Poster Abstracts

(P – 1)

Practices in radiographic techniques in the posterior-anterior oblique projection of the hand at two major radiology departments in Jamaica

C Rose, J McIntosh
School of Medical Radiation Technology, The University of the West Indies, Kingston 7, Jamaica

Objective: To investigate disparities in practices in radiographic techniques in the posterior-anterior oblique projection of the hand at two major radiology departments in Jamaica.
Method: Non-probability purposive sampling technique was used. Survey instrument was distributed to 55 respondents with a 66% response rate. Descriptive statistics were used to analyse the data.
Results: The positioning techniques in practice include slight curling of the fingers (64%), fully extended fingers (19%), alternation between both positions (14%) and other positions (3%). Ninety-one per cent of respondents indicated that disparities in finger position affect patient diagnosis to varying extent. Beam-centring practices included the region of the head of the 3rd metacarpal and metacarpophalangeal joint (66%), between the heads of the 2nd and 3rd metacarpals (21%), and the region of the 5th metacarpal (9%). Ninety-six per cent of radiographers indicated that disparities in beam centring affect diagnosis. Seventy-two per cent of all respondents support standardization of techniques, while 25% of respondents oppose standardization.
Conclusion: The most common techniques in the oblique projection of the hand include curling of the fingers and beam-centring at the region of the head of the third metacarpal. Further in-depth research is needed to determine whether current practices in radiographic techniques employed in the oblique projection of the hand affect diagnosis and whether there is need to standardize techniques.

(P – 2)

Establishing a telephone medication order policy and protocol for a small private hospital in Jamaica

M Grant-Coke, D Powell, J Lyttle, H Hewitt
Duke University School of Nursing, Duke University, North Carolina, United States of America

Objective: To institutionalize an evidence-based policy/protocol adapted from the Agency for Healthcare Research and Quality (AHRQ) national medication standards for managing telephone medication orders (TMO) and determine the impact of the policy/protocol on the number of telephone medication errors (TME) on two medical units of a small private hospital in Jamaica.
Methods: Kotter's 8-Step Change Model was used to facilitate organizational change among nurses and physicians by teaching and implementing the TMO policy/protocol adapted from AHRQ standards and collecting pre-policy and post-policy frequency of TME. A convenience sample of 80 nurses and physicians participated in training about the policy/protocol, took post-instructional tests, and participated in implementation of the policy/protocol. Chart audits over six weeks monitored adherence to the policy/protocol. The annual monthly mean of TME for the prior year was compared with the number of TMEs just prior to implementation of policy/protocol, and at the end of the first six weeks of implementation.
Results: One hundred per cent of the convenience sample of 80 nurses and doctors passed the post-instructional test; the workforce adhered fully to the protocol during six weeks of implementation, and there was a 100% reduction in TME between the prior year and six weeks after policy/protocol implementation.
Conclusion: Kotter's eight-step framework of organizational change was a successful strategy in institutionalizing and sustaining adherence to the TMO policy/protocol, reducing the number of TMEs and positively influencing the organizational culture.

(P – 3)

Preliminary investigation of the anti-asthmatic properties of the aqueous extract of *Justicia pectoralis* (fresh cut)

C Cameron[1], AS Jacob[1], EA Thomas[1], AS Levy[1]
Department of Basic Medical Sciences, Section of Pharmacology, The University of the West Indies, Kingston 7, Jamaica

Objectives: To assess the effectiveness of folklore use of an extract of fresh cut leaves in an asthmatic attack.
Method: In *in vivo* experiments, guinea pigs were sensitized by the method of Weinrich and Undem (1987). The effect of water on the wheals was assessed in the control group (n = 4). The effect of 3.3 mg of the crude extract was noted in histamine-induced wheals over a period of three hours. The extract was injected *via* intraperitoneal injections. In *in vitro* experiments, 3.3 mg of crude sample was tested for its effectiveness against histamine-induced tracheal contraction caused by cumulative dosing of histamine.
Results: The crude extract was efficacious in reducing the formation of histamine-induced wheals ($p < 0.05$). Data from *in vitro* studies indicated that the crude extract (3.3 mg) caused significant reduction in tracheal smooth muscle contraction ($p < 0.05$) resulting from cumulative doses of histamine. However, as the histamine doses increased, fresh cut extract was not able to maintain inhibition of histamine-induced tracheal smooth muscle contraction. This is an indication that the extract showed competitive reversible antagonism, possible at histamine receptors.
Conclusion: A crude extract of the leaves *Justicia pectoralis* (fresh cut) reduced the formation of histamine-induced wheals in sensitized guinea pigs ($p < 0.05$) and also reduced histamine-induced tracheal smooth muscle contractions, supporting folklore claims for its use as an antihistamine. In addition, *Justicia pectoralis* extract reduced the size of histamine-induced wheals in the dermis.

(P – 4)

Non-alcoholic fatty liver disease at the University Hospital of the West Indies, Jamaica over a six-year period

K King-Robinson[1], D Whittle[1], M Mills[1], B Hanchard[2], S Shah[3], MG Lee[1]
[1]Department of Medicine, [2]Pathology and [3]Surgery, Radiology, Anaesthesia and Intensive Care, University Hospital of the West Indies, Kingston 7, Jamaica

Objectives: This study aims to delineate the prevalence of ultrasound and/or histologically identified non-alcoholic fatty liver disease over a six-year period at the University Hospital of the West Indies, Jamaica.
Methods: A retrospective review was done on all patients diagnosed with fatty liver disease on ultrasound or liver biopsy over the period June 2006–June 2012 at the University Hospital of the West Indies. Demographic features, clinical features and predisposing conditions were analysed.
Results: There were 384 cases of fatty liver disease identified and 230 cases were included in the study. One hundred and fifty-four were excluded as a result of a lack of data, or documented alcohol abuse. There were more females than males (53.9%F *versus* 41.3%M). The mean age was 53 years for females and 51 years for males. Eight (3.5%) were overweight, 48 (20.9%) obese and one (0.4%) morbidly obese; more females than males were over the normal body mass index (63%F *versus* 37%M). The associated risk factors identified were increasing age, obesity, diabetes mellitus (39.2%), and dyslipidaemia (21%). Ten patients (4.3%) had liver biopsy performed which primarily revealed macrovesicular fatty changes; one patient had evidence of advanced fibrosis.
Conclusion: Non-alcoholic fatty liver disease is relatively uncommon but may be under-reported. Further studies are required to ascertain the full extent of this growing disease.

(P – 5)

Prevalence of risk factors for atrial fibrillation and stroke risk assessment: findings from the Kingston and St Andrew Atrial Fibrillation Registry

JP Duncan, H Reid-Jones, M Tulloch-Reid
Kingston and St Andrew Health Department, South East Regional Health Authority, Kingston, Jamaica

Objective: To determine the prevalence of risk factors for atrial fibrillation among patients in primary care clinics in Kingston, Jamaica and evaluate their risk of stroke.
Method: A register of patients with atrial fibrillation (confirmed by electrocardiogram [ECG]) referred to the internist assigned to primary care in the Kingston and St Andrew Health Department was established. Data were collected on demographic variables, co-morbidities and risk factors for stroke.
Results: Between January 2012 and July 2013, 19 men and 12 women were referred with atrial fibrillation (mean age 69.6 ± 13.4 years). Hypertension was present in all patients and 19.4% had diabetes. From echocardiography, 43.4% of persons had left ventricular hypertrophy and 83.4% had left atrial enlargement. Fewer persons had mitral stenosis (16.0%), thyroid disorder (6.5%), or pulmonary disease (16.1%) as contributing factors in their diagnosis. Pulmonary disease was more common in men (33.3% *vs* 5.3%; $p = 0.060$). Although < 20% of persons were on anticoagulation at referral, most persons were at moderate or high risk for stroke, with 63.2% men and 58.3% women having

a $CHADS_2$ score ≥ 2 and 33.3% men and 63.2% women having CHADVASc score ≥ 4.
Conclusion: Hypertension management has the potential to impact on the incidence of atrial fibrillation, as hypertension was the most common risk factor among patients in the register. Most patients had high risk of stroke but less than a third were on anticoagulation. Factors that affect initiation of anticoagulation in this population must be addressed to reduce morbidity and mortality due to stroke.

(P – 6)
Supplementation with virgin coconut oil improves cognition in ageing female rats

L Young, B Smith, A Webber-Waugh
Department of Basic Medical Sciences, Section of Physiology, The University of the West Indies, Kingston 7, Jamaica

Objective: To determine if virgin coconut oil (VCO) differentially influenced learning and memory in ageing female rats during the cycling and non-cycling periods.
Methods: Twenty-four female Sprague-Dawley rats (15 months old and 22 months old) completed the study. Each age cohort was assigned to two treatment groups (n = 6) *viz*: VCO treated and non-VCO treated (control) rats. Vaginal smear cytology was used to assess oestrous cycle staging throughout the study to identify cycling and non-cycling rats. Treated rats were administered a daily oral dose of 1.42 ml/kg of cold pressed VCO. A minimum 75% correct response performance of a discriminative learning task (acquisition latency) was used to assess learning. Memory retention was assessed after two weeks post-training. Data were analysed using Student's *t*-test and one-way analysis of variance (ANOVA).
Results: Younger rats showed a non-significant decrease in acquisition latency but performed at a significantly higher rate ($p = 0.04$) than older rats. Virgin coconut oil-treated younger rats attained a significantly higher correct response rate ($p = 0.04$) than their non-VCO controls. Cycling VCO-treated rats outperformed non-VCO, non-cycling rats ($p = 0.03$). A significant decline in memory retention was found for VCO-treated younger, cycling rats, but they continued to outperform non-VCO treated controls.
Conclusion: Virgin coconut oil improved cognition in the mature female rats, but was more effective when supplemented during the cycling period when oestrogen levels are expected to be normal to high.

(P – 7)
Paediatric head computed tomography dose at the University Hospital of the West Indies: a retrospective review

A Forbes-Chang, D Soares
The University Hospital of the West Indies, Kingston 7, Jamaica

Objectives: To determine the estimated dose (ED) for paediatric (≤ 15 years) head computed tomography (CT) scans performed at the University Hospital of the West Indies (UHWI) and to compare these with international benchmarks.
Methods: This retrospective study identified eligible studies from a search of CT log books from April 2010 to May 2013. All scans were performed on one of two CT scanners (GE and Phillips) and data recorded from the digital imaging and communications in medicine (DICOM) metadata sheet generated for each scan.
Results: Seven hundred and twenty eligible subjects were identified. The ratio of male to female subjects was 1.5:1. Infants aged zero to less than one-year old represented 15% (n = 108) and the greatest number of subjects was in the 10–15 years age group (n = 268; 37%). Most studies were non-contrast (97%). Overall, trauma was the commonest indication, accounting for 39% of cases. The commonest non-traumatic indication was hydrocephalus, while a fall from height was the commonest traumatic indication. Of the studies performed for a traumatic indication, 65.8% were on male patients. Computed tomography dose index ($CTDI_{vol}$), dose-length product (DLP) and mean ED across all paediatric age groups at the UHWI are up to 2−2.5 higher than international benchmarks.
Conclusion: Based on the results, current practice suggests room for optimization. Increased training to sensitize radiation personnel and referring physicians, establishing dedicated CT paediatric protocols and continued scanner performance audits are recommended as strategies to achieving radiation doses as low as possible.

(P – 8)
***Morganella morganii* and *Providencia* spp – potential threats in the future**

R Goffe, K Nelson, L Benjamin-Johnson, K Roye-Green
Department of Microbiology, The University of the West Indies, Kingston 7, Jamaica

Objective: To identify urinary isolates of *Morganella morganii* and *Providencia* spp and discuss their epidemiology and antimicrobial susceptibility.

Methods: Microbiology laboratory records at the University Hospital of the West Indies for July 2013 to June 2014 were reviewed to identify all *Morganella morganii* and *Providencia* spp isolated from urine. Information on patient demographics, clinical diagnosis, type of specimen and antimicrobial susceptibility of the isolates was also obtained.
Results: Forty-nine isolates of *Morganella morganii* and twenty three *Providencia* spp were identified. The median age of patients was 73 years (range: 1–96 years) and most isolates (59.7%; 43/72) were from males. The majority (66.7%) of the isolates was obtained from catheter specimen urine, with the main clinical diagnosis being urinary tract infection. Others included malignancy, urinary retention, urinary tract abnormalities and sepsis. Of the isolates tested, 1.2%, 31%, 16.3%, 10.3% and 12.8% were resistant to the carbapenems, ceftriaxone, ceftazidime, cefepime and piperacillin/tazobactam, respectively. None of the isolates tested was resistant to amikacin; however, 29.2% and 48% were resistant to gentamicin and tobramycin, respectively. Isolates tested were 33.7%, 38.6% and 42.4% resistant to ciprofloxacin, levofloxacin and norfloxacin, respectively.
Conclusion: With the increasing ageing population and prevalence of chronic non- communicable diseases, these organisms have the potential to become a challenge for clinicians. The levels of acquired fluoroquinolone resistance seen among the isolates and the intrinsic resistance to the first and second generation cephalosporin and penicillin limit available therapeutic options for infections caused by these organisms.

