

7th Annual Research Day: September 19–20, 2013

Advancing the Population's Health: Shifting the Curve

Curbing the Non-communicable Disease Epidemic in the Caribbean

T Hassell

Acute Cardiogenic Pulmonary Oedema: The Impact of a Training Module on the Management Practices of Acute Pulmonary Oedema in the Emergency Department

C Wells, M Frankson, M Sweeting

Background: Acute cardiogenic pulmonary oedema (ACPO) is a frequent presentation in the Emergency Department (ED) that is often considered a management challenge, due to lack of standard management protocols (1–8). The benefits of certain pharmacotherapy such as nitrates however is evident, and lack of awareness of the benefits of these drugs by emergency physicians may be a major contributing element in the management challenges of ACPO (4–8).

Objective: This study was conducted to assess the knowledge and management practices of ACPO by ED physicians at Princess Margaret Hospital (PMH) and to determine what impact an interventional training module may subsequently have.

Methods: This seven-month, two-part study, involved pre- and post-intervention phases. The initial three-months involved a pre-intervention assessment of ED physicians' knowledge and management practices of ACPO. Following a one-month period of training modules, the preceding three-months reassessed physicians' knowledge and ACPO management practices. All ED physicians participated in both study phases and 83 patients' charts pre-intervention and 110 charts post-intervention were reviewed.

Results: Results regarding the three drugs used in the management of ACPO, (nitrates, furosemide, and morphine), revealed a moderately strong positive correlation ($\phi = 0.302$, $p < 0.001$) between the intervention and management improvements in the use of nitrates. Sublingual nitroglycerine was administered (39.8%) during the pre-intervention phase and 66.4% ($p < 0.001$) post-intervention. Furosemide was administered in 97.6% of cases, pre-intervention and 92.7% post-intervention. The use of morphine

pre- and post-intervention was 10.8% and 15.5%, respectively. Intubation rate decreased pre-intervention from 6.0% to 2.7% post-intervention. Admission rate was 41% pre-intervention with a post-intervention rate increase to 44.5%. The 30-day mortality rate post-intervention was 7.3% when compared to 9.6% pre-intervention.

Conclusion: The study demonstrated a positive impact of the ACPO training module on the management practices of physicians in the ED of PMH. It also indicated the need for on-going training of ED physicians in the management of this potentially fatal disease.

Anti-hyperglycaemic Medication Adherence in Type 2 Diabetics in New Providence

M Millar, D Archer, A Bain, T Hanna, D Robinson, C Hanna-Mahase, M Frankson, S Pinder-Butler

Aim: To assess anti-hyperglycaemic medication adherence in Type 2 diabetics in New Providence, The Bahamas, in a conveniently selected period in the year 2012.

Methods: This was a cross-sectional study using a Modified Morisky's Adherence Predictor questionnaire that determined the extent of adherence in patients with Type 2 Diabetes in New Providence, The Bahamas. The population sample consisted of Type 2 diabetics, 18 years and older, currently on oral anti-hyperglycaemics. The main outcome measures were adherence to oral anti-hyperglycaemic medications and HbA_{1C}.

Results: Of the total 120 patients identified, 20.5% had excellent, 22.2% moderate and 57.3% poor adherence to oral anti-hyperglycaemic medications. The mean HbA_{1C} was 8.5%. There was a positive relationship between HbA_{1C} and adherence ($p = 0.04$).

Conclusion: Overall, study findings indicated poor adherence with oral anti-hyperglycaemics in this population of managed diabetics. The results indicate the need for further and more in-depth research into this important topic.

Misalignment of Perceived Weight with Actual Body Mass Index in The Bahamas

C Chin, N Forbes, M Frankson, S Knowles, T Humes, A Wallace

Objectives: To assess the correspondence of weight perception *versus* actual body mass index (BMI) category.

Methodology: A prospective case notes review of adults in an internal medicine practice was done from April 2007 to May 2008. Quantitative analysis used a current version of the Statistical Package for the Social Sciences.

