

8th Annual Research Day: 18–19th September 2014

Hypertension: Better Prevention and Treatment in The Bahamas

Early Life Determinants of Hypertension: Opportunities for Primary and Primordial Prevention

TS Ferguson

High blood pressure is now the greatest single risk factor for disease globally, accounting for some nine million deaths and 7% of disability adjusted life years in 2010. Studies have shown that blood pressure in childhood tracks into adult life, so that levels in the upper end of the blood pressure distribution in childhood, or adolescence, predict the development of hypertension in adulthood. Over the last two decades, a large body of research has documented a relationship between early life factors and the development of chronic diseases, including hypertension, in later life. A number of studies from Jamaica have explored these relationships and have found that low birthweight and small placental size are associated with higher blood pressure in children and young adults. Additionally, some studies have also found a relationship between poorer maternal socio-economic position and higher blood pressure. This body of research suggests that opportunities for prevention of hypertension may begin as early as in the intrauterine period, and even in the preconception period through measures targeting improved socio-economic circumstances and nutrition among women of child bearing age. Further research exploring the mechanism involved and potential intervention strategies will prove illuminating.

The Prevalence of Raised Blood Pressure and Self-Reported Hypertension in, The Bahamas: Findings from the STEPS Survey, 2012

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Objectives: To determine the prevalence of raised blood pressure and hypertension in The Bahamas.

Design and Methods: Findings were used from the 2012 Bahamas STEPS survey, a population-based stratified multi-stage cluster sample of adults 25 to 64 years old. To measure self-reported hypertension, respondents were asked whether they were told by a doctor or health-worker that they had raised blood pressure or hypertension. Blood pressure measurements were also taken on a sub-sample of respondents to determine raised blood pressure.

Results: Among all respondents (n = 1632), 26.6% were told that they had hypertension; 6.8% were diagnosed by a health-worker before the past 12 months with raised blood pressure or hypertension (95% CI 4.2, 9.3; 5.7% males, 7.8% females) and 19.8% were diagnosed within the past 12 months (CI 14.6, 25.1; 16.5% males, 23.2% females). Of those measured by interviewers, the mean systolic blood pressure for this group, along with those currently on medication for raised blood pressure was 127.4 (CI 122.3, 132.6; 129.3 males, 125.6 females). The mean diastolic pressure was 81.6 (CI 80.1, 83.1; 82.7 males, 80.5 females). Further, of this combined group, 34% had raised blood pressure or were currently on medication for raised blood pressure (CI 29.2, 39.5; 35.9% males, 32.8% females).

The percentage of persons with raised blood pressure and not currently on medication was 23.9% (CI 16.5, 31.4; 28.3% males, 19.4% females).

Conclusion: It appears that approximately one out of three adults in The Bahamas has raised blood pressure or hypertension. Further, a sizeable proportion may have raised blood pressure/hypertension and have never been measured by a health practitioner. More detailed analyses by risk factors and demographics are warranted. Ongoing interventions and screenings by government and non-government agencies should be continued, with more targeted monitoring and education for persons at risk.

Hypertension in University Students – Burden and Risks in Barbados

A Samuels

Global mortality is dominated by chronic non-communicable diseases, and hypertension is the number one risk factor for death in the world and a direct contributor to the leading causes of death globally, ischaemic heart disease and cerebrovascular accident. The Caribbean has the worse non-communicable disease (NCD) epidemic in the region of the Americas, costing up to 3% of gross domestic product (GDP) and causing 20% of all deaths.

Hypertension prevalence in recent national studies among adults 25 – 64 years: Barbados 40.6% (2013); St

Kitts, 34.5% (2007); Dominica 32.1% (2007); Trinidad and Tobago 26.3% (2011, 15–65 years). High rates of hypertension have also been found among University students.

Modifiable risk factors include excess salt in the diet, physical inactivity, obesity and alcohol consumption. Caribbean countries have high and increasing rates of these risk factors.

Response, Management and Recommendations with Hypertension*

A Samuels

CARICOM Heads of Government issued the historic Port-of-Spain Declaration in 2007, elevating NCD prevention and control. Their advocacy led to the UNHLM on NCDs, and the WHO has now issued nine targets and 25 indicators. Hypertension control is an integral part of this response.

However, challenges abound; undiagnosed disease, measurement, adherence to treatment guidelines and total risk approach. With treatment, considerations of the physician, patient and health system components of sub-optimal management of hypertension, leading to only 20% of hypertensives being treated to target. Recommendations include population-based strategies, lifestyle advice within supportive environments and clinical and policy interventions for those at highest risk.

* Abstract presented in 2007 and 2009

Determinants of Disclosure, Knowledge of Partner Serostatus, and Patterns of Sexual Behaviour among Adult HIV-Positive Patients Receiving Clinical Care in Nassau, The Bahamas

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Objective: To determine patterns of self-disclosure of HIV status to sexual partner, knowledge of partner serostatus and risky sexual practices among people living with HIV/AIDS (PLWHA) in light of statistically significant associations between these factors.

Design and Methods: A convenience sample of 407 PLWHA, aged 18 to 72 years, attending an Infectious Disease Specialty Clinic and the National HIV/AIDS Centre was surveyed.