(P – 9)
Microbe alert! Old foes or new pathogens?

R Goffe, K Nelson, L Benjamin-Johnson, AM Nicholson, C Thoms-Rodriguez
Department of Microbiology, The University of the West Indies, Kingston 7, Jamaica

Objective: To identify new and emerging bacteria from patient samples and to determine their clinical significance.
Methods: A retrospective review of microbiology laboratory records from January to June 2014 at the University Hospital of the West Indies was done. New and emerging bacteria were identified. Literature and clinical information was used to determine clinical significance.
Results: Sixty de-duplicated specimens of 11 864 contained new and emerging bacterial pathogens including *Burkholderia* spp (14), *Rhizobium radiobacter* (12), *Achromobacter* spp (12), *Sphingomonas paucimobilis* (5), *Ralstonia* spp (5), *Rahnella aquatilis* (4), *Brevundimonas* spp (3), *Pantoea* spp (2), and single isolates of *Leclercia adecarboxylata*, *Comamonas testosteroni* and *Chryseobacterium indologenes*. Nine were recently reclassified based on molecular studies showing differences in 16S rRNA gene sequences. *Burkholderia* spp, *Brevundimonas* spp, *Comamonas* spp and *Ralstonia* spp were formerly members of the genus *Pseudomonas*. *Pantoea* spp, *Leclercia* spp and *Achromobacter* spp were members of *Enterobacter, Escherichia* and *Alcaligenes* genera, respectively. These organisms have caused nosocomial infections. *Rahnella aquatilis*, ubiquitous in fresh water and soil, is a relatively rare but known human pathogen that has caused various infections including sepsis. The soil bacterium *Rhizobium radiobacter,* though rarely pathogenic, has been associated with infections in patients with indwelling devices. Although of low virulence generally, serious infections with these organisms can occur, especially in the immunocompromised.
Conclusion: Surveillance for these organisms and clinical monitoring is critical in order to determine their clinical significance. This is especially important as some are found in the environment and can be associated with life-threatening infections.

(P – 10)
Inhibition of murine arylamine-N-acetyltransferase by apocynin: possible mechanism for its role in chemoprevention

S Francis[1, 2], R Delgoda [2], CR Nwokocha[3]
[1]School of Natural and Applied Science, Faculty of Sport and Science, University of Technology, Kingston 6, Jamaica, [2]Natural Products Institute, The University of the West Indies, Kingston 7, Jamaica and [3]Department of Basic Medical Sciences, Section of Physiology, The University of the West Indies, Kingston 7, Jamaica

Objectives: Apocynin, a natural compound and antioxidant, demonstrates a protective role in cardiovascular disease, although its mechanism remains unclear. Derivatives of apocynin show the ability to attenuate the spread of cancer. The current study seeks to examine the effects of apocynin on phase I and II drug metabolizing enzymes to assess the disease preventing role of apocynin. Cytochrome P450 (CYP) 1 and arylamine N-acetyltransferse (NAT) enzymes activate carcinogens and generate highly reactive oxygen intermediates which, through interactions with cellular lipids or DNA, eventually lead to cell impairment.
Results: Apocynin demonstrated moderate to weak inhibition of CYP enzymes CYP1A2 and CYP1B1, with IC_{50} = 65 μM and 186.66 μM, respectively and strongly inhibited the phase II liver enzyme, arylamine-N-acteyltranferase *ex vivo* 1.44 NAT activity per μmols/min/μg liver protein.
Conclusion: Apocynin's limited chemopreventative role may not only be due to its antioxidant properties, but also its ability to inhibit the liver enzymes CYP1A2, CYP1B1 and NAT.

(P – 11)

The evaluation of the changes in serum creatinine associated with intravenous administration of gentamicin

T Mason, M Verley, M Gossell-Williams, A Thorbourne, A Walcott-Mitchell, K Hoe, M Lee
The University of the West Indies, Kingston 7, Jamaica

Objective: To assess for any nephrotoxicity through evaluation of the changes in serum creatinine associated with intravenous administration of gentamicin at the University Hospital of the West Indies (UHWI).
Methods: A prospective study to recruit patients 18 years and older who were to receive intravenous gentamicin administration was conducted between July 2013 and July 2014 at UHWI. Surgical and dialysis patients were excluded. Data were collected from the medical records of the consenting patients. These included demographics, type of infection, gentamicin dose regimen, concomitant drugs and serum creatinine. Nephrotoxicity was defined as a 25% or greater increase in serum creatinine concentration above baseline.
Results: A total of 11 patients were included in the study; six (54.5%) were males; median age was 51 (range 33 to 84) years. The median gentamicin dose was 160 (range: 50–240) mg/day and median treatment length was eight (range: 5–30) days. Multiple daily dosing was preferred (73%). Nine (82%) patients received concomitant nephrotoxic drugs. A 25% or greater increase in serum creatinine concentration, indicative of nephrotoxicity, was observed for eight of 11 (73%) patients.
Conclusions: Based on the changes in serum creatinine observed in the majority of the patients studied, intravenous administration of gentamicin at UHWI appears to cause nephrotoxicity in most patients. This finding may, however, have been influenced by other risk factors for nephrotoxicity. It is recommended that implementation of aminoglycoside therapeutic drug monitoring (TDM) be considered. In the absence of TDM, vigilant monitoring of serum creatinine is important.

(P – 12)

Reperfusion therapy at the University Hospital of the West Indies, Kingston, Jamaica, for patients with ST segment elevation myocardial infarction (STEMI) presenting to the Emergency Department

R Gordon, V Elliott, R Edwards, J Williams-Johnson, M Hoo Sang, MG Lee
Department of Medicine and Accident and Emergency Division, University Hospital of the West Indies, Kingston 7, Jamaica

Objectives: To determine the factors involved with reperfusion therapy in patients with ST elevation myocardial infarction (STEMI) at the University Hospital of the West Indies (UHWI), where thrombolytic therapy or percutaneous coronary intervention (PCI) was utilized as the primary mode of revascularization.
Methods: This was a retrospective review of the clinical records of patients with STEMI presenting to the Accident and Emergency (A&E) Division at the UHWI from July 1, 2007 to June 30, 2012 with particular interest in the mode of revascularization, time to therapy and associated factors.
Results: There were 99 patients with STEMI who were analysed. There were 75 males and 24 patients females. Thrombolytic therapy or PCI was performed in 60 (59%) patients. The average time to first electrocardiogram (ECG) was 15 minutes. The average time to be seen by the emergency physician was 31 minutes and 96 minutes by the internal medicine resident. Forty-four patients received thrombolytic therapy. Thirty-five patients received streptokinase and nine tenecteplase. Sixteen patients received primary PCI and another 16 patients received delayed PCI. Thirty-two patients got PCI prior to discharge from hospital. Eight patients presented outside of the 12-hour window period for thrombolytic therapy. Seven patients did not receive thrombolytic therapy because of an absolute contraindication, of which the most common was uncontrolled hypertension. Nine patients were on heparin from a peripheral hospital. Only three patients received thrombolytic therapy within 60 minutes of presentation. Ten (23.8%) patients received thrombolytic therapy in less than 90 minutes. Twenty-four (57.1%) patients received thrombolytic therapy between 90 and 180 minutes. Eight (19%) patients received thrombolytic therapy between 180 and 360 minutes.
Conclusion: Thrombolytic therapy and PCI were successively utilized in STEMI. However, improvement in adherence to the time for reperfusion is needed.

(P – 13)

Comparison of medical student performance: the effect of rotations at different sites

W Palmer
Department of Surgery, Division of Orthopaedics, Faculty of Medical Sciences, The University of the West Indies, Kingston 7, Jamaica

Objectives: To determine differences in performance of medical students doing the Orthopaedic clerkship at different sites.
Methods: Students from three different sites sat a computer based end-of-clerkship examination consisting of two parts: a multiple choice examination (MCQ) and 10 short answer clinical based questions (SAC). The MCQ represented 60% of the final grade, the short answers 30% and 10% was assigned to a procedure card. The grades were evaluated for two medical classes and the mean scores for

each part of the examination as well as the final grades were assessed.

Results: There were 513 students – 341 at University Hospital of the West Indies (UHWI), 112 at Kingston Public Hospital (KPH) and 60 at Cornwall Regional Hospital (CRH). The mean examination score among all groups was 62.8% final, 64.2% MCQ, 61.7% SAC and 59.7% for the procedure card. The average final grade was 63.5% for students based at UHWI, 61.7% KPH and 61.5% CRH (*p*-value 0.280). The average MCQ grade was 64.6% UHWI, 63.6% KPH and 63% CRH (*p*-value 0.577). The average SAC grade was 62.5% UHWI, 60.4% KPH and 59.6% CRH (*p*-value 0.177). The average procedure card grade was 59.9% for UHWI, 59.7% KPH and 59.0% CRH (*p*-value 0.719).

Conclusions: There were no statistically significant differences in end-of-clerkship orthopaedic grades amongst medical students who did the clerkship at different sites.

(P–14)

The glycyrrhiza radix flavonoid, liquiritigenin, alleviates the menopausal depression-like state of ovariectomized mice through 5-HT2A receptors

K Lyttle[1], N Yamada[2], H Yoshimura[2]
[1]Department of Neuropharmacology, Hokkaido University Graduate School of Medicine, Sapporo, 060-8638, Japan and [2]Behavioural Pharmacology Laboratory, Faculty of Nursing and Health Sciences, Ehime University, Ehime, 791-0925, Japan

Objective: To determine the antidepressant-like activity of glycyrrhiza-derived liquiritigenin compared with its isomer, iso-liquiritigenin, in a menopausal depression-like model.

Method: Bilateral ovariectomy of nine-week old mice was performed under sodium pentobarbital anaesthesia. Chronic liquiritigenin or iso-liquiritigenin oral administration was performed once per day for 14 days after ovariectomy and a forced swimming test was performed 60 minutes after the last administration. Given increasing evidence that 5-hydroxytryptamine 2A (5-HT2A) receptors play an important role in the manifestation of a depression-like state, we investigated whether the acute effect of liquiritigenin was antagonized by the 5-HT2A receptor antagonist ritanserin.

Results: Chronic oral administration of 2.5, 5.0, or 7.5 mg/kg/day liquiritigenin prevented the prolongation of immobility following ovariectomy (immobility times 187.70 ± 7.03, 169.34 ± 6.93, 180.73 ± 12.62, respectively) while iso-liquiritigenin was ineffective. Acute administration of liquiritigenin (5.0 or 7.5 mg/kg orally) also prevented the prolongation of immobility when administered on day 14 after ovariectomy. Liquiritigenin did not affect general motor activity.

Conclusion: The present findings suggest that liquiritigenin is one of the psychoactive ingredients in glycyrrhiza and that its antidepressant-like activity may be mediated through 5-HT2A receptors.

(P–15)

An investigation into the association of age, gender, ethnicity, body mass index and concomitant medication on international normalized ratio levels in persons on warfarin therapy

A Procope, J Campbell, M Gossell-Williams, V Elliott
The University of the West Indies, Kingston 7, Jamaica

Objective: To determine the association of age, gender, ethnicity, body mass index (BMI) and concomitant medication on international normalized ratio levels (INR) in persons on warfarin therapy.

Methods: During the time frame of January 2014 to June 2014, a total of 33 patients were recruited from the cardiovascular clinic at the University Hospital of the West Indies, Jamaica. International normalized ratio levels were attained using a Roche CoaguChek XS PT point-of-care device, while a data collection sheet was used to gather patient-specific information.

Results: The majority of patients were Afro-Caribbean (91%), with more females (69.7%) than males (30.3%). Participants' ages ranged from 33 to 80 years, and most patients were above the age of 70 years (33.3%). Most patients were obese (42.4%). Drugs that interacted with warfarin were mainly cytochrome P450 inducers (24.2%). The Kruskal-Wallis test (5% significance level) found a statistical difference in the median BMI among INR groups, $p = 0.029$. Post-hoc analysis using the Man-Whitney U test determined that the median BMI was statistically significantly higher in the target INR group as compared to the below target INR group ($p = 0.010$). Age, gender, ethnicity and concomitant medication (*p*-values of 0.766, 0.532, 0.825 and 0.511, respectively) showed no association with INR levels.

Conclusion: Body mass index was the only patient-specific factor significantly associated with INR values. Age, gender, ethnicity and concomitant medication showed no association with INR levels in this research. Nonetheless, further investigation should be conducted using a larger sample size.