Results: Of 674 patients, 64.5% were female, age was not statistically significantly different from males, overall the mean age was 54.1 (\pm 14.7) years, 98.4% of 674 reported their age. Despite gender ($p = 0.23$), 8.7% claimed “obesity”, 45.2% “overweight”, 1.1% “big boned”, 43.3% “normal” and 1.7% “underweight”. Mean BMI was 30.4 (\pm 6.8) kg/m² and was unrelated to gender or age. About 40.6% of the variance in participants actual BMI was explained by self-perceived BMI ($r_{Sp} = -0.637$, $p < 0.001$, $n = 609$). Of 53 morbidly obese, 32.2% claimed obesity, 58.5% overweight, 1.9% big boned and 7.5% normal. Of 230 obese, 11.3% claimed obesity, 70.0% overweight, 1.3% big boned and 17.4% normal weight. Of 174 overweight, 2.9% claimed obesity, 41.4% overweight, 1.7% big-boned and 54.0% normal. Of 145 with normal BMI, 11.0% said overweight, 83.5% normal and 5.5% underweight. Of 7 underweight, 14.3% claimed obesity, 71.4% claimed normal weight and 14.3% underweight. Males mean waist circumference was 40.1 (\pm 0.4) inches. It was 37.1 (\pm 0.3) inches for females ($p < 0.001$).

Conclusions: Patients predominantly underestimated BMI. A significant number were in fact overweight, obese or morbidly obese.

Diagnosing and Treating Communities: Planning the Nations’ Health Outcomes

R Wilkes

The Caribbean has a very high burden of chronic non-communicable diseases (CNCDs) accounting for 60% of mortality and up to 8% of GDP in some countries. This burden has been recognized at the highest level in the region whose leaders have been in the forefront of a global response to this epidemic. Despite this commitment, indications are that the burden of CNCDs continues to rise.

There is evidence that the structures, systems and processes that are required for the effective response to this epidemic, are either not in place or not functioning optimally. We argue that the research being done is too “positivist” and takes insufficient account of social, political, economic, cultural, ethnic and gender factors that have crystallized over time and significantly influence people’s behaviour. Similarly, the interventions being proposed, lack genuine community empowerment *ie* a “bottom-up approach”.

We propose that any effective response to the CNCD epidemic will have to be complex in both data gathering and implementation of solutions and must be underpinned by certain essential components including: political commitment, sustainable resources through public/private partnership, effective dissemination of information using social marketing techniques and effective monitoring and evaluation (M&E) to facilitate learning by doing, continuous revision and improvement. There is at least one example of success which can provide a guide for the Caribbean.

The EPODE model to reduce childhood obesity developed in Northern France and implemented in 500 communities in six countries, demonstrates the effectiveness of community development and capacity building based on the pillars.

The region’s health researchers may well be advised to embrace more community based participatory research (CBPR) as well as complex interventions (CI) if we are to effectively blunt the CNCD epidemic.

Sickle Cell Disease Epidemiology in the Neonatal Population Born to Mothers with Positive Prenatal Sickle Cell Disease Screening Test at the Princess Margaret Hospital, The Bahamas

D Ferguson-Saunders, C Sin Quee, L King, MA Frankson

Objective: To determine the outcome of sickle cell disease testing in The Bahamas through selective screening in a targeted population of at-risk neonates born to mothers with positive prenatal sickle cell haemoglobinopathy screening test at the Princess Margaret Hospital, The Bahamas.

Design and Methods/Study Design: A descriptive study design was used to determine the incidence of sickle cell disease in the at-risk neonates whose mothers tested positive for sickle cell haemoglobinopathy during screening. These mothers were surveyed using a self-administered questionnaire to assess their understanding about sickle cell disease and status.

Results: One hundred and eighty-three (8.4%) mothers sickle cell haemoglobinopathy screening test were positive. Eighty-nine (58.9%) mothers were unaware of their sickle cell status and 72 (50.9%) unaware of the impact it could have on their infant, if their results were positive for sickle cell disease. One hundred and sixty-one infants were screened, nine (5.6%) of these infants had haemoglobin FAS, four (2.44%) had haemoglobin FAC and three (1.80%) had haemoglobin FS.