Demographics, self-disclosure of HIV status, knowledge of partner's serostatus and high risk sexual practices were measured. Descriptive statistics summarized the sociodemographic correlates, and associations between disclosure and knowledge of partner serostatus and high risk behaviours.

Results: Data on 407 respondents were used in this analysis (M225, F181). Their mean age at HIV diagnosis was 33.48 (\pm 11.53) years and the median length of time since diagnosis was five to 10 years. Seventy-two per cent reported having a current sexual partner. Condom non-use at last sex was reported by 14.3%, sex under the influence

of alcohol, or other drugs by 13.3%, recent sex with multiple partners by 4.2%, recent transactional sex by 1.5% and sex with a commercial sex-worker by 4.2%. Among persons reporting sexual activity in the past six months, 56.7% reported disclosure to their partner, 52.2% indicated knowing their partner's HIV status and 61.7% claimed consistent condom use. Proportions reporting self-disclosure was 92.6% for cohabiting partners, 63.5% for regular partners and 15% for casual partners. Awareness of partner's serostatus was re-reported by 84.1% for cohabiting partners, 61.2% for regular partners and 12.4% for casual partners. Consistent condom use was claimed by 78.6% with casual partners, 57.5% with regular partners and 43.4% with cohabiting partners. Males reported disclosure, knowledge of partner's serostatus and consistent condom use in significantly greater proportions than females for participants in casual relationships ($p < 0.001$).

Among participants reporting disclosure to their current partner, 71.8% indicated also knowing their partner's serostatus and 51.3% reported consistent condom use. In addition, 68.2% who reported knowing the serostatus of their current partner also reported consistent condom use.

Conclusions: Determinants of self-disclosure revealed in this study were: male gender (casual partnerships), being in a cohabiting relationship and awareness of partner's HIV status.

Determinants of awareness of partner serostatus were: male gender (casual partnerships) and being in a cohabiting relationship. Significant improvements can be made in persons disclosing and becoming aware of their casual partner's serostatus and in consistency of condom use among cohabiting partners.

Acceptability of Neonatal Male Circumcision for HIV Prevention among Adults in The Bahamas

A Ferguson-Dyer

Objectives: To assess the knowledge of Bahamian parents of the reduction of HIV and sexually transmitted diseases through male circumcision, as well as parents' desire to have their newborn son circumcised and quantify any impact information on the procedure may have.

Design and Methods: A cross-sectional survey of parents enrolled by convenience sampling was carried out in public antenatal clinics and hospital antenatal and postnatal wards in Nassau, The Bahamas.

Results: Three hundred and fourteen mothers and 39 fathers participated including 87.8% Bahamians and 7.4% Haitians; 97.1% followed Christianity. 7.4% had at least one other circumcised male child and 25.7% of parents reported a circumcised father. Uncircumcised fathers were more likely to not have circumcised sons. Only 15.7% of participants were aware that male circumcision reduces a man's chance of getting HIV and 29.8% knew the procedure reduces sexually transmitted infections.

Among Haitians living in the Bahamas, 88.5% and 88.4% were unaware of male circumcision reducing HIV and STI acquisition, respectively. Having a circumcised father or other male child did not increase awareness but having higher levels of education did. About 55.6% of parents initially opted for neonatal male circumcision with increased likelihood among circumcised fathers, Bahamian and Jamaican nationals, those of African descent, those who completed secondary school education or higher and those believing male circumcision reduces HIV and sexually transmitted disease rates in males. Improved health, appearance and hygiene motivated participants more than cultural and religious relevance. Both mothers and fathers felt the decision on neonatal male circumcision should be unanimous. After reading the information pamphlet on neonatal male circumcision, acceptance rose to 68.0%. Those where the father or other male child was uncircumcised were more likely to change their mind after being informed.

Conclusion: Neonatal male circumcision can be considered by parents in The Bahamas to reduce the HIV and sexually transmitted disease burden. Although largely unaware of the benefits, parents should be given the option of the procedure through unbiased discussion with health-care providers.

Chlamydia and Gonorrhoea Infection Prevalence among Pregnant Teens, is it associated with Preterm Birth?

S Knowles

Introduction: There was an apparent rise in *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) infections and preterm birth among pregnant adolescents in The Bahamas. The increased maternal morbidity, perinatal morbidity and mortality and the escalated cost of caring for this group was of grave concern in a public funded obstetrical care programme. We therefore sought to determine the prevalence of *Chlamydia* and *gonorrhoea* among pregnant teenagers and its impact on preterm delivery.

Methods: After Ethics Committee approval, a chart review was done between September 2012 and January 2013. We included all patients between the ages of 13 and 18 years who attended the adolescent healthcare clinic or other government antenatal clinics. Those for whom antenatal records were not available were excluded, and this was also done for those with multiple gestation, antepartum haemorrhage or preterm birth due to an obstetric emergency. The patients' demographics, co-morbidities and antenatal data including GC and CT results were recorded. If positive, standard treatments were offered and the individuals were re-tested in three to four weeks. The data were analysed using the Statistical Package for the Social Sciences (IBM SPSS). Factors contributing to preterm labour in this population were also analysed.