(P–16)

Investigation of the effect of *Cassia occidentalis* (dandelion) extract on diuresis

T Blair, E Thomas, P Singh
Department of Basic Medical Sciences, The University of the West Indies, Kingston 7, Jamaica

Objective: To investigate the effect that *Cassia occidentalis* has on diuresis in Sprague Dawley rats.
Method: The diuretic effect of extracts of *Cassia occidentalis* were investigated using the non-invasive metabolic cage method. Extracts of the leaves and seeds of *Cassia occidentalis* were prepared using hexane, ethyl acetate, methanol and water. These were administered orally to groups of rats (n = 6). Distilled water and Furosemide were used as controls. Urine was collected over a 24-hour period and volume measured and represented as urine volume per body weight.
Results: In the metabolism cage, there was an increase in urine volume with *Cassia occidentalis* leaf methanol extract (2.57 ± 0.12), seed methanol extract (2.16 ± 1.47), leaf aqueous extract (3.01 ± 0.67) and seed aqueous extract (3.24 ± 0.68), when compared to the control group [saline 25 ml/kg] (1.61 ± 0.55). Furosemide was the standard used and the urine volume obtained was 6.29 ± 1.32. There was a decrease in urine volume with *Cassia occidentalis* leaf hexane extract (2.23 ± 1.13), seed hexane extract (2.55 ± 2.8), leaf ethyl acetate extract (2.40 ± 1.91*)* and seed ethyl acetate extract (3.43 ± 1.13) when compared to the control group [vegetable oil] (3.15 ± 1.33).
Conclusion: The results indicate that *Cassia occidentalis* leaf and seed methanol and aqueous extracts may have potential diuretic property. In contrast, *Cassia occidentalis* leaf and seed hexane and ethyl acetate extracts produced a decrease in urine output suggestive of an anti-diuretic effect.

(P – 17)

Jamaica quality improvement collaborative

C Anderson, T Hylton-Kong, M Townsend, S Bluemer-Miroite, K Zeribi, C Behrens, M Hamilton, G Barrow, K Sutherland
UWI-CHART, Office of the Vice Chancellor, The University of the West Indies, Kingston 7, Jamaica

Objective: To improve the quality of care at ten HIV treatment sites as measured by laboratory monitoring of CD4 and viral load.
Methods: The University of the West Indies-Caribbean HIV/AIDS Regional Training (UWI-CHART), Epidemiology Research Training Unit-CHART (ERTU-CHART) Jamaica, the Ministry of Health (MOH), Jamaica, and the International Training and Education Center for Health (I-TECH), United States of America, launched an improvement collaborative in October 2013 to address two aims: i) increase CD4 testing from 35% to 80% by March 2014 and ii) increase viral load testing from 40% to 80% by March 2014. An improvement collaborative is a learning system that brings together a group of sites to focus on dramatic improvement in a topic area. Quality improvement teams from each site learned to develop and test change strategies using Plan-Do-Study-Act (PDSA) cycles. Plan-Do-Study-Act is a rapid-cycle, continuous quality improvement (CQI) approach where teams test a change for improvement on a small scale, observe the results and adjust the strategy, based upon their findings.
Results: All participating sites recorded significantly increased testing over the collaborative period. Testing across all ten sites increased from 35% to 68% and 40% to 54% for CD4 and viral load, respectively in eight months. Collaborative participants also reported improvements in communication, team work and work efficiency.
Conclusions: The improvement collaborative shows promise as a means of dramatically improving performance on specific quality of care measures, data collection and usage, communication and effective teamwork.

(P – 18)

Factors affecting compliance with medication among adults with asthma in Jamaica

RA Thompson[1], P Anderson-Johnson[1], NO Younger-Coleman[2], KA Bailey[3], JM Knight-Madden[2], NK Waldron[4], YB Wint[1], EK Kahwa[1]
[1]The UWI School of Nursing, [2]Tropical Medicine Research Institute, [3]Department of Obstetrics, Gynaecology and Child Health and [4]Mona Ageing and Wellness Centre, The University of the West Indies, Kingston 7, Jamaica

Objective: To determine the level and correlates of compliance with asthma medication among Jamaican adults 18 years and older with doctor-diagnosed asthma.
Methods: Data from the Jamaica Asthma and Allergies National Prevalence study – a cross-sectional, community-based prevalence survey of asthma and allergies among adults and children – were analysed. The level of compliance with medication among adults was determined by calculating compliance scores. Scores ranged from 0−6, with six representing full compliance, 3–5, moderate compliance and 0–2, noncompliance. Sample-based means and standard deviation estimates were determined. Correlates of compliance were determined using analysis of variance and, where participants were categorized based on compliance scores, the Pearson Chi-squared test to determine differences between groups.
Results: Of the 211 adults, 156 were on prescribed medication with a mean compliance score of 4.4 ± 1.9. Thirty-six per cent were moderately compliant and 44% were fully

compliant. Bivariate analyses revealed significantly higher scores in adults age 20 years and older (4.50 ± 1.9 *vs* 2.89 ± 1.7; $p = 0.046$), those whose medication was subsidized by the National Health Fund (5.4 ± 1.4 *vs* 4.3 ± 1.9; $p = 0.029$), those who spent money on asthma treatment (4.7 ± 1.6 *vs* 4.0 ± 2.1; $p = 0.025$) and those who found the cost of care burdensome (4.50 ± 1.4 *vs* 4.1 ± 2.0, $p = 0.007$). Adults who had a positive attitude toward medication (57.1%) had higher compliance scores (4.9 ± 1.4 *vs* 4.4 ± 1.6). The association between a positive attitude and medication compliance was significant after controlling for age, area of residence and possession of health insurance ($p = 0.014$).

Conclusions: Most participants were at least moderately compliant with medication. Age, cost of medication and a positive attitude toward medication were the main factors associated with compliance. National Health fund subsidies enhanced compliance. Asthma education should include information on how to register with the National Health Fund to improve access.

(P – 19)

Quality control of a plain radiography unit using a Radcal Accu-Pro quality control system

D Walker, M Voutchkov, C McKenzie
Medical Physics, Department of Physics, The University of the West Indies, Kingston 7, Jamaica

Objectives: To evaluate the reproducibility and accuracy of a basic X-ray unit over different range of exposure values. .

Method: In this study, the Radcal System, which consists of a 40 × 12-W diagnostic kV sensor and a 10 x 6-6 ion chamber, was used to measure the dose, mean kilovolt peak (kVp) and time outputs. The plain radiography unit at the School of Medical Radiation Technology was used.

Results: Unit exposure setting: 50 kV, 25 ms, 6.4 mAs and 250 mA. Recorded radiation dose ranged from 12.4 µGy to 55.5 µGy with a mean of 44.25 µGy. Mean recorded kV was 55.36 kV. Mean recorded time was 25.22 ms. Unit exposure setting: 75 kV, 50 ms, 12.5 mAs and 250 mA. Recorded radiation dose ranged from 146.5 µGy to 363 µGy with a mean of 276.88 µGy. Mean recorded kV was 77.87 kV. Mean recorded time was 50.17 ms. Unit exposure setting: 100 kV, 100 ms, 25 mAs and 250 mA. Recorded radiation dose ranged from 1.243 mGy to 1.608 mGy with a mean of 1.261 mGy. Mean recorded kV was 102.7 kV. Mean recorded time was 99.99 ms.

Conclusion: Reproducibility of the unit is operating within recommended limits with the exception of the dose. Accuracy of loading factors is operating within recommended limit. Quality control testing of X-ray units ensures protection of staff and patients from unnecessary exposure to ionizing radiation.

(P – 20)

Side effects of sino-implant on a cohort of Jamaican women – a randomized controlled trial

C Rattray[1], N Medley[1], E Costenbader[2], M Gallo[3], T Hylton-Kong[4], D Jamieson[5], J Legardy-Williams[5], K Pazol[5], M Steiner[2], J Wiener[5], AP Kourtis[5]
[1]University Hospital of the West Indies, Ministry of Health, Kingston, Jamaica, West Indies, [2]Family Health International (FHI 360), Research Triangle Park, North Carolina, United States of America, [3]The Ohio State University, College of Public Health, Division of Epidemiology, Ohio, United States of America, [4]Epidemiology Research and Training Unit (ERTU), Ministry of Health, Kingston, Jamaica, West Indies and [5]Centres for Disease Control and Prevention (CDC), Atlanta, Georgia, United States of America

Objective: To evaluate the health-related effects of the sino-implant on a cohort of Jamaican women.

Methods: An unblinded, randomized controlled trial (RCT) was done to assess whether the use of a contraceptive implant leads to more sex unprotected by a condom, as measured by the detection of a biological marker of exposure to semen in vaginal fluid, among women in Kingston, Jamaica. A total of 414 women were randomized into an immediate arm or delayed arm. Participants in the immediate implant arm were administered questionnaires on side effects and complications related to the implant at one-month and three-month visits.

Results: There were 205 women in the immediate arm and 200 in the delayed arm. The median parity in both groups was two (IQR 1–3). There were two complications related to implant insertion giving a complication rate of 1% (2 out of 205 participants). The median weight gain was 0.5 kg and there was no overall change in systolic or diastolic blood pressures. At the three-month visit, 45.8% (93/205) of participants in the immediate arm reported change in bleeding *versus* 17.7% (33/200) of participants in the delayed arm ($p < 0.001$). Other significant health concerns related to the implant were headaches and weight gain. At the three-month visit, 6.9% (14/205) of participants in the immediate implant arm *versus* 1.6% (3/200) in the delayed arm reported experiencing headaches ($p < 0.03$). At the three-month visit, 15.3% (31/205) in the immediate group *versus* 4.3% (8/200) in the delayed group complained of weight gain ($p < 0.001$).

Conclusion: Complications related to sino-implant insertion are low and the main health-related concern was changes in bleeding pattern.

(P – 21)

Alcohol overshadows but not eliminates nicotine effect in alcohol-nicotine co-treated zebrafish

MK Ali

Department of Basic Medical Sciences, Faculty of Medical Sciences, The University of the West Indies, Kingston 7, Jamaica

Objectives: Both alcohol and nicotine, inspite of activating a common final neural pathway of dopaminergic system, have unique and individual characteristics that are opposite to each other. How these drugs interact in co-addicted individuals remains an open question. The objective of the study was to assess the mode of interaction between alcohol and nicotine using zebrafish as an animal model.

Method: Adult zebrafish were co-treated with 3% (v/v) alcohol and 1 mg/L nicotine or both three times daily for three weeks, whereas the juvenile larvae were treated with the same doses for three hours.

Results: Nicotine did not prevent alcohol-induced apoptosis, fibrous melanocyte formation, decline in brain total proteins, or multiprotein content. In contrast, alcohol prevented the anti-appetite effect of nicotine and nicotine-induced mortality. However, the swimming pattern and T-maze tank place preference analysis after drug withdrawal showed co-treated zebrafish produced different behaviours distinct from those induced by alcohol or nicotine treatment. Analysis of ^{1}H-NMR soluble metabolite profile of zebrafish brain subjected to nicotine or ethanol or in combination indicated four types of changes: (1) independent of either drug but dependent on the presence of both drugs; (2) dependent on only one drug; (3) equally dependent on both drugs but in co-treated, one of the drug has a dominant effect or both produced co-operative effect; and (4) both drugs have opposite effects on metabolites peak values.

Conclusion: The data clearly indicated that alcohol overshadowed but did not eliminate the nicotine effect in alcohol/nicotine co-treated zebrafish.

(P – 22)

Fluoroscopic-guided sacroiliac joint steroid injection in patients with sacroiliac joint mediated low back pain in ankylosing spondylitis and osteogenesis imprefectal: a case series

PUA Dawson[1], REC Rose[2], NA Wade[1], D Tulloch-Reid[3]

[1]Physical Medicine and Rehabilitation, Faculty of Medical Sciences, The University of the West Indies, Kingston 7, Jamaica, [2]Department of Radiology, Surgery, Anaesthesiology and Intensive Care, Division of Orthopaedics, University Hospital of the West Indies, Kingston 7, Jamaica and [3]Kingston Public Hospital, Kingston, Jamaica

Objective: To determine the efficacy of fluoroscopic-guided intra-articular sacroiliac joint (SIJ) steroid injection in patients with low back pain (LBP) as a result of sacroiliitis in ankylosing spondylitis (AS) and SIJ mediated pain in osteogenesis imperfecta (OI) at the University Hospital of the West Indies (UHWI).

Methods: This was a case series of two patients who were treated by physiatry (Physical Medicine and Rehabilitation) at the UHWI, with fluoroscopic-guided SIJ steroid injection. Patient A was diagnosed with AS with sacroiliitis and LBP and Patient B had OI with SIJ mediated LBP. Sacroiliac joint provocation tests were used to make the diagnosis of SIJ mediated pain. Outcome measures included a numeric rating scale (NRS) and Oswestry Disability Index (ODI) questionnaire, which were performed at baseline, one week and eight weeks after injection was done. Fluoroscopy was used to visualize the inferior aspect of the SIJ and 0.1 mL Omnipague (iohexol) used to confirm intra-articular flow. The SIJ was then infiltrated with 0.8 mL of 1% lidocaine and 1 mL of triamcinolone (40 mg/mL).

Results: Patient A had improvement with NRS from 8/10 to 1/10 and ODI improved from moderate disability of 40% to minimal disability of 16%. Patient B had NRS improvement from 6/10 to 0/10 and ODI improved from moderate disability of 40% to minimal disability of 15%. Both patients had adjuvant pelvic stabilizing rehabilitation.