Conclusion: Neonatal haemoglobinopathy screening is needed as a continuum of healthcare as this can detect the infants with sickle cell disease allowing adequate counselling, education of parents, early identification of illnesses and need for intervention resulting in decreased morbidity and mortality as it relates to sickle cell disease. Maternal screening for the presence of sickle cell gene is already a routine part of antenatal screening at the Princess

Margaret Hospital and allows identification of at-risk infants. Prenatal counselling of mothers should be done with regard to the risk to their unborn infants.

Parental Knowledge, Perceptions and Practices toward Childhood Fever in the Emergency Department in The Bahamas

PM Davis-McKenzie, D Brennen, MA Frankson, C Bullard

Objective: To assess the knowledge, attitudes and effects on management practices towards fever from parents attending with their febrile child at the Accident and Emergency Department (A&E), Princess Margaret Hospital (PMH), Nassau, The Bahamas.

Methods: An observational cross-sectional research study was conducted with eligible candidates interviewed during randomly selected computer generated Emergency Department (ED) shifts, from August 2011 to February 2012 using a standardized, validated investigator-administered questionnaire. Data collected were analysed to assess statistical significance and extent of associations.

Results: There were 326 caregivers surveyed. The correct definition of fever 38.0°C/100.4°F was noted by 40.2% of caregivers. About 54.9% reported that the median temperature at which harmful effects were perceived was 104.0°F and the minimum temperature at which antipyretics would be administered was 98.6°F. Seizures, infections and brain damage were the most frequent concerns of caregivers. The most frequent dosing intervals for antipyretics were: four hourly for both acetaminophen and ibuprofen. Median temperature with which a caregiver would call the doctor was 100.4°F and 102.0°F was the median temperature indicated by caregivers regarding when a child would be taken to the ED.

Conclusion: There continues to be misconceptions towards fever in a child, in caregivers attending the ED, which have some influence on practices for fever management, irrespective of educational level.

Saving the Next Generation: Curbing the Childhood Obesity Epidemic in the Caribbean*

C Bocage

*Abstract presented in 2007 and 2009

Infant Feeding Patterns, Childhood Body Mass Index and Missing Data: A Mixed Methodological Assessment in the Public Health Clinics in Nassau, The Bahamas

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Objective: To assess possible associations between infant feeding patterns and body mass index (BMI) while also exploring factors related to relevant documentation deficits in participants' routine health-check records.

Method: A mixed-methods study on childhood BMI, infant feeding and missing medical data in New Providence, The Bahamas, at one urban and three suburban public clinics. A review was done of 396 charts on infant feeding at two, four, six and 12 months and growth parameters at four years of age. Qualitative review involved key-informant semi-structured interviews, a focus group discussion and direct observation to explore issues surrounding high levels of missing data found in the quantitative study.

Results: Children of four years of age had a mean BMI of 15.90 (\pm 2.85) kg/m² with overweight and obesity accounting for 22.0%. At four months, 60.3% were fed at least some breast milk. Those who were fed only formula at four months had a BMI 1.308 (\pm 0.531) kg/m² lower than those fed only breast milk (p = 0.014). No definite increased risk of childhood obesity for those fed only breast milk for four months over those fed only formula was observed [OR 1.539 (95% CI: 0.650, 3.603)]. Missing data on infant feeding increased from 15.2% at two-months to 31.0% at one-year. Nurses felt that limited clinic space created concern for privacy and confidentiality and affected the quality of information collected in interviews. The form completion process was described as tedious, ambiguous, repetitive and time-consuming and contributed to missing data.

Conclusion: Initiatives to improve conditions surrounding documentation would result in more complete data for future research studies on child health.

The Impact of Exercise on Cognitive Function in the Elderly in New Providence, The Bahamas

I Minus-Grimes, C Hanna-Mahase, D Eldermire-Shearer, MA Frankson

Purpose: This study aimed to demonstrate the impact of regular physical activity on cognition and functional capacity in the study population.

Methods: Forty-seven participants were randomly assigned to the exercise group (EG) and no exercise group (NEG): EG (n = 28) and NEG (n = 19). Volunteers were assessed on physical, cognitive function, and functional ability parameters before the programme started as well as at four, eight and twelve-week intervals.

Missing data for that the nine NEG participants lost to follow-up was treated by imputing and applying the last measured scores for all subsequent intervals.