Results: There were 195 clients involved. The mean ages was 17.36 (± 1.39) years. None smoked cigarettes or had a chronic medical illness or antepartum haemorrhage during their pregnancy course. Their mean gestational age at booking was 18.06 (± 7.44) weeks. In this study, 82.9% had no PTL while 17.1% had. The mean gestational age at PTL was 34.13 (± 2.27) weeks. The prevalence of PPROM was 2.05% and these ended in preterm labour. *Chlamydia* prevalence was 27.5% and gonorrhoea was 3.2%. There was a greater likelihood to be gonorrhoea positive if a participant was chlamydia positive (OR = 5.625, 95% CI: 1.00, 31.70).

Logistic regression with gonorrhoea as a predictor for PTL showed a statistically significant relationship (OR = 5.500; 95% CI: 1.056, 28.644; $p = 0.043$). This relationship was not confounded by the covariate such as *chlamydia* infection status and age.

Our study noted that adolescents who had more attendance to antenatal clinic were less likely to have preterm birth ($p = < 0.001$). In this study, bacterial vaginosis (BV) was found to be a statistically significantly independent risk factor for PTL (OR = 11.630; 95% CI: 2.742, 49.322; $p = 0.001$). Positive urine culture status was associated with occurrence of PTL; however this did not reach statistical significance.

Conclusions: The data suggest that preterm labour is a significant challenge among the adolescent population. Infection with GC and BV were independent significant factors associated with PTL.

Chlamydia trachomatis infection was not. UTI trended towards being a significant contribution to preterm labour in this group. These data need to be validated, using a larger study. Early antenatal care with prompt treatment of STIs seems to be an effective intervention as clients with higher numbers of antenatal visits were less likely to have preterm labour.

Response, Management and Recommendations with Hypertension*

A Samuels

Response, Management and Recommendations

The Caribbean has the highest prevalence of non-communicable diseases (NCDs) in the region of the Americas and hypertension causes approximately 20% of all deaths. CARICOM Heads of Government issued the historic Port-of-Spain Declaration in 2007, "Uniting to Stop the Epidemic of Chronic NCDs", elevating NCD prevention and control. Their advocacy led to the United Nations High Level Meeting (UNHLM) on NCDs in 2011, and the The World Health Organization (WHO) has now recommended nine targets and 25 indicators to monitor progress. Hypertension control is an integral part of this response.

Recommendations: There is a significant problem with inaccurate blood pressure measurement evidenced by rounding of blood pressure (BP) readings, with 70% BP readings ended in a “0” vs expected 10 or 20%. The World Health Organization recommends independently validated, accurate automated blood pressure measuring device which eliminates errors of interpretation, observer bias and terminal digit preference.

It recommends four specific products as being accurate and validated cost-effective approaches to controlling blood pressure in populations include:

- Population-based strategies, both healthy lifestyle at the individual level and creating health promoting environments.
- Finding and treating high risk patients, by screening for undiagnosed disease and focussed evidenced-based clinical interventions for those at high risk.
- Secondary prevention to prevent complications.

The WHO is promoting the Total Risk approach to CVD risk factors, because risk is multifactorial. The absolute CVD risk of any one risk factor is determined by the multiplicative effects (total risk) of the other concomitant risk factors. Therefore, the intensity of the prevention strategy should be guided by level of absolute multifactorial or total risk.

Barriers to Controlling Hypertension

We compared the organization of healthcare as it should be, with what it is. The chronic care model is advanced as a method of organizing the health system to improve chronic care. There are a number of interventions shown to improve quality

Lifestyle guidelines for both primary prevention and therapeutic intervention is given for alcohol use, obesity, sodium consumption and physical inactivity. In the Caribbean, a regional initiative for creating supportive environments was mandated by the Heads of Government in their 2007 NCD Summit Declaration, declaring the second Saturday in September as Caribbean Wellness Day to promote population-based physical activity. Examples of the celebrations in The Bahamas are given. An educator toolkit with resources for hypertension control and sodium reduction is provided.

* Abstract presented in 2007 and 2009

The Prevalence of Pulmonary Hypertension in a Bahamian population of Renal Replacement Patients and Observed Cardiac Morbidity and Mortality

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Objective: To determine the prevalence of pulmonary hypertension in a cohort of Bahamian dialysis patients as well as identifying cardiac morbidity and mortality in the observed cohort.

Method: The study covered the period of 2009–2011. In the first phase consenting patients completed questionnaires inclusive of demographic, dialysis access, length of time on dialysis, history of admission for myocardial infarctions or heart failure, comorbid conditions (hypertension, diabetes, other conditions). In the second phase patients had echocardiography 24-hours post dialysis.

Results: The 220 persons received dialysis at The Princess Margaret Hospital and 106, 52.8% being female and 47.2% male, consented to participate. Of these, 96.2% had haemodialysis as the principal mode of dialysis. Diabetes mellitus accounted for 44.3% ranking first as a common cause for dialysis while ranking second was 39.6% with essential hypertension. Pulmonary hypertension (PH) was observed in 69.8%, mild PH-41%, moderate PH-15.1% and severe PH-16.9%. Heart failure was evident in 12.3% and myocardial infarction represented 6.6%. Mortality among study participants was not directly related to myocardial infarction; seven participants died. Findings did not differ statistically significantly by levels of the sociodemographic variables.

Conclusion: The frequency of pulmonary hypertension (69.8%) in this Bahamas-based cohort was higher when compared to other studies. Diabetes was identified as the main associated covariate in persons requiring dialysis.