Conclusion: Fluoroscopic-guided SIJ steroid injection was an effective diagnostic and treatment option for these patients who had SIJ mediated LBP from AS with sacroiliitis and osteogenesis imperfecta.

(P – 23)

Selective dorsal rhizotomy for spasticity management in children with cerebral palsy in Jamaica

PUA Dawson[1], J Petronio[2], M Morgan[3], M Gormley[2], C Bruce[4], P Charles[4], NA Wade[1], A Stultz[2], C Baum[2], B Nolin[2]

[1]Physical Medicine and Rehabilitation, Faculty of Medical Sciences, The University of the West Indies, Kingston 7, Jamaica, [2]Gillette Children's Specialty Healthcare, St Paul, Minnesota, United States of America, [3]Bustamante Hospital for Children, Arthur Wint Drive, Kingston 5, Jamaica and [4]Department of Radiology, Surgery, Anaesthesiology and Intensive Care, Division of Neurosurgery, University Hospital of the West Indies, Kingston 7, Jamaica, West Indies

Objectives: To evaluate the outcome of selective dorsal rhizotomy for spasticity management in four children with cerebral palsy at the University Hospital of the West Indies and Bustamante Hospital for Children.

Methods: A retrospective look at the outcome after selective dorsal rhizotomy surgeries in four children, two of

whom had the procedure in June 2013 and the other two in November 2013. Patients were evaluated and placed into one of the five functional levels using the Gross Motor Function Classification Scale (GMFCS), which assesses motor function with sitting, walking and wheeled mobility. Standard outcome measures were done preoperatively and postoperatively, at six months and 12 months, using the Gross Motor Function Measure (GMFM) and the Modified Ashworth Scale (MAS) to determine the efficacy of selective dorsal rhizotomy (SDR) in these patients.
Results: Results showed that while the GMFCS remained unchanged, there was improvement in GMFM in two of the four children at six months and 12 months after SDR. At six months, the improvement for patient A was 6% and patient B was 21%, while at twelve months, patient C was 8% and patient D was 20%. The MAS improved from a 3 to 0–1 in all patients.
Conclusion: Selective dorsal rhizotomy was an effective surgical approach in managing spasticity in children with cerebral palsy in this study; however, two of the four patients had minimal improvement in the GMFM.

(P – 24)
Microbiology sample rejection rates in the pre-analytical stage at the University Hospital of the West Indies for 2014

C Thoms-Rodriquez, A Edwards, AM Nicholson,
Department of Microbiology, University Hospital of the West Indies, Kingston 7, Jamaica

Objective: To determine the frequency and reasons for sample rejection in the microbiology laboratory at the University Hospital of the West Indies (UHWI) and to compare the rate of sample rejection with international rates as a quality indicator.
Method: Rejection of samples at the UHWI was done according to internationally accepted criteria and a record was kept in the laboratory. A retrospective review of the lab rejection records over the past six months, January to June 2014, was done.
Results: A total of 19 555 samples were received in the microbiology laboratory during the study period. Bacteriology received the majority of specimens (63%). Immunology, virology, mycology and parasitology received 20%, 14, 2% and 1% of total samples, respectively. The largest number of rejected specimens came from bacteriology (248). Immunology, virology, parasitology and mycology had 24, 15, 12 and one specimens rejected, respectively. Urine samples were most commonly rejected (114; 38%). The main reason for specimen rejection was unlabelled specimens (108; 36%). The second reason was the receipt of outdated specimens (61; 20%). Most samples rejected came from the medical wards (54; 22%). The overall rejection rate of specimens in microbiology is 1.55%.
Conclusion: International studies have shown rejection rates at some centres in North America to be less than 0.83% and in other centres in Asia to be less than 1% after interventions. There is, therefore, room for improvement at the UHWI. Continued staff education concerning sample collection is critical for a reduction in sample rejection rates which would improve the quality of service provided.

(P – 25)
Epidemiological and bacteriological trends in diabetic foot infections over a ten-year period at the University Hospital of the West Indies

C Thoms-Rodriguez, RA Mah-Lee, K Roye-Green, AM Nicholson
Department of Microbiology, University Hospital of the West Indies, Kingston 7, Jamaica

Objective: To analyse the trends in the epidemiology and bacteriology of diabetic foot infections (DFIs), and identify the susceptibility patterns for Gram-negative bacteria (GNB), one of the most commonly isolated pathogens.
Methods: A six-month retrospective study was done, whereby laboratory records between January and June 2014 at the Department of Microbiology, University Hospital of the West Indies (UHWI) were collected and analysed. A comparison was then made with previous studies done over the past ten years.
Results: Of 453 de-duplicated wound swabs collected, 3.53% were from DFIs; of these, 52.25% had GNB. The majority of specimens were from male patients (56.25%), with the highest incidence falling in the 40−70-year olds (62.5%). *Pseudomonas aeruginosa* was the commonest GNB isolated, followed by *Klebsiella pneumoniae*, *Morganella morganii* and *Proteus vulgaris*. Susceptibility to 3rd generation cephalosporins, amikacin and meropenem was 100%, with only 22% showing resistance to ampicillin. None was multi-drug resistant (MDR; resistant to ≥ 3 classes of antibiotics). Similarly, between 2003 and 2008, *Proteus* spp, *Klebsiella pneumonia* and *Pseudomonas aeruginosa* were among the commonest GNB isolated, with none being MDR. However, all showed > 60% resistance to aminopenicillins and cephalosporins. In 2013, male patients predominated and 10% of the GNB isolated were MDR. Over the years, no carbapenem resistant strains have emerged.
Conclusion: As with previous studies, GNB remain one of the most common isolates in DFIs, and to date, few MDR strains have emerged. Based on currently available antibiograms, empiric antibiotics used in the treatment of DFIs are expected to cover likely pathogens.

(P – 26)

The effects of a combination of *Allium sativum* and *Salonum lycopersicum* on a precancerous model of colorectal cancer

R Smith, P Singh
Department of Basic Medical Sciences, Section of Pharmacology, The University of the West Indies, Kingston 7, Jamaica

Objective: To investigate the effects of a combination of *Allium sativum* (garlic) and *Salonum lycopersicum* (tomato) on aberrant crypt foci (ACF) formation in rats.
Method: The extract was prepared by blending tomato and garlic in 80% ethanol. The solvent was removed by rotary evaporation and the residue dissolved in distilled water. This extract was dosed orally at 0.4 mg/kg to a group of six rats for six weeks. The control group of rats (n = 6) received distilled water. Colorectal cancer was induced in all rats by injecting 1,2-dimethylhydrazine at a dosage of 400 mg/kg subcutaneously in weeks two and three of the experiment. At the end of the study, all the rats that survived were sacrificed and their large intestines were removed, cut into three sections – proximal, middle and distal – which were stained in methylene blue and the number of ACF counted under a compound microscope. The results were statistically analysed by analysis of variance (ANOVA).
Results: For the treated group, the distal region of the colon had 5.8 ±1.6 ACF while the middle region had 13.6 ± 2.8 ACF out of a total of 27 ± 2.8 ACF. For the control group, the proximal region had 7.8 ± 2 ACF and the distal region had 15.3 ± 1.2 ACF out of a total of 37 ± 2 ACF. There was a significant reduction in the number of ACF in the treated group with the extract, compared to the control group ($p < 0.05$).
Conclusion: Based on the significant results that were obtained, combination of garlic and tomato was effective in preventing the formation of ACF. However, further studies are needed to conclude if it may have potential in preventing colorectal cancer.

(P–27)

Evaluating the potential for drug-medicinal plant interactions in Jamaica

D Picking[1], N Younger[2], S Mitchell[3], R Delgoda[1]
[1]Natural Products Institute, [2]Tropical Medicine Research Institute and [3]Biotechnology Centre,
The University of the West Indies, Kingston 7, Jamaica

Objective: (i) To study the prevalence of medicinal plant ethno-use concomitant with pharmaceutical drug use and (ii) to shortlist and screen ten plants for potential drug-medicinal plant interactions.
Method: A TRAMIL survey was undertaken. TRAMIL, a Caribbean-wide research programme, documents and evaluates safety and efficacy of plants used for primary healthcare. Ten plants were shortlisted and screened as crude aqueous extracts utilizing *in vitro* cytochrome P450 (CYP450) inhibition assays to evaluate ability to inhibit the catalytic activity of five human CYP450 enzymes using high throughput fluorometric assays. One plant, demonstrating potent CYP450 inhibition, was further characterized using high-performance liquid chromatography (HPLC) and liquid chromatography-mass spectrometry (LC-MS), to identify key phytochemicals responsible for its bioactivity.
Results: Seventy-three per cent (270/372) of respondents self-medicated with plants, 27% (72/270) used drugs concomitantly and 19% (14/72) of physicians were aware of such practices. Five of ten plants screened displayed potent inhibition ($IC_{50} \leq 9.9$ µg/mL) of at least one enzyme, 30/50 interactions demonstrated moderate to weak inhibition (≥ 10 µg/mL) *eg Petiveria alliacea* moderately or weakly inhibited all enzymes screened, indicating unlikely clinical manifestation for this extract. Key phytochemicals analysed from *Hyptis verticillata* did not contribute to the potency of the extract, indicating likely synergistic effects.
Conclusions: Medicinal plant use is highly prevalent in Jamaica: 27% of plant users take drugs at the same time, and physician awareness is low. Identifying plants demonstrating potent inhibition against CYP450 activity enables shortlisting of plants warranting *in vivo* clinical studies. Screening also identifies plants which, if prepared from the same parts in the same way, are unlikely to inhibit the activity of the same CYP enzymes *in vivo.*

(P – 28)

The relationship between birthweight and renal function in Afro-Caribbean young adults: analysis from the 1986 Jamaica Birth Cohort Study

KD Rocke[1], TS Ferguson[1], NO Younger-Coleman[1], MK Tulloch-Reid[1], JM Knight-Madden[1],
M Samms-Vaughan[2], D Ashley[3], A McCaw-Binns[4],
RJ Wilks[1]
[1]Tropical Medicine Research Institute, [2]Department of Child Health, [3]School of Graduate Studies and Research and [4]Department of Community Health and Psychiatry, The University of the West Indies, Kingston 7, Jamaica

Objective: To investigate the relationship between birthweight and renal function among Afro-Caribbean young adults in Jamaica.
Methods: Data from 744 participants (339 males, 405 females) from the 1986 Jamaica Birth Cohort Study were analysed. Data were collected between the years 2005 and 2007 when the participants were 18–20 years old. Trained nurses measured blood pressure and anthropometry and

obtained samples for measurement of serum creatinine and urinary albumin. Birth data were obtained from the 1986 Jamaica Perinatal Mortality Survey. Estimated glomerular filtration rate (eGFR) was calculated using the Schwartz-Lyon equation. Chronic kidney disease (CKD) was defined as eGFR < 60 mL/min per 1.73 m^2 or albuminuria (≥ 30 mg/g creatinine). Multi-level mixed effects regression models were used to examine associations.
Results: Mean eGFR was 95.0 ± 28.5 mL/min per 1.73 m^2 with significant gender differences (M = 86.3, F = 102.4; p < 0.001). Prevalence of CKD was 8.3% (95%CI 6.5, 10.6%); 1.7% had reduced eGFR and 7.0% had albuminuria. In multi-level linear regression models controlling for gestational age, gender, current age, education, blood pressure, lipid levels, and maternal socio-economic status, a one standard deviation increase in birthweight was associated with a 2.6% increase in eGFR (β [log eGFR] 0. 026, exponential 1.026; p < 0.009). Estimated glomerular filtration rate was lower in men (26.7% decrease; p < 0.001), fell with age (4.3% decrease; p = 0.003) and with longer gestational age (0.9% decrease; p = 0.028). There was no significant association between birthweight and CKD.
Conclusion: Higher birthweight was associated with a modestly higher eGFR in Jamaican young adults, but was not significantly associated with CKD.

(P – 29)
Father's presence may reduce the risk of overweight in Caribbean children

JA Smith, MK Tulloch-Reid, SM Chang, SP Walker
Tropical Medicine Research Institute, Epidemiology Research Unit, The University of the West Indies, Kingston 7, Jamaica

Objective: To investigate the role of parental sociodemographic characteristics on the risk of overweight in Caribbean infants.
Methods: Data from participants from a three-island parenting intervention study were analysed. At baseline, maternal characteristics such as age, education, depression, socio-economic status and paternal occupation and presence were obtained by questionnaire. At 18 months, infant weight and length were measured by trained interviewers using standardized methods. Z scores were determined from World Health Organization (WHO) growth charts and a score ≥ 1 was classified as overweight. Random effects logistic regression analyses were utilized to assess the effect of the parents' characteristic on the risk of overweight in the infant.
Results: Five hundred and one mother-child dyads (82.9%) were re-assessed when the children were 18 months old, of which 52% were males. Overall, the father was present in 52% of households. After controlling for maternal age, education, occupation, receptive vocabulary and socio-economic status score at recruitment, higher depression scores (OR [95% CI] per 1 SD difference = 0.74 [0.57, 0.96]) and the presence of the father in the home (OR [95% CI] per 1 SD difference = 0.78 [0.62, 0.99]) decreased the odds of overweight in these infants and this effect was independent of the father's occupation.
Conclusion: Both maternal and paternal factors may affect risk of overweight in Caribbean children. Interventions to address childhood overweight should target both parents.