Results: Among the 77 persons recruited for this study, the mean MMSE score was 24.52 (SD \pm 5.09). Across the time intervals, the mean (\pm 1 SE) MMSE scores in the EG varied from 26.04 at week one to 26.43 at week twelve. For the NEG, mean MMSE scores showed a decrease from 22.84 to 22.74 by week twelve. Variance around the median of 8.0 decreased consistently within the EG from baseline to 12 weeks, $p = 0.060$ compared to the NEG which maintained a median of 7.0 over time but the dispersion of IADL scores within the NEG remained wide throughout the study time, $p = 0.593$. Pearson's correlation for the EG of IADL to MMSE at baseline was $r = 0.450$, $p = 0.014$ and after 12 weeks of exercise $r = 0.456$, $p = 0.013$ and for the NEG the relationship of IADL to MMSE at baseline was reflected $r = 0.520$, $p = 0.016$ but by twelve weeks as $r = 0.357$, $p = 0.134$.

Conclusions: In this study of participants who only had mild cognitive impairment aerobic type exercise (walking) resulted in positive influences on cognitive function and functional capacity over time. Improvements in cognition maintained a strong positive relationship with functional capacity in the EG *versus* the NEG over time.

Predictors of Readmission in Axis I Disorder Patients to the Sandilands Rehabilitation Centre: Specific with Psychotic and Mood Disorders

S Ferguson-Parker, T Barrett, M Frankson

Background: Relapses and frequent readmissions of mentally ill patients to hospital present a challenge for mental health services and affect the utilization of mental health services.

Aim: This is to describe the sociodemographic and clinical factors associated with psychotic patients and mood disorders admitted to the Sandilands Rehabilitation Centre in The Bahamas, over a 24-month period.

Method: This was a retrospective case note study. A data collection instrument was designed based on significant factors shown to be associated with acute psychiatric readmissions gathered from literature reviews, and an audit conducted on the files of all eligible acute adult psychiatric admissions over this period. Data were analysed using the Statistical Package for Social Sciences.

Results: A total of 411 files met the criteria for inclusion, 58.6% (239) males and 41.8% (172) females. The average number of readmissions at the time of the study was four times and the average length of stay in hospital per admission was 22.67 days. Four or more readmissions occurred in persons diagnosed with schizophrenia, schizoaffective disorder and polysubstance misuse. Longer-than-average duration of stay in hospital per admission was associated with diagnoses of schizophrenia,

schizophreniform disorder or schizoaffective disorder, being financially supported by government and significantly being supported by family. Spearman's correlation revealed a statistical association between length of stay on first admission and number of subsequent admissions. Correlation analysis showed that a decreased rate of readmission was related to the use of long acting depot and second generation antipsychotics. Linear regression revealed that the variables statistically significantly related to average length of stay per readmission were unemployment, being financially self-supported and diagnoses of depressive disorder and brief psychotic disorder.

Conclusion: These sociodemographic and clinical factors found to be associated with readmission must be identified and addressed with the implementation of appropriate and effective psychotherapeutic programmes to prevent readmissions to hospital.

Resocialization in The Bahamas: One Family at a Time

D Allen

Lasting ramifications of the drug epidemic of the 1980s, paired with the recent socio-economic downturn, have led to a powerful social fragmentation of Bahamian society. This social fragmentation or de-socialization has caused an erosion of sociocultural values producing increased: (a) murder rates and violent crimes (b) suicides and suicidal attempts (c) domestic violence (d) widespread anger and revenge (e) loss of respect for property (g) poor work ethic (h) fragmentation of family and community and (i) burgeoning youth gang formation.

In response to this, Dr David Allen of the Allen Institute for Treatment and Research started, "The Family: People Helping People", a community outreach programme to promote re-socialization by developing positive attitudes such as self-esteem, gratitude, forgiveness and contentment while decreasing negative emotions such as anger, depression, revenge, shame, suicidal behaviour and abusive relationships.

The programme involves a group process (group therapy), psychodrama, role playing, storytelling, affective learning, psychological photography, centering, silent meditation, social events, community service and spiritual direction. The programme provides healing, support and guidance; group members develop coping and behavioural skills including communication, listening, social awareness and relationship skills.