Initial Experience with Cytoreductive Surgery and Intraperitoneal Chemotherapy for Peritoneal Surface Malignancy

T Humes

Background: Cytoreductive surgery (CRS) with heated intraperitoneal chemotherapy (HIPEC) is a treatment option with curative intent for selected patients with peritoneal carcinomatosis (PC). Cytoreductive surgery and HIPEC have been implemented in The Bahamas by a single surgeon in 2010. The initial experience with this procedure was evaluated to assess the safety, feasibility and outcomes.

Design and Methods: A prospective database of patients treated with CRS and HIPEC was maintained since 2010. Patient demographics, performance status, resection status and peritoneal surface disease were classified according to primary site. Morbidity, 30-day mortality, and long-term survival of patients were analysed.

Results: Between 2010 and 2014, a total of seven patients underwent CRS and HIPEC. Peritoneal carcinomatosis originated from colon carcinoma in four patients, rectal cancer in one patient and appendix cancer in two patients. Mean age was 42 (\pm 12) years, median peritoneal carcinoma index (PCI) was 13 (IQR: 4, 18), mean operative time was 655. (\pm 146.9) minutes and median blood loss was 1300 (IQR: 400, 2000) milliliters. Sixty-six per cent of patients developed a complication, all of which were grade 3 or less. There was no 30-day mortality. The median length of stay was 14 (IQR: 10, 18) days. Overall median

survival was 20 months. Patients with PC from colorectal origin succeeded in remaining above the median survival mark.

Conclusion: Cytoreductive surgery and HIPEC seem a safe procedure for PC in The Bahamas. Favourable long-term survival was achieved in highly selected patients with PC from colorectal origin.

Spontaneous (Hypertensive) Intracranial Haemorrhage in The Bahamas

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Objective: The Primary objective of this study is to demonstrate the prevalence of hypertensive intracranial haemorrhage (ICH) in The Bahamas, using PMH & DH as a model. The Secondary objective is to compare the results of patients who have undergone surgical treatments with patients who have used non-surgical treatments. *Note: opinions vary regarding the indications for neurosurgical treatment for spontaneous intracranial haemorrhage (SICH).*

Design and Methods: Data from the study period was obtained from the Accident and Emergency Department of the Princess Margaret Hospital, the Medical Records of Princess Margaret Hospital and Doctors Hospital and also from Dr Magnus Ekedede's neurosurgical log books. This was a 12-year study (May 1997 to May 2008). A total of 553 patients were involved in the study. Three hundred and sixty-nine patients were treated surgically and 184 were treated non-surgically. Surgical treatments included decompressive craniotomies, ventriculostomy and intracranial pressure (ICP) monitoring, craniotomy plus ventriculostomy plus ICP monitoring.

Results: Surgical treatment is more favourable when the GCS is six or more and ICH score ≤ 2 , when there is no CT sign of Uncal herniation and when ICH is subcortical. Surgical treatment is less favourable with massive haemorrhages and impending herniations and ICH score ≥ 4 . All of these patients have hypertension and a good number of them have risk factors like obesity, diabetes mellitus and hyperlipidaemia. Spontaneous intracranial haemorrhage is slightly more frequent in males than in females, the ratio is 1.3:1. Surgical patients have less hospital stay than non-surgical patients (21 days vs 35 days). The average mortality in six months is 32.5% of our study population (n = 553). Spontaneous intracranial haemorrhage is an illness, costly and devastating. The Surgical treatment is promising once handled promptly. Medical treatment still has a big role. Neuro-rehabilitation helps to improve outcome.

Conclusion: In The Bahamas, the mortality is at 32.5%. Parts of the brain involved are the basal ganglia, subcortical white matter, cerebellum and brain stem. Non-compliance is a major contributing factor for ICH. Spontaneous intracranial haemorrhage is always associated with obesity, hyperlipidaemia and sometimes diabetes mellitus. Hypertensive ICH is the leading cause of SICH in our society. Most patients die once ICH score is ≥ 4 . Surgical treatment has helped to decrease mortality and hospital stay in our series. A good number of young people suffer from this disease and male to female ratio is 1.3:1. As expected 87.3% of all the patients were admitted at PMH and only 12.7% came from DH.

The only reason for this is that DH is a private hospital. Patients with a higher GCS had much more favourable outcome. A good number of patients fell under fair outcome n = 163 = 29.5% which explains why unfavourable outcome was high. Frankly speaking, a fair outcome is not a bad outcome. A vigorous acute rehabilitation facility for stroke patients is highly recommended.

Recommendation: In view of the fact that The Bahamas receives a fair amount of these patients each year it may be helpful and useful that: (i) a similar study be done in the rest of the Caribbean countries to determine whether it is feasible for The Bahamas to be recognized as a referral/study centre for stroke, (ii) to further investigate the advantage of surgical treatment in these patients at the early stage and (iii) to highlight the overall incidence of spontaneous hypertensive ICH in the rest of the Caribbean countries.

Endovenous Laser Ablation Therapy in The Bahamas: Immediate and Short-term Results

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Purpose: To report on the immediate and short-term results of endovenous laser ablation therapy in The Bahamas.