(P – 30)
Colorectal cancer in Jamaica: patterns and anatomical distribution

MEC McFarlane[1], JM Plummer[2], PA Leake[2], NP Williams[2], D Ferron-Boothe[2], N Meeks-Aitken[2]
[1]Department of Pathology and [2]Department of Surgery, Radiology, Anaesthesia and Intensive Care, The University of the West Indies, Kingston 7, Jamaica

Objectives: The objective of this study was a review of the characteristics, demographics and distribution of colorectal cancer in a Jamaican population with particular reference to age, gender, anatomical location and pathology.
Methods: Over a three-year period from 2011 to 2013, data were prospectively collected from patients with colorectal cancer using information from a dedicated colorectal cancer registry. Patients were split into ten groups, each group representing a colonic sub-site. The records reviewed included demographic data, histologic subtype and anatomical distribution.
Results: Five hundred and eighty-six patients were reviewed in this study. There were 295 (50.3%) females and 291 (49.7%) males, with a male to female ratio of 1:1. The mean age was 63 years (range 13–99 years). The predominant histology was reported as adenocarcinoma (not otherwise specified), 82%. The most common grade was moderately differentiated, 415 (70.8%), followed by well differentiated, 61 (10.4%) and poorly differentiated, 52 (10.4%). Tumour grade was not recorded in 46 (7.8%) patients. Anatomical distribution of tumours identified caecal, 38 (6.4%), right/ascending, 116 (19.8%), hepatic flexure, 10 (1.7%), transverse, 22 (3.75%), splenic flexure, 6 (1%), left/descending, 41 (6.9%), sigmoid, 140 (23.8%), unspecified, 32 (5.5%), rectosigmoid, 64 (10.9%) and rectum, 110 (18.8%). Overall, 64.9% of tumours were distal and 35.1% proximal. Three hundred and forty-nine specimens were as a result of surgical resection and the remainder were biopsies. The tumour-node-metastasis (TNM) staging recorded a T stage of T3 (174), T2 (31), T4 (13) patients, N stage as N0 (125), N1 (52), N2 (35) and M stage as Mx (125) and M1 (15).
Conclusions: The patterns of colorectal cancer in Jamaica continue to show that despite the fact that the majority of tumours arise below the splenic flexure, a significant num-

ber of tumours are found proximally, necessitating evaluation of the entire colon for diagnosis.

(P – 31)

Monitoring and surveillance of Gram-negative pathogens and their antibiotypes at the University Hospital of the West Indies during 2011

NA Christian[1], G Reynolds[1], R Hardie[1], J Cooke[1], T Hoilett[1], A Nicholson[1], K Roye-Green[1], B Charalambous[2], T McHugh[2]

[1]Department of Microbiology, The University of the West Indies, Kingston 7, Jamaica and [2]Centre for Clinical Microbiology, Royal Free Campus, University College London, London, England

Objective: To monitor the epidemiological patterns and determine antibiotic susceptibility among Gram-negative organisms isolated from patients at the University Hospital of the West Indies (UHWI) during 2011.

Method: During September 1 to December 1, 2011, all Gram-negative organisms isolated from the clinical specimens submitted to the microbiology laboratory at the UHWI were included in the study. Standard microbiological techniques and the Vitek 2 automated system were used for identification and susceptibility testing of organisms.

Results: A total 1650 organisms were isolated from 1038 patients (females: 54%, males: 39%, infants: 7%; age range 0–104 years, mean 45 years). Isolates were obtained from blood (7%), urine (43%) and swabs (50%), with the majority of swabs comprising wounds (43%), sputum (21%) and tissue (19%). The most frequently isolated organisms from blood specimens were *P aeruginosa* (20%) and *E coli* (19%), from urine were *E coli* (40%) and *K pneumoniae* (18%), while *Acinetobacter spp* (16%) and *E coli* (9%) were highest among the swabs. While a majority of the *P aeruginosa* isolated from blood was sensitive to amikacin (100%), ceftazidime (69%), gentamicin (88%), ciprofloxacin (81%) and piperacillin-tazobactam (81%), there were also three meropenem-resistant isolates (19%). Susceptibility among the *E coli* to ampicillin (40%) and amoxicillin (50%) were the lowest compared to the other antibiotics including the third generation cephalosporins (68%), gentamicin (61%), ciprofloxacin (68%) and bactrim (65%). Susceptibility profiles of the urinary isolates to antibiotic classes were ampicillin/amoxicillin (*E coli* 39%, *K pneumoniae* 42%), third generation cephalosporins (*E coli* 18%, *K pneumoniae* 32%), gentamicin (*E coli* 25%, *K pneumoniae* 34%) and trimethoprim-sulfamethoxazole (*E coli* 35%, *K pneumoniae* 34%). Among the swabs, resistance to the beta-lactam antibiotics was greatly increased for *Acinetobacter spp* compared to *E coli* (ampicillin 99% *vs* 78%, amoxicillin (86% *vs* 59%, ceftazidime 79% *vs* 41%, ceftriaxone 92% *vs* 41%, cefuroxime 91% *vs* 60%). Isolates were highly susceptible to meronem (77% *vs* 100%), amikacin (83% *vs* 91%), gentamicin (53% *vs* 80%) and piperacillin-tazobactam (80% *vs* 94%) for *Acinetobacter spp* and *E coli*, respectively.

Conclusions: Surveillance and monitoring initiatives are important for establishing the prevalence of organisms which may contribute to nosocomial outbreaks, the emergence of new resistance phenotypes and genotypes as well as to test the effects of different interventions and patterns of prescribing antibiotics.

(P – 32)

Estimating the sources of new HIV infections in Jamaica using the modes of transmission model

G Barrow, S Jarrett, E Stevens, Z Miller, N Skyers, K Harvey, C Pretorius

The Ministry of Health, Kingston, Jamaica

Objective: The Joint United Nations Programme on HIV/AIDS (UNAIDS) modes of transmission (MOT) model was applied to assess the HIV epidemic in Jamaica, allowing policy-makers to gain an understanding of the short-term risk of HIV infection in various risk groups and guide the national response to HIV.

Methods: The MOT model generates estimates of the number of new or incident HIV infections in key identified populations over the coming year. It utilizes data for key risk groups including the proportion of adults in each group, the current HIV prevalence, patterns of risk and levels of protection against HIV infection in each risk group. The model also performs a sensitivity analysis to account for various sources of uncertainty.

Results: The model suggested that approximately 2500 infections will occur in Jamaica in 2012. The majority of incident infections will occur in men who sleep with men (MSM**)** groups, including female partners of MSM, accounting for approximately half of new infections. Persons identified as low-risk and high-risk heterosexuals will each account for 15–20% of incident infections. Female sex workers, their clients and the partners of sex worker clients will also contribute significantly, with approximately 10–15% of incident infections.

Conclusions: Data generated from the model reveal features of both a concentrated and a generalized HIV epidemic in Jamaica. Along with interventions for vulnerable populations, there is also a continued need for interventions targeting the general population. Improved surveillance systems can provide the biological and behavioural data to populate future MOT models and allow for greater understanding and improved estimates of HIV incidence in key risk populations.

(P – 33)

The prevalence and trends of methicillin-resistant *Staphylococcus aureus* at the University Hospital of the West Indies from January to December 2013

P Ward, AM Nicholson, C Thoms-Rodriquez
Department of Microbiology, The University of the West Indies, Kingston 7, Jamaica

Objective: To measure the prevalence, antibiotic susceptibility and distribution of methicillin-resistant *Staphylococcus aureus* (MRSA).
Methods: A retrospective review of laboratory records of all samples received in the Microbiology Laboratory at the University Hospital of West Indies (UHWI) from January to December 2013 was done. The prevalence and distribution of MRSA was determined and comparisons were made with data from 2008.
Results: Of 506 *S aureus* isolates collected in 2013, 16 were MRSA (3%). This is a decline from 7% in 2008. Most MRSA isolates in 2013 were from samples sent from the medical wards (31%), contrary to 2008 where 60% of isolates came from surgical wards. The commonest source of isolates was wound swabs (56%) for both periods. Susceptibility testing showed all MRSA isolates having 100% susceptibility to vancomycin, rifampicin, minocycline and co-trimoxazole. Lower rates were found for gentamicin, erythromycin and clindamycin at 90%, 11% and 66%, respectively.
Conclusion: An MRSA prevalence of 3% is considerably lower than that elsewhere, such as the United States of America (6.6%). Although the marked reduction in prevalence rates would indicate the absence of the epidemic strains, the containment of spread in the absence of isolation wards represents a significant achievement. The sensitivity of the isolates to antibiotics such as vancomycin, rifampicin, minocycline and co-trimoxazole suggests the presence of community-acquired MRSA *versus* hospital-acquired MRSA. This has implications for empiric treatment of Staphylococcal infections especially in the Accident and Emergency Department where index of suspicion must now be higher for this organism.

(P – 34)

Prevalence of high-level aminoglycoside resistance in Enterococci recovered from clinical specimens at the University Hospital of the West Indies

A Bruce-Mowatt, M Smikle, K Roye-Green
Department of Microbiology, The University of the West Indies, Kingston 7, Jamaica

Objective: To determine the *Enterococcus* species associated with infections at the University Hospital of the West Indies (UHWI) and the prevalence of high-level aminoglycoside resistance in *Enterococcus* strains.
Methods: A total of 152 *Enterococcus* strains from different clinical specimens were collected and identified to the species level using standard microbiological procedures and an automated system (Vitek-2) for microbiological identification and susceptibility testing. The isolates which were gentamicin resistant were investigated for high-level gentamicin resistance (HLGR) and high-level streptomycin resistance (HLSR).
Results: *E faecalis* (83%; 126/152) was the predominant *Enterococcus* species recovered from clinical specimens. *E faecium* accounted for the other 17% (26/152). High-level gentamicin resistance was found in 20% (31/152) and HLSR in 23% (35/152) of Enterococcal strains. The prevalence of high-level aminoglycoside resistance in Enterococci was 19%.
Conclusion: *Enterococcus faecalis* is the most frequently recovered Enterococcal species from clinical specimens at UHWI. The substantial high-level aminoglycoside resistance in *E faecalis* should be considered in therapeutic regimens at this institution.

(P – 35)

Effect of magnesium sulphate on attenuating the cardiovascular response to direct laryngoscopy and endotracheal intubation at the University Hospital of the West Indies

R Johnson, A Barnett, I Tennant, H Harding-Goldson
Department of Surgery, Radiology, Anaesthesia and Intensive Care, Section of Anaesthesia,
The University of the West Indies, Kingston 7, Jamaica

Objectives: To assess the efficacy of magnesium sulphate when compared to placebo in non-invasively measured systolic, diastolic and mean arterial blood pressure and heart rate, in response to endotracheal intubation after standard induction for elective non-cardiac cases at the University Hospital of the West Indies. To compare these two groups with respect to side effects, intraoperatively and in the immediate postoperative period.
Methods: This was a double blinded, randomized clinical trial which enrolled 132 American Society of Anesthesiologists (ASA) I and II aged 18–65 years patients, randomized *via* the lottery method to two groups. Group 1 received magnesium sulphate 40 mg/kg and Group 2 received 60 ml of normal saline. The systolic, diastolic and mean arterial blood pressure and pulse rate were recorded every minute for fifteen minutes post administration of the "test drug". The induction of anaesthesia was standardized for all groups; they received morphine 0.1 mg/kg, propofol 2 mg/kg and cisatracurium 0.2 mg/kg. The need for reversal of non-depolarizing muscle relaxants was also assessed. Statistical analysis was done using the *t*-test, Chi-squared

test, Pearson correlation and one-way analysis of variance (ANOVA).
Results: There was no significant statistical difference seen between the magnesium and placebo groups for the systolic, diastolic and mean arterial blood pressure or heart rate. There was no increase in the need for reversal of muscle relaxants with the magnesium group or in side effects seen.
Conclusion: Magnesium sulphate 40 mg/kg was not successful in attenuating the cardiovascular response to endotracheal intubation when compared to placebo.