For the past six years, "The Family" has been meeting and many persons have found it helpful. Testimonial data and interviews presented on Dr Allen's television show, "People Helping People" (Wednesday evenings 9 pm on Ch. 14 JCN) and other media have demonstrated the benefits of, "The Family" for those who attend.

"The Family: People Helping People" offers free professionally-led therapeutic groups that provide support for

persons seeking help for a wide range of emotional and social problems. The purpose of The Family is to provide a safe, secure and confidential environment where group members can begin to heal their broken relationships with their family and community. The primary goal is to improve socialization despite high rates of crime, family disintegration and economic impoverishment in the community. The Family aspires to encourage hope and feelings of benevolence, with the idea that decreased hostility towards others may shift motivation towards self-improvement. It is a unique approach that takes known therapeutic approaches and combines them in new ways to address broader psychological issues that result from the breakdown of family values.

The Family programme is a microcosm of Bahamian society, which provides an excellent opportunity to study trends, analyse issues and work towards meaningful solutions. It is the first time that this type of group therapy model has been implemented in the context of the fragmented Bahamian community.

While group therapy has been documented to be effective in addressing singular issues such as trauma, aggression, and delinquency, it has not yet been used as a re-socialization intervention that looks at multiple facets of well-being, including spirituality.

Pilot Research Study

To test the validity of The Family project in practice, a pilot study was initiated in 2012, involving individuals who had been attending The Family. With the help of the Templeton World Charity Foundation and several concerned donors including Ms Cherry Tabb of the Herzig Eye Institute of Canada and Mr Frank Crothers of Nassau, the Allen Institute began to collect data on the programme's effectiveness. In a pilot analysis of The Family model, participant progress was measured using a mixture of eleven different internationally validated instruments, developed by the Meridius Research Institute of San Diego, California. Results suggested evidence of re-socialization which indicates the efficacy of The Family model. One of the only studies of its kind, the assessment was complex, costly and required much planning and organization. The research was conducted by Dr David Allen, director, Dr Victoria Allen, Associate Professor, The College of The Bahamas, Dr Marie Allen Carroll, Psychologist, St Andrew's School, Dr Mallery Mayo and Jennifer Discar, Meridius Research Institute, Natalie Ines Hernandez, student at St Andrew's School, Cori Chea, student at Taylor University and Vernie Rolle, administrator of The Family.

Results of the pilot study indicate significant decreases in depression, anger, thoughts of suicide, shame, loneliness, revenge, abusive relationships and illegal activity. The study also revealed increases in self-esteem, intimacy with others, satisfaction with life, gratitude, hope, trust and improved family relationships. This pilot study demonstrates scientifically that the programme enhances re-

socialization and combats the prevailing community fragmentation.

Physicians and scientists have reviewed preliminary findings of the pilot study on, "The Family". Professor James F Jekel, distinguished Professor of Epidemiology and Public Health, Emeritus, Yale University, validated the research study stating, "*The programme developers and the evaluators should be congratulated on creating an innovative effort to respond to the growing social problems of The Bahamas in a meaningful and efficient way, and on their insistence on a rigorous evaluation. The data so far suggest that important improvements in attitudes and behaviours have resulted from the programme*".

Dr James Manganello, Psychologist and Research scientist, Harvard School of Public Health, wrote, "*Results of the pilot study suggest evidence of re-socialization, which indicates efficacy of The Family model*".

Locations of the Family

"The Family" now meets in the City Central Outreach Centre on Blue Hill Road to accommodate the growing number of participants, approximately 50 persons who meet once a week for about two and a half hours. There is no cost to attend and newcomers are often invited by friends who have been helped. 'The Family' also meets on Robinson Road, above the G&M Appliance store, just west of the Ridgeland mall. We are in the process of initiating Families in other disenfranchised areas, such as Fox Hill, Nassau Village, Kemp Road and Carmichael. Evidence-based data from the family will allow us to develop effective programmes in schools, prisons, churches and urban renewal centres to combat the prevailing deterioration of our society.