Methodology: Between September 2009 and January 2011, 42 endovenous laser ablation therapies (EVLAT) were performed on 29 patients with symptomatic varicose veins. The veins treated included the greater saphenous, small saphenous, accessory and perforator veins. In all cases, venous duplex scanning were performed. All treated veins were accessed percutaneously using imaging guidance. Biolitec® laser fibers were used in all cases.

Results: There were 42 limbs in 29 patients. Females accounted for 89.7% (n = 24) and males accounted for 10.3% (n = 5). The mean age \pm SD was 53.83 \pm 11.9 years. The mean BMI \pm SD was 29.35 \pm 8.39. Between gender, this was significant in that the BMI for males was 48.82 and for females 28.06 ($p = 0.011$). The greater saphenous vein was treated in 97.6% of cases, the small saphenous vein in 19% of cases, accessory veins in 2.5% of cases and perforating veins in 40.5% of cases. Technical success was 95.24% and there were two technical failures (4.76%). At

30-days, 14.29% of patients were noted to have new reflux in previous non-refluxing veins. Treatment was with sclerotherapy in the majority of cases.

Conclusion: Endovenous laser ablation therapies is highly safe and effective in the Bahamian setting and these results are comparable to treatment results cited in the literature.

Strategies for Recruitment of Relatives of Breast Cancer Susceptibility Gene Mutation Carriers to a Genetic Testing Programme in The Bahamas

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The prevalence of breast cancer susceptibility gene 1 and 2 (BRCA1 and BRCA2) mutations among unselected breast cancer patients in The Bahamas is 23%. It is beneficial to advise relatives of mutation carriers that they are candidates for genetic testing. Women who test positive are then eligible for preventive interventions, such as oophorectomy. It is not clear how often relatives of women with a mutation in The Bahamas wish to undergo genetic testing for the family mutation. Furthermore, it is not clear how best to communicate this sensitive information to relatives in order to maximise patient compliance. We offered genetic testing to 202 first-degree relatives of 58 mutation carriers. Of 159 women who were contacted by the proband or other family member, only 14 made an appointment for genetic testing (9%). In contrast, among 32 relatives who were contacted directly by the genetic counsellor, 27 came for an appointment (84%). This study suggests that for recruitment of relatives in The Bahamas, direct contact by counsellor is preferable to using the proband as an intermediary.

Hypertension Research in The Bahamas – A Global Leader in the 20th Century

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This research was conducted first to examine the causes of the low frequency of ischaemic heart disease in Black Bahamians as there was an extraordinary high incidence of hypertension in this population. Hypertension is known to be a risk factor for coronary heart artery disease in the United States of America and Europe.

The first research established that coronary artery disease at post mortem was extremely low in patients dying of hypertension. The next paper showed that the depot fat in Bahamian patients had a high content of linoleic acid, which had been shown to protect against the development of coronary artery disease. This suggests that The Bahamian diet at that time was contributing to this.

The next series of papers were to compare the effects of Thiazide diuretics, which were known to be extremely effective in black patients with hypertension with other new drugs that were coming on the market. These papers showed that in black patients in The Bahamas, hydrochlorothiazide was more effective than ACE inhibitors, beta blockers and to a lesser extent calcium channel blockers. There was no difference between thiazide diuretics and loop diuretics, and the response was the same with different potassium sparing diuretics.

In conclusion, the recommendations are that Thiazide diuretics should be first line therapy in uncomplicated hypertension in black patients. Recommendations for first line therapy for hypertension in The Bahamas should be based on local research and not on the recommendations of other countries, whose recommendations differ markedly.

The Colposcopic Impression-Histology Disconnect in the Diagnostic Validation of Pre-invasive Cervical Lesions at The Princess Margaret Hospital

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Introduction: The Pap smear is a screening tool and all abnormal results needs to be further evaluated. Colposcopy with biopsy may be used to triage these abnormal results. There may be discrepancies between the colposcopic impression and the histological diagnosis, which may result in under treatment or over treatment. The former may result in progression to cancer and the later may contribute to cervical incompetence. Quality assurance audits are an important part of a colposcopy unit. The study received ethical committee approval.

Methods: We performed a chart review of colposcopic procedures done in 2012. We included all patients with abnormal smears who had complete colposcopy records and patients with dysplasia noted at colposcopy or biopsy. Patients with cervical cancer were excluded. Patient demographics, Reid colposcopy index, overall colposcopic impression and histology results were collected. The data were analysed using IBM SPSS.

Results: There were 102 cases included in the study. A resident rotating with the gynaecology service performed the majority of the colposcopies. The mean age was 38.93 (\pm 13.48) years. The most common cytological abnormality noted amongst the group was atypical squamous cells of undetermined significance ASC-US accounting for 47% of the referrals. Low-and high-grade squamous intraepithelial lesions were reported in 22.5% and 15.7% of the cytology results, respectively and sensitivity of colposcopy for pre-invasive disease was 90% and the sensitivity for negative disease was 16%. The positive predictive value of colposcopy was calculated to be 53% in this study. There was a weak but statistically significant correlation between

colposcopic impression and histopathology results ($r_{Sp} = 0.213, p = 0.031$).

Conclusion: The results of this study showed that colposcopy is a highly sensitive indicator for the detection of precancerous lesions of the cervix (90%). However, the specificity is low (16%). There was a weak correlation between colposcopic impression and histopathology results. Ongoing training of residents in colposcopy may be needed to improve results.

