UHWI over two six-month periods between 2011 and 2013. Phenotypic identification of isolates and resistance mechanisms were determined using the Vitek® 2 (bioMerieux, Durham, NC, USA).

**Results:** A total of 1218 isolates of *E coli* (900) and *K pneumoniae* (318) were identified. Using the Bush-Jacoby-Mederios betalactamase classification system, enzymes from classes 1–3 were found. Class 1 included cephalosporinases eg Amp C. Class 2 was represented by penicillinases and other cephalosporinases such as extended spectrum betalactamases (ESBLs). Carbapenamases including *Klebsiella pneumoniae* carbapenemase (KPC) [Class 2] and metallobeta-lactamases (Class 3) were also detected. Among *E coli* isolates, the most commonly produced beta-lactamases for both periods were penicillinases and ESBLs (> 30% each). Over 50% of *Klebsiella pneumoniae* isolates produced penicillinases and > 60% produced ESBLs in each period. Carbapenamases were detected in < 2% of both *E coli* and *K pneumoniae* isolates.

**Conclusion:** This study highlights a high level of betalactamase production among urinary pathogens although there has been no major increase over the study period. The results of this study should guide the choice of treatment for urinary tract infections since these drug inactivating enzymes threaten the usefulness of empiric betalactam antibiotics for these infections.

**(P – 42)**

**Analysis of virulence determinants and antimicrobial resistance between methicillin-resistant and methicillin-sensitive *Staphylococcus aureus***

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**Objective:** To examine the virulence determinants and antimicrobial susceptibility patterns in methicillin-resistant

and methicillin-susceptible *Staphylococcus aureus* (MRSA and MSSA) isolates in Jamaica.

**Method:** Multiplex polymerase chain reaction (PCR) was used to differentiate *S aureus* isolates (n = 102) into MRSA and MSSA by analysis of the Staphylococcal cassette chromosome mec (SCCmec). Thirty-five virulence determinants were assessed using PCR and the *in vitro* activities of thirteen antibiotics determined by the disk-diffusion technique. Significant differences between assessed parameters were assessed at  $p \leq 0.05$ .

**Results:** Except for Staphylococcal enterotoxin I ( $p = 0.027$ ), there was no significant difference in the presence of virulence determinants between MRSA and MSSA. Tetracycline, oxacillin, ciprofloxacin, quinupristin/dalfopristin and erythromycin had the highest frequencies of resistance (48%, 38.2%, 32.3%, 31% and 29%, respectively), while teicoplanin and chloramphenicol had the lowest frequencies (3.9% and 15% respectively). Antimicrobial resistance phenotype was significantly associated with MRSA for oxacillin ( $p = 0.0004$ ), clindamycin ( $p = 0.03$ ), trimethoprim/sulfamethoxazole ( $p = 0.038$ ) and tetracycline ( $p = 0.048$ ).

**Conclusion:** The similarity in the composition of virulence determinants between MRSA and MSSA coupled with the significant association of antibiotic resistance with MRSA points to antibiotic resistance and not virulence as the complicating factor in treatment of infections caused by *S aureus*. Further, because *S aureus* exhibits high levels of antibiotic resistance, there is the need for best practice guidelines to be followed and routine testing of isolates in order to restrict antibiotic resistance spread. This is the first report on the virulence composition of MSSA and MRSA isolates in Jamaica.

**(P – 43)**

**Detection of 16S rRNA methyltransferases in clinical gram negative bacilli isolates from the University Hospital of the West Indies**

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**Objectives:** 16S rRNA methyltransferases (RMTs) are a novel cause of high level pan resistance to the aminoglycoside class of antibiotics. Their genes have been found in gram negative bacilli (GNB) throughout Europe, Asia, and the Americas. This study is the first to report detection of these genes in Jamaica.

**Methods:** Of 370 multidrug resistant isolates (including aminoglycosides) collected over three years, 27 were found to have amikacin resistance with MIC > 256 ug/ml via E-

test strips. MALDI TOF mass spectrometry (Vitek® 2, bioMérieux MS, Durham, NC) was used for definitive identification before polymerase chain reaction (PCR) for RMT detection with primers for *rmtA*, *rmtB*, *rmtC*, *rmtD*, *armA*, and *npmA* genes. Twenty-four isolates were *Acinetobacter* spp and *SfiI* pulsed field gel electrophoresis (Bionumerics analyses) was used to determine strain relatedness.

**Results:** Nineteen isolates were positive for RMTs, ie *rmtC* in one *Klebsiella pneumoniae* isolate and *armA* in 17 *Acinetobacter baumannii* complex isolates and one *Acinetobacter haemolyticus* isolate. Pulsed field gel electrophoresis showed 78.1% relatedness between seven *armA* positive *Acinetobacter baumannii* complex isolates collected in 2010 and four of those isolated in 2011.