Attitudes of Public Hospital Authority Physicians in New Providence, Bahamas, towards Persons Living with HIV/AIDS

S Carroll, M Frankson, H Orlander, F Williams, C Hanna-Mahase

Background: The Joint United Nations Programme on HIV/AIDS (UNAIDS) seeks to eliminate stigma and discrimination against persons living with HIV/AIDS (PLHAs) by the year 2015. However, stigma/discrimination remains pervasive and largely unaddressed worldwide. This research paper aims to explore attitudes towards PLHAs by Public Hospitals Authority physicians in the capital island of New Providence, the Commonwealth of The Bahamas and whether demographic or other variables influenced the likelihood of stigmatization.

Design and Methods: One hundred and seventy-four randomly selected physicians from the Princess Margaret Hospital and the Sandilands Rehabilitation Centre participated in the study between February and March 2013. They completed a self-administered questionnaire which included demographic data and questions regarding

physicians' knowledge of HIV/AIDS, level of fear of occupational exposure to HIV, statements about HIV, persons with the disease and their medical care, and physicians' observations of discrimination against patients with HIV/AIDS.

Results: A total of 134 physicians completed the survey. The mean physician age was 39.05 years. Overall, the majority of participants were Bahamian (67.9%) and of Christian faith (88.8%) with a nearly equal proportion of males and females and varying levels of educational and professional attainments. Regarding HIV/AIDS knowledge, 53.7% claimed they were very knowledgeable and 92% of physicians demonstrated "good" HIV/AIDS knowledge.

HIV/AIDS-related training was received by 61.2% of physicians, with the majority (59.5%) being trained between one and five years ago. The vast majority of physicians (95.5%) reported being directly involved in the care of PLHAs, with 66.4% of them being very comfortable providing such care and 59.8% willing to do so for six months or more. Overall, 84.3% were found to be not likely fearful of HIV contagion. However, all of the physicians were either possibly likely (53%) or likely (47%) to stigmatize against PLHAs. In this population studied gender and level of fear of contagion were found to be statistically significant predictors of the tendency to stigmatize.

Conclusions: This research showed that PHA physicians could potentially stigmatize against PLHAs, but that this does not appear to affect their ability to provide medical care to such patients. Nevertheless, addressing HIV stigma in this setting will require a multifaceted approach.

Keywords: HIV (human immunodeficiency virus), AIDS (acquired immunodeficiency syndrome), UNAIDS (Joint United Nations Programme on HIV/AIDS), USAID (United States Agency for International Development), PLHA (person living with HIV/AIDS), HCW (healthcare worker), PHA (Public Hospitals Authority).

Knowledge, Attitudes and Practices Related to Depression Management among Physicians Employed at the Public Hospital Authority, Nassau, The Bahamas

S Taylor, C Hanna- Mahase, N Clarke, S Pinder-Butler, F Williams, M Frankson

Depression is a very common but debilitating mental health issue that is often under diagnosed and under treated.

Aim: This study aimed to determine the knowledge, attitudes and practice of physicians employed by the Public Hospitals Authority, Nassau, The Bahamas, as it relates to depression management.

Methods: A cross-sectional descriptive study was done utilizing a convenience sample at departmental meetings for psychiatry, family medicine, internal medicine, obstetrics and gynaecology, emergency medicine and

anaesthesiology. A 33-item questionnaire created by the researcher was utilized and the data analysed using the Statistical Package for Social Sciences (SPSS).

Results: One hundred and ten physicians participated in the study: 50% male and 50% female. Overall participants had poor knowledge regarding depression, moderately stigmatizing attitudes, but good management of depression. Psychiatrists had excellent knowledge, good attitudes towards depressed patients and excellent management of depression. Generalists had poor knowledge, good attitudes and good management of depression, while non-generalists had poor knowledge, moderately stigmatizing attitudes and fair management of depression. One-third of participants admit to having personal symptoms of depression in the last 10 years.

Although overall knowledge may be poor, physicians overall have good management of depression.

An Early Pregnancy Loss Study at The Princess Margaret Hospital, Bahamas

A Gauntlett, V Sakharkar, M Frankson

Early pregnancy loss is unfortunately the most common complication of human gestation, occurring in as many as 75% of all women trying to conceive. As a result it is often underestimated as a source of emotional problems. Coping with pregnancy loss can be extremely challenging. This study has sought to assess sociodemographic and clinical factors that correlate with the range of immediate emotional responses following early pregnancy loss using a novel linear analogue scale.