Sleep and Hypertension

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We spend about a third of our lives in sleep, that period of so-called 'cortical de-afferentiation,' when the upper brain is switched off from the bombarding, fast impulses of the mid-brain, lower brain and periphery, enabling it to revel in its own very slow, restorative waves.

Laboratory and epidemiologic evidence is presented to show that some of the prevalent disorders of the sleep period, such as sleep apnoea, short sleep and circadian dysrhythmias of blood pressure play an aetiologic role in the genesis of hypertension. Further evidence is displayed to show that amongst uncontrolled, drug-resistant hypertension, (about 50% of those being treated), this conglomerate of sleep disorders may further account for up to 80% of the secondary causes. Evidence for the role of nocturnal nasal continuous positive airway pressure and nocturnal medication dosing in this latter grouping is displayed.

A short series of one hundred and twenty locally diagnosed sleep apnoea cases, using clinical, anthropometric and Home Sleep Study devices, is presented as a clarion call for huge need to initiate further indigenous research into the vast, costly, regional Public Health burden pertaining to, not only sleep and hypertension, but also sleep and the chronic non-communicable disorders, in general.

Vaginal Bleeding in Early Pregnancy: Nassau's Emergency Room Experience

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Objectives: To compare women with spontaneous *versus* induced abortions with respect to their socio-economic and demographic factors, emergency management and immediate outcomes in the emergency room setting.

Methods: A cross-sectional study was carried out over a nine month period in the emergency department of the main public hospital in Nassau, The Bahamas. Women with vaginal bleeding in early pregnancy were administered a face-to-face survey instrument and clinical proformas were

filled by the managing physician. The differences between the above mentioned groups were statistically analysed.

Results: One hundred and seventy-six interviews and 256 proformas were obtained and a 12.5% induced abortion rate was noted. These women were younger ($p = 0.002$), unemployed ($p = 0.011$), with fewer pregnancies, less living children and a previous history of induced abortion ($p = 0.003$). There were more unplanned pregnancies ($p = 0.020$), and they had little awareness of long-term contraceptives. Induced abortion was associated with an open cervix ($p = 0.021$), more bleeding on physical examination ($p = 0.021$), and an increased incidence of sepsis ($p = 0.021$), a greater need for transfusion ($p = 0.028$), intravenous antibiotics ($p < 0.001$) and further blood investigations. Admission rate was greater among induced abortions, but did not reach statistical significance ($p = 0.064$).

Conclusion: This study demonstrated a strong correlation between specific socio-economic and demographic factors and induced abortions. It also demonstrated an increased burden on emergency department services and the immediate complications among these patients. These results indicate the need for further study to assess the dynamics of induced abortions and present valuable information toward educational and preventative social measures.

The 30-minute Decision to Incision Rule: The Princess Margaret Hospital Experience

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Introduction: The Caesarean section rate in The Bahamas has peaked at 24.9% while the perinatal mortality rate has remained stable. Worldwide, Caesarean delivery rate is approximately 15% with the highest rates in developed countries, Latin America and the Caribbean. The American Congress of Obstetricians and Gynaecologists (ACOG) recommends that emergency Caesarean deliveries should be accomplished in thirty minutes. Data are lacking concerning the outcomes at our institution. Therefore, we performed this audit to determine compliance with this recommendation and to determine whether this influences our perinatal outcomes.

Methods: During September 2011 and January 2012, we prospectively collected data from all patients undergoing emergency Caesarean delivery at the public ward at the Princess Margaret Hospital (PMH). We included patients with singleton gestations between 35–40 weeks complicated by one of the following: cord prolapsed, abruptio placentae and placenta previa with haemorrhage and non-reassuring fetal rate pattern.

We recorded maternal demographics antenatal, peripartum parameters neonatal parameters on standard forms developed for this study. IBM-SPSS was used for data

analysis. We used Pearson X² or Fisher exact tests to determine the significance of trends. The study was approved by the Joint Public Hospital Authority/University of the West Indies Ethics committee and IRB Board, The Bahamas.

Results: There were 393 deliveries during the study period and 112 that meet the study criteria. There were two groups consisting of those who delivered in < 30 and who delivered in > 30 minutes. There were no statistically significant differences between the groups with respect to age, parity, nationality and whether or not they received antenatal care. The median decision to incision interval was 45 minutes, 22.1% of cases were commenced in less than 30 minutes. Non-reassuring fetal status was the most common reason for delivery in 77.7% of the patients, followed by abruptio and failed vacuum extraction. Reason for delays included; no available theater, nursing and anaesthesia staff shortages. Even though there were no statistically significant differences between the two groups with respect to < 7 APGARS, resuscitation methods, and NICU/SCBU admission, there were notable clinically significant differences. No case delivered < 30 minutes had APGARS < 7 while 2.5% did and there were no still births but there were 2.5% in the > 30 minutes group.

Conclusions/Recommendations: The factors influencing incision times are multifactorial. There were more clinically significant advice outcomes in the > 30 minute group, however, this was not statistically significant. Further study with a larger sample size is needed.