**Conclusions:** 16S rRNA methyltransferases are a cause of pan resistance to aminoglycosides in GNB from Jamaica. The *rmtC* positive *Klebsiella pneumoniae* isolate also housed the *ndm1* gene. Its spread was limited as the patient was quarantined for pulmonary tuberculosis. Further studies are needed to determine clonal spread versus sporadic outbreak of an endemic *armA* positive *Acinetobacter baumannii* complex strain. Continued transmission of this gene will impact empiric use of aminoglycosides for *Acinetobacter baumannii* infections at this institution and hence must be monitored.

#### (P – 44)

##### **The economic burden of dengue at the University Hospital of the West Indies, 2006 to 2012**

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**Objective:** To determine the economic burden of dengue in ambulatory and hospitalized patients at the University Hospital of the West Indies (UHWI), Mona.

**Method:** A retrospective cross-sectional study reviewed all dengue suspected and confirmed cases managed at the UHWI from 2006 to 2012. Dengue cases were defined using the World Health Organization 2009 classification and infection confirmed by dengue IgM antibody. The estimated cost of hospitalized and out-patient dengue confirmed cases was calculated in US dollars (2012) for haematological diagnostics and length of stay indicators (excluding pharmacy).

**Results:** A total of 824 confirmed dengue cases with mean and mode ages of 48 and 19 years, respectively were docu-

mented. Sixty-nine per cent (567/824) of confirmed cases were classified as out-patients and 31% (255/824) as hospitalized. Among hospitalized cases with a working diagnosis of dengue, 3.9% (10/255) were critical and required intensive care unit admission. Dengue was confirmed in 50% (3/6) of fatal cases. The frequency of confirmed cases per year was: 1.7% in 2006, 36.7% in 2007, 5.5% in 2008, 1.3% in 2009, 12.3% in 2010, 11.4% in 2011 and 31.2% in 2012. There was a significantly greater number of suspected dengue cases hospitalized in 2012 (10.6%, 87/824) compared to the previous years ( $\chi^2 = 22.3$ ,  $p = 0.001$ ). The cost of dengue cases seen at the UHWI from 2006 to 2012 was estimated at J\$52 700 000.00, of which 55% was attributed to non-severe cases.

**Conclusion:** The increasing trend in dengue poses a corresponding economic burden and warrants continued research to monitor the economic impact of this disease.

#### (P – 45)

##### **Molecular detection of *Toxoplasma gondii* in patients presenting with neurological manifestations in Jamaica**

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**Objective:** To evaluate the role of nested-polymerase chain reaction (PCR) in the detection of *T gondii* DNA in the sera and cerebrospinal fluid (CSF) of patients with suspected neurotoxoplasmosis.

**Method:** Consecutive samples of sera and corresponding CSF specimens from patients presenting with neurological manifestations of suspected infectious origin at the University Hospital of the West Indies between 2007 and 2011 were analysed for evidence of *T gondii*. Serum samples were first screened for *T gondii* IgG and IgM and HIV antibodies. Sera positive for *T gondii* antibodies and corresponding CSF were further analysed for evidence of *T gondii* DNA using a nested-PCR (Biosearch Technologies). Statistical analysis was performed using Pearson's Chi-squared and Fisher's exact test.

**Results:** *T gondii* seroprevalence was detected in 19.8% (16/81) of cases and molecular detection performed on sixteen positive sera and corresponding CSF. *T gondii* IgG antibodies were significantly associated with HIV seropositivity of 35% (11/31) [ $\chi^2 = 8.7496$ ,  $p = 0.003$ ]. Among CSF samples and corresponding *T gondii* positive sera, *T gondii* DNA was identified in 18.7% (3/16) and 0% (0/16), respectively. No significant association was identified between *Toxoplasma gondii* DNA and toxoplasma seropositivity or clinical manifestations.

**Conclusion:** The molecular detection of *Toxoplasma gondii* in the CSF was not associated with corresponding

seropositivity. The integration of molecular methods into the diagnostic algorithm for neurotoxoplasmosis is recommended in an effort to complement serological diagnosis.

**(P – 46)**

**Antibiotic susceptibility patterns of bloodstream isolates over a six-month period at the University Hospital of the West Indies, Jamaica**

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**Objectives:** This study describes the epidemiology and antibiotic susceptibility patterns of bloodstream isolates at the University Hospital of the West Indies (UHWI) from January–June 2013.

**Methods:** A retrospective analysis of blood cultures submitted to the UHWI Microbiology laboratory was done using laboratory records. These samples were processed using standard Clinical and Laboratory Standards Institute (CLSI) guidelines and the BacT/ALERT® 3D (bioMérieux, Durham, NC) automated system. Results were then de-duplicated.