(P – 36)
Fitness cost and virulence potential of *Pseudomonas aeruginosa* from respiratory origin

R Davis, PD Brown
Faculty of Medical Sciences, The University of the West Indies, Kingston 7, Jamaica

Objective: Respiratory infections are common causes of morbidity and mortality worldwide. We sought to assess the fitness cost and virulence potential in *Pseudomonas aeruginosa* from respiratory origin.
Methods: Mixed growth *in vitro* competition assays of antibiotic resistant *P aeruginosa* isolates and a pigment-producing susceptible control strain were conducted with two (each) carbapenem and fluoroquinolone antibiotics. From these, the relative fitness values were calculated. Phenotypic expression of quorum sensing mediators, elastase and rhamnolipid, as well as genetic analysis of *las* and *rhl* genes were also carried out. Virulence potential of quorum sensing positive and negative isolates was assessed using romaine lettuce leaf plant model over a five-day period.
Results: During the competition assay, the susceptible strain out-competed the resistant strains by relative fitness > 1. Almost half (49%) of isolates produced low or no elastase, 13% were medium producers and 38% were high producers ($p < 0.05$). Rhamnolipid production was observed for 78.9% of isolates. Most of the isolates were polymerase chain reaction (PCR)-positive for *lasA* (92.3%), *lasB* (91%), *rhlB* (93.2%) and *rhlA* (86.6%) genes. Using the plant model, virulence potential (indicated by onset of severe tissue damage) of bacteria was arranged in decreasing order: elastase positive (Las+)/rhamnolipid positive (Rhl+) > elastase negative (Las-)/Rhl+ > Las+/Rhl- > Las-/Rhl-.
Conclusion: The finding of a susceptible strain gaining fitness within a mixed population that includes a resistant strain has significant implications for infection control. While dual expression of elastase and rhamnolipid would cause severe tissue damage, non-production of either mediator does not prevent bacteria from causing serious infection.

(P – 37)
Surgical site infection rates at the University Hospital of the West Indies, Jamaica

N Otto-Stewart, A Nicholson, T Hoilett, K Nelson, C Jacob, M Thomas, G Reynolds-Campbell
Department of Microbiology, The University of the West Indies, Kingston 7, Jamaica

Objective: Surgical site infections (SSI) remain a major clinical problem, accounting for 31% of all hospital acquired infections (HAI) affecting morbidity, mortality and overall cost of care. With the paucity of local data on SSIs, this study seeks to establish baseline values at the University Hospital of the West Indies (UHWI).
Method: Data were collected prospectively for consecutive general surgery (GS) and orthopaedic cases between March and August 2013. Case definition of SSI was as outlined by the Centres for Diseases Control and Prevention.
Results: Of the 223 surgical procedures monitored, there were 144 GS and 79 orthopaedic cases. There was a 6.9% (10/144) SSI rate for GS cases. Of these, there was a 7.2% (8/110) SSI rate for abdominal cases, 10% (1/10) for vascular cases and 5.5% (1/18) for other miscellaneous cases. There were nine breast and seven limb cases, with no SSI detected. Abdominal surgeries included appendicectomies (28%; SSI rate 6.45%), hernia repairs (26%; SSI rate 6.9%), biliary tract procedures (20%; SSI rate 0%), bowel resection/osteomies (15.5%; SSI rate 23.5%) and adhesiolysis (4.5%; SSI rate 0%). Only 48 GS patients (33.3%) were given prophylactic antibiotics; mainly metronidazole, cefuroxime and amoxicillin/clavulanate. Three (6.25%) of these patients developed SSI. Of the 79 orthopaedic cases done, three (3.8%) developed SSI. Thirty-seven orthopaedic patients (46.8%) received prophylaxis and two (5.4%) developed SSI. Common antibiotics used were cefuroxime, gentamicin and amoxicillin/clavulanate.
Conclusion: Surgical site infections rate at the UHWI is 6.9% for GS and 3.8% for orthopaedics, which is well within international standards.

(P – 38)
Bone marrow-derived cells participate in neurogenesis in the adult brain

D Laws[1], DS Strayer[2], JP Louboutin[1, 2]
[1]Department of Basic Medical Sciences, Section of Anatomy, The University of the West Indies, Kingston 7, Jamaica and [2]Department of Anatomy, Pathology and Cell Biology, Thomas Jefferson University, Philadelphia, Pennsylvania, United States of America

Objective: To examine the ability of bone marrow (BM)-derived cells to differentiate into neuron precursors and mature neurons. We previously demonstrated that perma-

nent BM-directed gene transfer using recombinant SV40-derived vectors led to expression of the genes delivered to the bone marrow in mature neurons, without central nervous system (CNS) lesion. Thus, BM-derived cells may function as progenitors of CNS cells in adult animals. Most transgene-expressing cells also expressed NeuN, a marker of mature neurons. However, it remained to be determined by what mechanism the cells from the bone marrow come to be neurons. Although the observed gradual increase in transgene-expressing neurons over 16 months suggested that the pathway involved differentiation of BM-resident cells into neurons, we could not rule out cell fusion as the principal route.

Methods: We tested here whether BM-derived progenitor cells migrating in the CNS could express markers of neuronal precursors or immature neurons. SV40-derived gene delivery vectors, carrying marker epitopes (FLAG or AU1), were injected directly into the femoral bone of rats or rabbits. Controls animals received intra-marrow a control vector, SV(BUGT).

Results: Transgene-positive cells were found in the dentate gyrus (DG) 16 months after intra-marrow injection of SV(RevM10.AU1) or SV(Nef-FLAG). In addition to cells expressing markers of mature neurons, transgene-positive cells were also positive for nestin and doublecortin, molecules expressed by developing neuronal cells. Over 90% of neuron precursors and immature neurons were transgene-positive. These cells were actively proliferating, as shown by short-term BrdU incorporation studies.

Conclusion: These results suggest that BM-derived, transgene-expressing cells can migrate to the brain and that they become neurons, at least in part, by differentiating into neuron precursors and subsequently developing into mature neurons.

(P – 39)

Newly generated neurons in the injured striatum can originate from the bone marrow

D Dennie[1], DS Strayer[2], JP Louboutin[1, 2]

[1]Department of Basic Medical Sciences, Section of Anatomy, The University of the West Indies, Kingston 7, Jamaica and [2]Department of Anatomy, Pathology and Cell Biology, Thomas Jefferson University, Philadelphia, Pennsylvania, United States of America

Objective: To investigate the contribution of bone marrow (BM) stem cells to generate new neurons in the striatum. There are two main neurogenic regions in the normal adult central nervous system (CNS) under physiological conditions: the subventricular zone (SVZ) of the lateral ventricle (LV) and the dentate gyrus of the hippocampus. In these regions, neural stem cells generate dividing neural progenitor cells (NPCs). However, in the injured brain, young, newly generated neurons appear in the damaged area, where neurogenesis does not occur under normal conditions. For example, stroke induces neurogenesis in the SVZ and the migration of NPCs into the injured striatum. Several recent studies indicate the contribution of BM-derived cells to adult neurogenesis.

Methods: Using BM-directed gene transfer and permanent transduction *via* recombinant SV40-derived vectors, we previously reported that in physiologic conditions without any injury, BM-derived cells may be progenitors of CNS cells, such as hippocampal neurons in normal adult animals. Following injection of envelope glycoprotein 120 of HIV-1 in the rat striatum, we observed proliferation of newly generated neurons in the injured area. To investigate the origin of the new striatal neurons, we used BM-directed gene transfer and permanent transduction *via* SV40-derived gene delivery vector, carrying a marker epitope (FLAG).

Results: Forty-eight weeks after intra-marrow injection of the vector, SV (Nef-FLAG), transgene expression was examined in the striatum. FLAG-expressing cells were observed in the striatum of vector-injected animals. No FLAG-positive cells were seen after intra-marrow injection of SV (BUGT), a control vector.

Conclusion: These results show that new neurons can be formed in the striatum after injury of this region and that some of them can originate from the BM.

(P – 40)

Gene transfer of antioxidant enzymes inhibits HIV-1 envelope glycoprotein gp120-induced cortical loss

CC Walker[1], DS Strayer[2], JP Louboutin[2, 3]

[1]School of Nursing, The University of the West Indies, Kingston 7, Jamaica, [2]Department of Anatomy, Pathology and Cell Biology, Thomas Jefferson University, Philadelphia, Pennsylvania, United States of America and [3]Department of Basic Medical Sciences, Section of Anatomy, The University of the West Indies, Kingston 7, Jamaica

Objective: To establish that gene transfer of antioxidant enzymes can mitigate cortical loss due to HIV-1 gp120 envelope glycoprotein. Human immunodeficiency virus-1 (HIV-1) can induce a neurological disease named HIV-1-associated neurocognitive disorder (HAND), which can lead to dementia in the most severe cases. As survival with chronic HIV-1 infection improves, the number of people harbouring the virus in their central nervous system (CNS) increases. The prevalence of HAND therefore continues to rise. It is also becoming clear that the brain is an important reservoir for the virus, and neurodegenerative and neuroinflammatory changes may continue despite the use of highly active antiretroviral therapeutic drugs (HAART).

Methods: Because HIV-1 envelope (Env) gp120 elicits oxidant stress and apoptosis in cultured neurons, we previously established reproducible parameters of Env-mediated

neurotoxicity *in vivo* by injecting recombinant gp120 stereotaxically into rat caudate-putamens (CP) and assayed brains for apoptosis. Neuronal loss was also observed in the injected area. We studied here if gp120 could induce neuronal loss in the cortex at distance from the injection site.

Results: Gp120 was immunolocalized in cortical neurons four and seven days after injection of gp120 in the CP. Loss of cortical neurons was observed from seven (12% of neuron loss) to 28 days (20%) in the motor and somatosensory cortical regions. Finally, recombinant SV40 vectors carrying antioxidant enzymes Cu/Zn superoxide dismutase (SOD1) or glutathione peroxidase (GPx1) were injected into the CP, where gp120 was administered four weeks later. Intracerebral injection of SV (SOD1) or SV (GPx1) significantly protected neurons from gp120-induced cortical loss.

Conclusion: HIV-1 gp120 can induce cortical loss, probably by retrograde degeneration, and intracerebral injection of rSV40 vectors carrying antioxidant enzymes can inhibit cortical damage. These findings suggest the potential utility of gene delivery in treating HAND and other CNS diseases characterized by excessive oxidative stress.

(P – 41)

Animal models of tropical spastic paraparesis/HTLV-1-associated myelopathy: a review

S Fearon[1], TN Edwards[2], Y White[3], JP Louboutin[1]
[1]Department of Basic Medical Sciences, Section of Anatomy, The University of the West Indies, [2]Faculty of Medical Sciences, The University of the West Indies, Kingston 7, Jamaica and [2]Department of Medicine, University Hospital of the West Indies, Kingston 7, Jamaica

Objective: To summarize the data available concerning the animal models of tropical spastic paraparesis/HTLV-1-associated myelopathy (TSP/HAM). Human T-lymphotropic virus Type 1 (HTLV-1) is the aetiological agent of adult T-cell leukaemia/lymphoma (ATL) and TSP/HAM. Adult T-cell leukaemia/lymphoma is an aggressive malignancy of mature activated $CD4^+$ T cells, characterized by frequent visceral involvement and opportunistic infections secondary to T cell immunosuppression. Tropical spastic paraparesis/HTLV-1-associated myelopathy is a slowly progressive neurodegenerative disorder in which lesions in the central nervous system cause progressive weakness, stiffness and a lower limb spastic paraparesis. Endemic areas include Japan, the Caribbean, inter-tropical Africa, Brazil, Eastern Europe and the Middle East.

Methods: We reviewed the available data concerning the animal models of TSP/HAM and proposed pathophysiological pathways.

Results: A number of various animal models (transgenic mice, humanized mice models, xenografts of HTLV-1 transformed or ATL cells in immunocompromised mice strains) have been developed for ATL, but fewer models are available for TSP/HAM. None of these mice models fully recapitulate ATL, but many have been useful to provide evidence that Tax is an oncoprotein of HTLV-1 and to investigate Tax-mediated disruption of lymphocyte function. Besides presenting tumours, tax transgenic mice more rarely present degeneration of oxidative muscle fibres or symmetrical paraparesis of the hind limbs. Inoculation of rats with HTLV-1-infected cells induced spastic paraparesis in 10% of cases. Apoptosis of the spinal oligodendrocytes is linked to HAM in rats. Cells of microglia/macrophage lineage may be one of viral reservoirs in the spinal cords in HAM rat disease. The failure of spinal cord neurons to produce interferon (IFN)-gamma through the interleukin (IL)-12 pathway might be involved in the development of HAM rat disease.

Conclusion: There is a need for the development of new animal models of TSP/HAM.

(P – 42)

Cervical arthroplasty, a new dynamic motion sparing spinal procedure for cervical degenerative disc disease at The University of the West Indies, Mona

C Bruce, D Rowe, M Morgan, P Lawrence, H Harding
Department of Surgery, Radiology, Anaesthesia and Intensive Care,
The University of the West Indies, Kingston 7, Jamaica

Objective: Cervical arthoplasty may confer a statistically significant advantage over the anterior cervical decompression and fusion (ACDF) operation. This is likely due to the immaturity of long-term results presently despite the soundness of biomechanical models.

Methods: A pilot study of cervical arthroplasty was performed in patients where a cervical decompression was indicated. These patients were eligible for this study with a mean follow-up time thus far of three months. Flexion/extension and neutral cervical roenterograms were obtained in the immediate postoperative period and at regular intervals. Additionally, serial clinical assessment for pain and radiculopathy, range of motion (ROM) and quality of life were done.