Colorectal cancer in the Bahamian population

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Purpose: The annual incidence of colorectal cancer (CRC) in the Commonwealth of The Bahamas is unknown. In addition, little is known about the epidemiology of CRC in the region. The aim of this study, is to determine the annual incidence of CRC in The Bahamas and the stage at presentation.

Methods: Histology reports for all colon and rectal cancers identified in The Bahamas between January 1, 2012 and December 31, 2013 were retrieved by diagnostic codes using an electronic database. All ambulatory endoscopy centres provided reports for all biopsies performed during the period. Demographics and staging information were reported for each patient.

Results: One hundred and twenty-five cases of CRC were identified in The Bahamas during the two-year study period. This corresponds to a national two-year incidence of approximately 18.6 per 100 000 in The Bahamas. Forty-four tumours were identified during colonoscopy and 81 at laparoscopy or laparotomy. Procedure or operative reports were not available for four cases. Fifty-three per cent (n =

69) were male (ratio of 1 > 25:1). Ages ranged from 28 to 83 years (mean 65 years). Thirty-eight (29%) tumours were identified in the proximal colon, 47 (36%) in the distal colon and 22 (17%) in the rectum. The location of 22 neoplasms could not be confirmed. One hundred and three (80%) of the tumours were well-differentiated adenocarcinomas. Staging was available for 78 patients. Fifty-four cases (41%) were well- or moderately differentiated adenocarcinomas. Staging was available for 78 patients. Fifty-four cases (41%) were identified as advanced neoplasms with regional or distant metastatic spread (TNM stages 3 and 4). Patients under the age of 50 years represented 18% of new colon cancers diagnosed during the period. Although staging could not be confirmed in six patients, at least 50% of patients under age 50 years presented with stage 3 disease or higher.

Conclusion: Colon cancer is currently the third most common malignancy in The Bahamas, following breast and prostate cancer, and is a significant cause of morbidity and mortality. The calculated annual incidence rate is similar to other countries in the region. Patients commonly present in the sixth decade with advanced disease. Further studies are needed to determine the prevalence of colorectal cancer in this region and to identify potential risk factors that may be unique to this population. A significant percentage of people diagnosed with CRC during this period would have been missed by current colon cancer screening guidelines. Ongoing data collection is necessary to establish optimal screening strategies for The Bahamas.

Transthoracic Echocardiographic Identification of Intracardiac Disease that Predispose to Cardio-embolic Stroke

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Background: There is significant controversy in determining the use of transthoracic echocardiography (TTE) in the assessment of newly diagnosed stroke or TIA. In the routine work-up for new stroke/TIA, patients admitted to Princess Margaret Hospital are routinely sent for transthoracic echocardiography testing to assess for cardiogenic source of embolism. It appears that intracardiac disease that predispose to cardio-embolic stroke is much lower than that described in other populations, however there have been no studies done in a Bahamian population. We aim to assess the identification of intracardiac disease that predispose to cardio-embolic stroke as evidenced by transthoracic echocardiography in patients at the Princess Margaret Hospital, Nassau, The Bahamas.

Methods: Echocardiographic reports from respective patient files were assessed in all patients who received a transthoracic echocardiogram in the work-up for ischaemic stroke/TIA at the Princess Margaret Hospital between

January 2009 and December 2012.

Results: The prevalence of TTE performed in new stroke/TIA patients was 39.4 per 1000. Of new stroke/TIA patients, 44.3% (82) were male and 55.7% (103) were female. The mean age of participants was 57.85 (\pm 14.41) years old. Of new stroke/TIA participants, 90.8% were Bahamians and 9.2% non-Bahamians. A thrombus was identified in 3.3% of new stroke patients. Atrial dilatation was found in 36.3%, wall motion abnormality in 6.4% and a cardiac mass in 1.1% of patients using transthoracic echocardiography. With regards to clinical findings, atrial fibrillation was found in 13.7% of new stroke/TIA patients, an identifiable cardiac murmur in 14.4%, a history of hypertension in 63.0%, history of diabetes mellitus in 63.0%, a history of cigarette smoking in 15.0% and a history of acute coronary syndrome in 7.7% of new stroke/TIA patients who had TTE done.

Among participants, statistically significant risk factors associated with thrombus detection by TTE included atrial fibrillation ($p < 0.001$), atrial dilatation ($p = 0.043$), cardiac murmur ($p = 0.026$) and history of acute coronary syndrome ($p = 0.037$). When a multiple logistic model was attempted with the dependent variable (criterion) being the presence or absence of thrombus and the predictor variables being atrial fibrillation, cardiac murmur and acute coronary syndrome, the statistically significant model emerged as one with simply atrial fibrillation as the sole trustworthy predictor in this study.

Conclusion: Transthoracic echocardiography has been used to identify a number of intracardiac diseases that predispose to cardio-embolic stroke. Our study is consistent with others in which there is a low percentage of thrombi detection in this select group. However, there is a higher association with thrombus detection when persons have atrial fibrillation, an identifiable cardiac murmur, a dilated atrium and a history of acute coronary syndrome. Of all clinical variables, the presence of atrial fibrillation is the strongest associated with thrombus detection on TTE.

Factors Influencing Poor Adherence to Hypoglycaemic Medications and Self-care among Type 2 Diabetic Patients in Nassau, The Bahamas

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Aim: To identify and assess factors that correlate with poor adherence to hypoglycaemic medications and self-care among Type 2 diabetic patients.