**Results:** Six hundred and thirty-seven isolates were obtained during the period with 58% (376/637) gram positive organisms (GPOs), 37.2% (237/637) gram negative organisms (GNOs) and 3.8% (24/637) fungi. The most common isolates were: coagulase negative staphylococci, 260 (40.8%); *E coli*, 79 (12.4%); *Klebsiella pneumoniae*, 43 (6.8%); *Staphylococcus aureus*, 33 (5.2%); Diptheroids sp, 26 (4.1%); *Enterococcus* species, 23 (3.6%); *Pseudomonas* species, 19 (3.0%) and yeast not *Candida albicans*, 18 (2.8%). These organisms accounted for 78.6% of isolates with the remaining 21% made up of mainly miscellaneous GNOs. The most common GPOs, coagulase negative Staphylococci and *Staphylococcus aureus*, showed 64% (162/253) and 96.8% (31/32) sensitivity, respectively to oxacillin. Of the GNOs isolated, 94.9% were sensitive to carbapenems while 74.5% (149/200) were sensitive to 3<sup>rd</sup> generation cephalosporins. While isolates were more sensitive to amikacin than gentamicin (88.5% vs 77.1%), both remain valid options in the treatment of gram negative blood stream infections. Sensitivity to the quinolones was 74.6% (144/193).

**Conclusion:** The distribution of isolates from blood at the UHWI is similar to that reported internationally. They remain sensitive to quinolones, aminoglycosides and carbapenems.

**(P – 47)**

**Biofilm formation, multiple antibiotic resistance and oxidative stress tolerance among pathogens of respiratory origin**

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**Objective:** To assess antimicrobial resistance among *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* of respiratory origin and the effect of antibiotics and reactive oxygen intermediates on biofilms and planktonic forms of *P aeruginosa*.

**Methods:** Isolates (92 *P aeruginosa* and 24 *K pneumoniae*) were subjected to antimicrobial susceptibility testing with 12 common antimicrobial agents. Biofilm formation was assessed in multiwell plates in the presence or absence of ciprofloxacin, and oxidative stress tolerance to hydrogen peroxide and tert-butylhydroperoxide (t-buOOH) was determined for planktonic and biofilm forms of *P aeruginosa*.

**Results:** Tetracycline, nalidixic acid and chloramphenicol (85%, 93.9% and 77.4%) had the highest rates of resistance for *P aeruginosa* while high frequencies of resistance were observed with tetracycline (62.5%), amoxicillin (54.2%), piperacillin and aztreonam (45.8%) for *K pneumoniae*. Multiple antibiotic resistance (MAR) indices for *P aeruginosa* were generally higher than those for *K pneumoniae*, and, generally, high MAR indices (> 0.20) correlated with teaching hospitals. While the majority of *P aeruginosa* isolates were good biofilm producers, there was no trend observed between biofilm formation and ciprofloxacin concentration. Overall, hydrogen peroxide was more effective at exerting oxidative stress when compared to t-buOOH and biofilms were more resistant to oxidative stress when compared to planktonic cells.

**Conclusion:** Respiratory isolates of *P aeruginosa* and *K pneumoniae* tend to be multidrug resistant, and ciprofloxacin had reduced efficacy against biofilm forms of these pathogens. Hydrogen peroxide imposed greater oxidative stress than t-buOOH on biofilm and planktonic cells. This is the first major study on oxidative stress tolerance of respiratory pathogens in Jamaica.

(P – 48)

***Clostridium difficile*-associated diarrhoea (CDAD) at the University Hospital of the West Indies over a six-year period**

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**Objective:** To determine the epidemiology of *Clostridium difficile* infections over a six-year period at the University Hospital of the West Indies (UHWI).

**Methods:** A retrospective review of the clinical and laboratory records of *C difficile* positive patients from 2007–2012 was done. Diagnosis of *Clostridium difficile*-associated diarrhoea (CDAD) was confirmed by history and a positive enzyme-linked immunosorbent assay (ELISA) stool test for *Clostridium* toxins A and B.

**Results:** Most patients were between 40 and 59 years of age. *Clostridium difficile*-associated diarrhoea cases per

total stool samples peaked from 0.53% to 5.9% in 2010 and 4.28% in 2012 ( $p = 0.007$ ). Cases per total UHWI admissions also increased from 0.12 to 1.16 cases in 2010 and 1.36 per 1000 admissions in 2012 ( $p < 0.001$ ). The overall trend increased over the six years. Most CDAD cases were nosocomial (76.19% males, 48.57% females). Co-morbidities included hypertension and end-stage renal disease. Ceftazidime was the most common antibiotic used prior to CDAD. Commonest empiric therapy was metronidazole followed by ciprofloxacin but only 50% of patients received definitive treatment. Resolution was seen in 62.5% of patients. Males stayed longer in hospital than females (21 days *versus* < 7 days) and had more adverse outcomes with death in 23.81% *versus* 11.43%.

**Conclusion:** This study demonstrates the changing patterns of *Clostridium difficile* involving a younger age group, increased cases from the community and greater morbidity and mortality in males.

Notes 