Results: Eight patients had 12 artificial disc replacements. Six of the patients were male and the mean age was 40 years. Fifty per cent of patients had a myelopathy and the others a radiculopathy. The most common implant was the 7 mm in eight cases, with three patients having 6 mm and a single 5 mm implant. The arthroplasty group had no evidence of implant failure or extrusion. All implants showed evidence of dynamic motion during follow-up.

Conclusion: This pilot programme of artificial disc replacement from the advanced spine programme at the Department of Surgery, Radiology, Anaesthesia and Inten-

sive Care, The University of the West Indies, Mona, is the first of its kind in the Caribbean. The initial results show the procedure to be equivalent or better when compared to the more traditional fusion.

(P – 43)

Cost analysis of screening for gestational diabetes mellitus at the University Hospital of the West Indies

C Daley, C Rattray, A Abdullahi
University Hospital of the West Indies and Department of Obstetrics and Gynaecology,
The University of the West Indies, Kingston 7, Jamaica

Objectives: (1) To determine the prevalence of gestational diabetes mellitus (GDM) at the University Hospital of the West Indies (UHWI) and (2) to develop a model for determining the cost of methods used to diagnose GDM at the UHWI
Method: This was a cross-sectional study. A decision analytic model was built to compare routine O'Sullivan's screening with the two-hour 75 g oral glucose tolerance test (OGTT).
Results: If a policy of universal testing with OGTT were to be implemented according to the one-step module, the expected cost to each patient would be JA$3504.30. However, among patients who are diagnosed with GDM, there would be a 26% reduction in expected cost, from JA$7336 to JA$5423 if the one-step module were to be used when compared to the two-step. The incidence of GDM at The University of the West Indies from this study is 5.4%.
Conclusion: The expected weighted probability cost to each patient is less for the two-step method when compared to the one-step. The implementation of the one-step approach will lead to a 200% increase in costs.

(P – 44)

Intraoperative nerve monitoring improving patient safety in complex spine surgery at The University of the West Indies, Mona

C Bruce, D Rowe, M Morgan, M Condell, H Harding
Department of Surgery, Radiology, Anaesthesia and Intensive Care,
The University of the West Indies, Kingston 7, Jamaica

Objective: Intraoperative neurophysiologic monitoring is the utilization of various modalities to improve safety during complex spine surgery. It reveals the physiological integrity of the spinal cord and nerve roots and alerts the surgeon of any deterioration before irreversible injury has occurred
Methods: A pilot study of intraoperative nerve monitoring was conducted in all patients undergoing surgery on the senior author's team at the University Hospital of the West Indies (UHWI). Comparisons were made with similar patients who underwent surgery during the same time period. The modalities used were somatosensory evoked potentials (SSEPs), electromyography (EMG) and motor evoked potentials (MEPs)
Results: One hundred and twenty consecutive cases presenting to UHWI for spine surgery from February 2013 to July 28, 2014 were eligible for evaluation. Fifty-four per cent were female; age range was 4–87 years with a mean age of 51.3 years. The common spinal disorders treated were degenerative 71%, neoplastic 11% and developmental 11%. All patients having a complex spine surgery in the advanced spine programme had intraoperative nerve monitoring and were included in this study. In 17% of cases, an event was noted which required the surgeon to make an assessment and a decision.
Conclusion: The introduction of intraoperative nerve monitoring at the Department of Surgery, Radiology, Anaesthesia and Intensive Care at The University of the West Indies, Mona, is the first of its kind in the English-speaking Caribbean. The initial results show monitoring to be an indispensable tool for the safe performance of complex and basic spinal surgery. It has an added cost but the benefits derived from complication avoidance outweigh the cost and risk of not offering patients this modality.

(P – 45)

The high percentage of positive computed tomography pulmonary angiograms at the University Hospital of the West Indies

W West[1], D Brady-West[2]
[1]Department of Surgery, Radiology, Anaesthesia and Intensive Care and [2]Department of Pathology, The University of the West Indies, Kingston 7, Jamaica

Objective: A review of the literature indicates that between seven and 31% of computed tomography pulmonary angiograms (CTPAs) performed to confirm a clinical diagnosis of pulmonary embolism are positive. This study was undertaken 1) to determine the percentage of CTPAs performed at the University Hospital of the West Indies (UHWI) which were positive for a clinical diagnosis of pulmonary embolism, 2) to compare the rate at the UHWI to that reported in the literature and 3) to compare the rates of positive CTPAs between the genders.
Method: Data were obtained from the databases of the Radiology Department of the University Hospital of the West Indies. All CTPAs performed to confirm a clinical diagnosis of pulmonary embolism and the results issued during the period January 1, 2013 to December 31, 2013 were reviewed. Only initial examinations were included in the study. Follow-up examinations and examinations which were not of diagnostic quality were excluded.

Results: Three hundred and thirteen examinations were performed for initial diagnosis of pulmonary embolism. Sixteen examinations were excluded because they were inadequate for diagnosis. Two hundred and ninety-seven examinations on 223 females and 74 males were included in the study. The mean age was 49.7 years for females and 55.1 years for males; the difference in the means was significant ($p < 0.05$). Ninety-four examinations (31.6%) on 22 males (7.4%, mean age 58.4 years) and 72 females (24.2%, mean age 57.5 years) were positive for pulmonary embolism. The difference in the means was not significant ($p = 0.8$). On Chi-squared test, there was no significant difference in the percentage of positive CTPAs between males and females ($p = 0.7$)
Conclusions: The percentage of positive CTPAs at the UHWI is high. There was no significant difference between the genders in the percentage of positive CTPAs or the mean age at which pulmonary emboli are detected.

(P – 46)
Investigation of the effects of *Moringa oleifera* seeds on serum cholesterol concentration in rats

K Knight, P Thomas, M McKoy
Department of Basic Medical Sciences, Section of Pharmacology,
The University of the West Indies, Kingston 7, Jamaica

Objective: To investigate effects of *Moringa oleifera* (moringa) seeds on serum lipid concentrations in rats fed standard chow or high cholesterol diet.
Method: Twenty adult male Sprague-Dawley rats were divided into five equal groups and fed standard rat chow (control), standard rat chow + 1% moringa seed powder, 4% cholesterol diet alone, or 4% cholesterol diet + 0.5% or 1% moringa seed powder for 12 weeks. Moringa seeds and rat chow were crushed and mixed with cholesterol powder as required. Serum lipid concentrations were measured at weeks zero, six and 12 and fecal cholesterol concentration was measured at week 12. Liver and kidney functions were evaluated by biochemical assessment of relevant parameters including aspartate transaminase, alanine transaminase, creatinine and urea.
Results: Serum total cholesterol and low density lipoprotein concentrations were significantly elevated ($p < 0.01$) in rats fed the cholesterol diet alone or with moringa seed powder (0.5% or 1%) in comparison to rats fed standard rat chow. Fecal cholesterol concentration was significantly higher ($p < 0.05$) in rats fed the cholesterol diet alone as compared to the control group. Moringa did not have a significant effect on serum and fecal cholesterol concentrations in rats fed normal chow. There was no significant difference in concentrations of liver and kidney parameters among the groups.
Conclusion: Moringa seed powder inhibited the fecal elimination of dietary cholesterol and increased serum cholesterol concentration in rats fed a high cholesterol diet. Administration of moringa seed for 12 weeks did not impair liver or kidney function.

(P – 47)
Obesity is associated with significantly increased risk of lumbar degenerative disc disease on magnetic resonance imaging

W West
Department of Surgery, Radiology, Anaesthesia and Intensive Care, The University of the West Indies, Kingston 7, Jamaica

Objective: To determine the statistical association between obesity – defined as body mass index (BMI) equal to or greater than 30 kg/m^2 – and the presence of degenerative disc disease in the lumbar spine (LDDD) on magnetic resonance imaging (MRI) of patients imaged at the University Hospital of the West Indies (UHWI).
Method: This is a case-control study. Data were obtained from the examination and report databases of the Radiology Department of the UHWI. All patients who had MRI of the lumbar spine during the period January 1, 2009 to March 31, 2009, were reviewed. The presence of degenerate discs was obtained from the patients' reports. Body mass index was obtained by standard technique immediately before the examinations. Data were analysed using *t*-test for means, odds ratio, McNemar test, Chi-squared test and backward stepwise regression.
Results: One hundred and eight patients, 72 females and 36 males, were examined. The means for age were 45.6 years and 44.9 years, respectively; the difference in the means was not significant ($p = 0.8$). Twenty-nine patients, 19 females and 10 males, had negative examinations. Seventy-nine patients, 53 females and 26 males, had positive examinations. For patients with negative examinations, the means for age and BMI were 36.6 years and 24.9 kg/m^2, respectively. For patients with positive examinations, the means were 48.6 years and 28.4 kg/m^2. The differences in the means were significant. The odds ratio for LDDD in obese patients was 7.83. Chi-squared and McNemar test were significant, $p < 0.05$ and $p < 0.001$, respectively. On backward stepwise regression, age and obesity but not gender were significantly associated with LDDD.
Conclusions: In the population studied, patients who were obese had significantly higher risk of lumbar degenerative disc disease than those who were not obese.

(P – 48)

Saquinavir enhances the cytotoxic profile of cisplatin in platinum-resistant ovarian cancer cells

T Waite[1], A Levy[1], S Dhandayuthapani[2], A Rathinavelu[2]
[1]Department of Basic Medical Sciences, Section of Pharmacology, The University of the West Indies, Kingston 7, Jamaica and [2]Rumbaugh Goodwin Institute, Nova South Eastern University, Florida, United States of America

Objective: Ovarian cancer, the 10th most common cancer affecting women worldwide and 8th most common in Jamaica, is associated with a poor prognosis. This is primarily attributable to the development of resistance to platinum and taxane agents which are the standard frontline chemotherapeutic drugs. The objective of the present study was therefore to evaluate the ability of saquinavir (SAQ) to enhance paclitaxel or cisplatin cytotoxicity in platinum-resistant ovarian cancer cells.
Method: OVCAR-3, a platinum-resistant cell line, was treated with varying concentrations of SAQ only (20 μM, 40 μM, 60 μM and 100 μM) and combinations of SAQ (100 μM)+cisplatin (26 μM), SAQ (100 μM)+paclitaxel (1.5 nM) and cisplatin+paclitaxel over a 24-hour period in triplicate. Control cells were treated with media only. The cytotoxic effect of each treatment was determined using the automated trypan blue exclusion protocol and DNA fragmentation assay was performed to evaluate the mechanisms of induced cell death.
Results: A dose-dependent and statistically significant ($p < 0.05$) cytotoxic effect was seen with SAQ treatment in OVCAR-3 cells when compared with controls and an IC_{50} value of 82 μM was determined. Additionally, the SAQ+ cisplatin combination showed a significantly higher cytotoxic effect ($p = 0.041$) when compared to cisplatin+paclitaxel treated cells. Cell death by apoptosis was confirmed from observed fragmented DNA in all treatment groups.
Conclusion: Saquinavir significantly increases the cytotoxic profile of cisplatin in platinum-resistant ovarian cancer cells when compared to the standard cisplatin+paclitaxel combination. These data support a potential role for saquinavir in the treatment of platinum-resistant ovarian cancer.

(P – 49)

Ocular conditions and co-morbid chronic diseases at an ophthalmology clinic in St Andrew, Jamaica

C Golding[1], D Dietrich[1], K James[2], M McKoy[1]
[1]Department of Basic Medical Sciences, Section of Pharmacology and [2]Department of Community Health and Psychiatry, The University of the West Indies, Kingston 7, Jamaica

Objectives: To determine the relative frequency of reported ocular conditions, co-morbidities and commonly prescribed drugs at the FISH Eye Clinic in St Andrew.
Method: A descriptive, cross-sectional study was conducted in relation to patients that attended the FISH Eye Clinic at Gordon Town Road, St Andrew, between January and March 2013. The ocular status and relevant medical history were extracted from patient records. Ethical approval was obtained from the University Hospital of the West Indies/University of the West Indies/Faculty of Medical Sciences Ethics Committee.
Results: Over 1200 patients (67% females, 33% males) attended the clinic within the period. Refractive errors (58%), cataract (47%) and glaucoma (38%) were the most frequently reported conditions. There was significant correlation ($p < 0.01$) between ages 60 years or older and diagnosis of glaucoma or cataract. Several patients had co-existing ocular conditions; the most commonly reported pairs were refractive error with cataract and glaucoma with cataract. The paired conditions were significantly correlated ($p < 0.02$). There was significant association ($p < 0.05$) between cataract and history of hypertension or diabetes and between glaucoma and history of hypertension. Beta-antagonists, prostaglandin analogues and alpha-agonists were the most frequently prescribed anti-glaucoma agents. The most common combination therapy for glaucoma was beta-antagonist with carbonic anhydrase inhibitor.
Conclusion: Cataract and glaucoma, conditions known to considerably impact quality of life, were frequently reported. The relatively high frequencies argue for interventions to reduce the associated burden of disease. There was significant association between chronic ocular conditions and history of hypertension or diabetes. Glaucoma was most often treated with beta-antagonists or prostaglandin analogues.