Methods: A cross-sectional observational study design was used. The 150 participants that took part in this research study, were admitted to the Princess Margaret Hospital, with Type 2 diabetes in 2014. It included male and female patients 18 years or older. The patient had to be on at least one hypoglycaemic medication in order to be included in this study. A stratified random sampling was used to ensure

that the sample represented the population.

Results: Mean age of participants in study was 59.56 (\pm 13.43) years. Participants' mean height was 1.69 (\pm 0.10) m, their mean weight was 88.93 (\pm 22.46) kg and their mean waist circumference was 108.23 (\pm 20.49) cm. The participants had a body mass index (BMI) mean of 31.48 (\pm 8.33) kg/m². The mean total number of drugs participants took per day was 4.77 (\pm 2.72). Mean of years since diagnosis of T2DM was 5–10 (\pm 0.87884) years. The mean years on current medications were 8.08 (\pm 8.12) years. The mean number of changes to medications was 0.87 (\pm 1.82). The mean previous Morisky's score was 1.80 (\pm 1.35). The mean of current modified Morisky score was 1.88 + 1.32. The mean of current motivation score was 1.44 (\pm 1.05). The mean of current knowledge score was 2 (\pm 0.94). The mean score on the PHQ9 depression-screening questionnaire was 3.91 (\pm 4.21). Participants who reported experiencing little pleasure/loss of interest/none at all was 73.3% (110). Those reporting this for several days were 17.3% (26), more than half of the days 6% (9), and almost every day was 2.7% (4). Participants who reported feeling down, depressed or hopeless was 72% (108). Ninety-eight per cent (147) reported not having suicidal thoughts or thoughts of hurting themselves. The mean HbA_{1c} was 8.9 (\pm 2.5) in 64/150 patients.

Conclusions: Using the Modified Morisky score, there is a medium level of adherence amongst diabetics in The Bahamas and it can be inferred that the current knowledge on diabetes and compliance is medium or approaching low.

The Prevalence of Depression and the Quality of Life in Haemodialysis Patients and Patients with Chronic Medical Illnesses in The Bahamas

D Adderley-Sands

Background: Depression is projected to be the leading cause of the burden of disease by 2030. Symptoms of depression are commonly encountered in dialysis patients and patients with chronic medical illnesses (CMI) and can influence the quality of life of these individuals.

Aim: To determine the prevalence of depression and the quality of life in patients receiving haemodialysis at the outpatient dialysis units at the Princess Margaret Hospital and the Kidney Centre in Grand Bahama, and patients with chronic medical illness attending the internal medicine clinics at the Princess Margaret Hospital and Rand Memorial Hospital, Grand Bahama, respectively.

Method: The study used a cross-sectional design with consecutive sampling. Data about sociodemographic characteristics, depression, and quality of life were collected using a sociodemographic questionnaire, the Beck Depression Inventory BDI-II and the Short Form36 (SF 36), respectively. Data were analysed using the Statistical Package for Social Services (SPSS).

Results: In this study, 305 individuals (CMI: 106; Dialysis:

199) participated, 22 refused; 50.2% were males, 49.8% were females; mean age was 53.44 (\pm 14.44) years; 45.9% were married; and 32.8% were unemployed for more than two years. The prevalence of depression was 43.7% for dialysis patients and 36.8% for CMI patients. The age of patients was associated with marital status, occupational status, ethnicity and educational level. The haemodialysis patients were shown to have a lower quality of life than CMI patients. Linear regression analysis found that eight quality of life items were statistically significant predictor factors of the Beck score for the CMI and dialysis groups, and accounted for 45.5% of the variance.

Conclusion: These results do not necessarily show causality. However, they highlight to health professionals and policy-makers the importance of evaluating CMI patients and dialysis patients for depression, identifying risk factors and facilitating treatment when necessary.

Pharmacologic Adherence to the Joint National Committee VII Guidelines amongst Family Physicians at the Family Medicine Clinic Nassau, The Bahamas

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Objective: To assess pharmacologic adherence to the Joint

National Committee VII (JNC 7) hypertension guidelines, among family physicians at the Agape Clinic, Nassau, The Bahamas.

Design and Methods: An audit of 500 medical records of patients was done in year 2013. Charts related to 300 hypertensive patients, and 199 met the selection criteria; patients suffering from essential hypertension with or without co-morbidities. Treatment with various drug classes was recorded. These classes included: angiotensin converting enzyme inhibitors (ACEI's), angiotensin receptor blockers (ARB's), beta blockers (BB's), calcium channel blockers (CCBs) and diuretics. Descriptive and inferential statistics assessed overall adherence to JNC 7 guidelines as recorded in the patients' charts.

Results: Females comprised 72.7% of the selected hypertensive patients and 61.1% of these patients were stage 2 hypertensive; 72.9% of the hypertensives were on a diuretic. Stage 1 and 2 hypertensive patients were adequately covered with diuretic classes, but less than 50% of each group assessed was on a CCB. Regarding beta blocker use, 17.6% of the CHF patients were on a BB.

Conclusion: Agape clinic-based family medicine physicians adequately adhered to JNC 7 guidelines. Despite physicians' poor adherence to prescribing BB's in CHF, overall, the Agape clinic's ranking was "Good".