(P – 50)

Determining body weight change in patients treated for hyperthyroidism

R Lowe-Jones, M Boyne
The University of the West Indies, Kingston 7, Jamaica, West Indies

Objectives: Weight gain is frequent in treated hyperthyroid patients, of which may result in a post-treatment weight that is greater than their pre-disease weight. The magnitude of this weight change will be assessed against treatment modality and multiple other variables in adults over 18 years with a diagnosis of hyperthyroidism at the University Hospital of the West Indies.
Methods: A retrospective study design was used to determine the post-treatment weight change over an eight-year period in 119 patients by using a data extraction form. The data were analysed using pooled independent sample two-

tailed *t*-test, which assumed equal variances between group means. Average follow-up was greater than one year.
Results: The majority of participants were female (84%, n = 119), while males were 16% (n = 119). Most (24%, n = 119) were between the ages of 34 and 41 years, with the mean age being 43 years. The mean weight at first visit for females was 69 kg and males 66.8 kg. Differences in post-treatment weight was observed between the genders, but only a significant mean weight increase was found in males during seven to nine months and 10–12 months of 5.2 kg and 7.6 kg, respectively. There were significant weight changes in patients who smoked as well as never smoked in the first three months of the study. The majority (71%, n = 119) of the patients had a diagnosis of Grave's disease. No particular hyperthyroid treatment type had any effect on post-treatment weight. After treatment, blood pressure remained consistently within normal range (mean average 131/79 mmHg) which demonstrated that blood pressure is not affected in the post-treatment period, irrespective of patients taking anti-hypertensives.
Conclusion: There are modifiable and non-modifiable factors that will affect a hyperthyroid patient's post-treatment weight.

(P – 51)
Adipocytic contribution to lactate production in male Jamaican athletes

A Facey[1], L Dilworth[2], R Irving[1]
[1]Department of Basic Medical Sciences and [2]Department of Pathology,
The University of the West Indies, Kingston 7, Jamaica

Background: Lactate production is influenced by adiposity and is of particular importance to sprint and middle distance athletes as the accumulation of lactate is associated with muscular fatigue and cellular acidosis.
Objective: To show how the biochemical and physiological parameters influencing lactate production can influence its circadian rhythm in athletes and could be utilized to improve physical performance.
Method: Thirty-five individuals, inclusive of nineteen well-trained athletes and sixteen body mass index- and age-matched, relatively sedentary controls, were all fasted and rested overnight. An initial blood test for basal lactate test was done for each participant followed by body fat assessment using ultrasound technology and the Harpenden skinfold caliper. Participants then engaged in an intense bout of exercise followed by a post-exercise basal lactate test.
Results: The study showed that body fat was significantly associated with pre-exercise basal lactate in athletes, with a correlated significance of $p = 0.005$. An association of body fat with pre-exercise basal lactate was also seen in the sedentary controls, however, the correlation was not as significant ($p = 0.026$). A more specific measure of body fat using the BodyMetrix analyser as compared to the Harpenden caliper gave a more precise association of pre-exercise basal lactate to adiposity. In athletes, a 17% increase in body fat resulted in an additional 2 mmol/L of basal lactate while a 15% increase in body fat resulted in an additional 1.5 mmol/L of basal lactate in non-athletes. There was, however, no significant association between adiposity and lactate concentration post-exercise.
Conclusion: Body fat has a significant impact on pre-exercise basal lactate level and as such may affect an athlete's cellular metabolic status going into competition.

(P – 52)
Assessing performance characteristics of the PedsQL™-SCD and IPQ-R scales in Jamaican adolescents with sickle cell disease

M Parshad-Asnani, A Barton-Gooden, M Grindley, JM Knight-Madden
Tropical Medicine Research Institute, Sickle Cell Unit, The University of the West Indies, Kingston 7, Jamaica

Objectives: Quality of life (QOL) and illness perceptions are important considerations when managing adolescents with sickle cell disease (SCD). This study aims to assess the psychometric properties of the SCD-specific Paediatric Quality of Life (PedsQL™-SCD) and the Revised Illness Perception (IPQ-R) questionnaires in Jamaican adolescents with SCD.
Methods: A sample of Jamaican adolescents (M: 74, F: 76; mean age 16.1 ± 1.9 years, range: 13–19 years) completed the IPQ-R, PedsQL-SCD (teen and parent forms) and a knowledge questionnaire. Sociodemographic and clinical data were also collected and the latter were used to create a severity index. Instrument structure, feasibility, reliability and construct validity were assessed.
Results: The Cronbach's alpha for the 24-item knowledge questionnaire was 0.85; IPQ-R domains from 0.56–0.79 (except 'treatment control: 0.34); PedsQL teen-form domains from 0.70 to 0.93; and PedsQL parent-form domains from 0.72 to 0.95. Factor analysis of causal items on IPQ-R yielded a three-factor structure (variance: 52.1%); PedsQL teen scale yielded a three-factor model (variance: 89.0%) and PedsQL parent scale also yielded a three-factor model (variance: 96.5%). The overall teen QOL scores had significant negative correlations with the severity score (r: -0.45, p-value < 0.001); IPQ Identity domain (r: -0.40, p-value < 0.001); IPQ Consequences domain (r: -0.36, p-value < 0.001); and IPQ Cyclical timeline domain (r: -0.31, p-value < 0.001). The severity index also had significant correlation with the QOL parent-form (r: -0.45, p-value < 0.001) and IPQ Consequences domain (r: 0.35, p-value < 0.001).

Conclusions: Both instruments had robust psychometric properties and continuing longitudinal study will provide further assessment such as responsiveness of both instruments.

(P – 53)

Presence of oedema in the lumbar subcutaneous fat of adults with no history of cardiac, renal or hepatic disease on routine magnetic resonance imaging is significantly associated with obesity

W West[1], K West[2]
[1]Department of Surgery, Radiology, Anaesthesia and Intensive Care, The University of the West Indies, Kingston 7, Jamaica and [2]University of Roehampton, Whitelands College, London, England

Objective: Oedema has been observed in the lumbar subcutaneous fat on routine magnetic resonance imaging (MRI) of the lumbar spine but our search of the literature revealed only a single study on this finding. This study was undertaken to investigate the association between oedema in the subcutaneous fat of the lumbar region during routine MRI and age, gender and body mass index (BMI) in adults with no history of cardiac, renal or hepatic disease.
Method: Examinations performed between October 1 and December 31, 2010, were reviewed. Patients with history of cardiac, renal and hepatic disease or recent trauma were excluded. One hundred and sixty-nine examinations were performed, 20 were excluded. One hundred and forty-nine examinations on 95 females and 54 males 18 years and older were included. Presence and extent of oedema were determined. Oedema was sized on the anatomical segments. Data were analysed using *t*-tests for means, odds ratio, Chi-squared test, McNemar test, linear and backward stepwise multiple regression and analysis of variance (ANOVA).
Results: Males were marginally less likely to have oedema ($p = 0.056$) and had marginally less oedema ($p = 0.056$) than females. Patients with oedema had significantly higher BMI (30.3 kg/m^2 *vs* 24.9 kg/m^2, $p < 0.001$), and were older (49.9 years *vs* 43.9 years, $p = 0.01$) than those without oedema. The odds ratio was 8.6. The Chi-square and McNemar tests were significant, $p = 0$ and $p < 0.001$, respectively. Body mass index and age predicted oedema on backward stepwise regression and on ANOVA at 23.6% and 4.7%, respectively.
Conclusions: Body mass index and age predict oedema. Body mass index predicts oedema almost five times as much as age.

(P – 54)

To determine the factors that affect time to presentation in persons with symptoms suggestive of an acute myocardial infarction

C Angus, J Williams-Johnson, N Hart, R Edwards, C Walters
The University of the West Indies, Kingston 7, Jamaica

Objective: Life saving measures in the management of acute myocardial infarction (AMI) involve the prompt initiation of reperfusion therapy. Several studies have looked at factors contributing to pre-hospital delay in patients with such an event. Although these studies have been well documented worldwide, little is known about the factors that determine this in the Jamaican population.
Method: This was a cross-sectional based study at the Emergency Department at the University Hospital of the West Indies, Kingston, Jamaica. One hundred and fifty persons who presented with symptoms suggestive of an AMI and were later diagnosed as such were included.
Results: Among the 150 patients, 52% of patients presented to the hospital 12 hours or later and 48% of patients presented earlier than 12 hours. A significant predictor of earlier presentation (odds ratio; %CI) was fear of possible diagnosis (0.50; 0.25, 0.99). Although not statistically significant, another factor associated with early presentation was persons with medical insurance (0.41; 0.19, 0.87). None of the factors associated with delayed presentation 12 hours or later was found to be statistically significant, but were still deemed to be clinical important. These included elderly patients (1.03; 1.01, 1.06), patients with prior stroke (1.88; 0.76, 4.66) and patients with heart failure (1.82; 0.76, 4.37).
Conclusion: Patients who have a myocardial infarction often delay in presenting to the hospital. This is a problem that many hospitals face globally and several factors have been found to be common among them. Educational programmes targeting the study population and new strategies for easier access to healthcare facilities may be implemented so as to decrease pre-hospital times.

(P – 55)

Chemical composition of urinary tract calculi assessed in a teaching hospital

L Dilworth, M Tapper, D McGrowder, R Thompson
Department of Pathology, The University of the West Indies, Kingston 7, Jamaica

Objectives: This study sought to determine the chemical composition of the inorganic minerals, which constitute the uroliths, at the University Hospital of the West Indies over a four-year period.

Methods: The study was conducted on 288 urinary tract stones from patients of either gender received at the chemical pathology laboratory. Qualitative chemical analysis of the stones for calcium, magnesium, phosphate, oxalate, uric acid, cystine and bicarbonate was performed as described by Wotton. Data analysis was carried out using SPSS 11.
Results: The incidence of males and females was 1.4:1. Calcium, the main constituent, was present in 96.2% of the stones, followed by phosphate 67.7%, oxalate 56.3%, magnesium 28.2% and uric acid 17.3%. Mixed uric acid was present in 16.3% and urinary stones containing bicarbonate accounted for 11.8%. There was one cystine stone.
Conclusions: Males are more likely to present with urolithiasis. The study revealed that a relatively high proportion of the urinary tract stones consisted of both pure and mixed calcium phosphate, followed by calcium oxalate and uric acid. More detailed and accurate information on both the composition and structure of the urinary tract stones should be made using solid state nuclear magnetic resonance spectroscopy or X-ray diffraction crystallography. The tropical climate in Jamaica, especially in the summer, can contribute to dehydration with reduced urinary output, and with a diet rich in purines and other factors such as persistently low urine pH, there is increased probability of uric acid stones being formed.

(P – 56)

Vitamin B6 and focal adhesion kinase inhibitor Y15 enhances the cytotoxic effects of cisplatin+paclitaxel in platinum-resistant ovarian cancer cells

M Reboe[1], A Levy[1], S Dhandayuthapani[2], A Rathinavelu[2]
[1]Department of Basic Medical Sciences, Section of Pharmacology, The University of the West Indies, Kingston 7, Jamaica and [2]Rumbaugh Goodwin Institute, Nova South Eastern University, Florida, United States of America

Objectives: High drug resistance associated with first-line agents cisplatin and paclitaxel has complicated the treatment of ovarian cancer. This resistance has been linked to overexpression of the tyrosine kinase focal adhesion kinase (FAK). Recently, a therapeutic platform for vitamin B6 was established in cancers and on this basis the present study assessed the cytotoxic effects of the FAK inhibitor Y15 and B6 in combination with cisplatin and paclitaxel in a platinum-resistant ovarian cancer cell line.
Methods: OVCAR-3 cells, a platinum-resistant line, were treated with varying concentrations of Y15 (10 μM, 15 μM, 30 μM, 100 μM), B6 (0.25 mM, 1 mM, 2 mM) only and combinations of Y15+cisplatin+paclitaxel, B6+cisplatin+paclitaxel and cisplatin+paclitaxel over a 24-hour period in triplicate. Control cells were treated with media only. The cytotoxic effect of each treatment was determined using the automated trypan blue exclusion protocol and DNA fragmentation assay was performed to evaluate the mechanism of induced cell death.
Results: Dose dependent and statistically significant cytotoxic effects were seen with Y15 and B6 when compared to controls with IC_{50} values of 100 μM ($p < 0.05$) and 2 mM (31% cell death; $p < 0.05$), respectively. For combination treatments, both Y15 and B6 significantly (40% and 23.8%) increased the percentage cell death when combined with cisplatin+paclitaxel only. Cell death by apoptosis was confirmed from observed fragmented DNA in Y15 and B6 positive treatment groups.
Conclusions: Vitamin B6 and Y15 significantly enhance the cytotoxic activity of cisplatin and paclitaxel in platinum-resistant ovarian cancer cells.