Materials and Methods: This was cross-sectional analytical study. One hundred and thirty women presenting with miscarriage and ectopic pregnancies to Princess Margaret Hospital's Gynaecology and Accident and Emergency Department between the months of January and May 2012 were included in the study. Their demographic and clinical data were collected. Participants were asked to grade the emotional impact of their loss on a scale of 0–10, examples of life events that have been previously ranked by Holmes & Rahe (1967) were used as prompts to guide women in quantifying their response.

Results: Mean age of the participants was 29.17 (\pm 7.51) years, median parity was one and mean gestational age was 9.54 (\pm 4.05) weeks. Regarding marital status, 59.2% (77) were single, 29.2% (38) were married and 11.5% (15) had a common-law relationship.

The majority of the participants were of Christian Faith, 47.7% (62) were Baptist, while 31.5% (41) indicated other Protestant Christian Faith, 10% (13) were Catholic, 4.6% (6) were Non-denominational and 6.2% (8) indicated that they had no religion.

The immediate emotional response to an early pregnancy loss was similar irrespective of age, occupation, marital status and parity of the participants. Overall, the mean emotional response score was 6.26 (\pm 2.92) on the

novel linear analogue visual scale with Catholics scoring highest 7.35 (± 0.62) and non-religious scoring lowest 5.13 (± 1.32). One-way analysis of variance (ANOVA) did not demonstrate these differences to be statistically significant ($p = 0.389$). The emotional response score was not statistically different whether participants practiced their religion or not. Analysis of variance revealed a mostly linear increase in the emotional response score as the period of gestation increased.

Conclusion: The immediate emotional response to early pregnancy loss had the greatest impact at a later gestational age, instances where the pregnancy was planned or wanted and for those of the Catholic faith. Our study was limited to the immediate emotional response. It will be interesting to assess delayed emotional response using the same linear analogue scale in future studies.

Knowledge, Attitudes and Beliefs towards Papanicolaou Smear Testing among Women Attending the Outpatient Clinics in Nassau, The Bahamas

B Cooper, P Darville, L Farrington, B Gaitor, C Gomez, V Sakharkar, C Hanna-Mahase, M Frankson

Aim: To assess the knowledge, attitudes and practice towards Papanicolaou smear testing among women attending out-patient clinics in Nassau, The Bahamas.

Methods: A cross-sectional, quantitative study was carried out by interviewing women in The Bahamas regarding their knowledge, attitudes and practices concerning Papanicolaou smear testing. A total of 255 women of different sociodemographic backgrounds from 18–65 years of age were interviewed using a self-administered validated questionnaire. Participants were selected *via* convenience sampling.

Results: The average participant was single (49.4%), Bahamian (92.8%), between the age range 18–29 years (23.2%) and had a college level or higher education (45.6%). On average, participants got 38% of the knowledge-based questions correct.

Performance of a Pap smear was found uncomfortable for 73.5% of the participants and 59.4% thought that cervical cancer was curable. A variable awareness of the persons at-risk for cervical cancer was noted. Participants thought the following were persons at-risk: married with children (44.8%), virgins (24.2%), having no children (32.8%), multiple sex-partners (63.7%), being a prostitute (75.4%) and being a pastor's wife (32.3%).

In terms of practice, 91.6% of participants had a Pap smear done before; and of this, only 87.1% of them had a recent one within the last five years. Of the participants, 84.6% state that they would have another Pap smear in the future.

Conclusion: The findings of this study highlight some of the gaps that exist in relation to the educational level of women in terms of Pap smear testing and cervical cancer.

The challenge for healthcare providers in The Bahamas is to ascertain ways in which this knowledge may be brought across to persons of all educational levels in a form that they will remember and use for their improvement.

The Effects of no Antenatal Care and Suboptimal Care on Maternal and Neonatal Morbidity and Mortality at The Princess Margaret Hospital

AM Gauntlett, D Halliday, MA Frankson, V Sakharkar, JF Thompson, A Gardiner, A Nottage, J Stubbs, M Smith, D Wain, D Rox-Bethel, M Hall-Watson

Objective: 1. To identify socio-economic determinants of antenatal care (ANC) seeking among with women in The Bahamas, Nassau; 2. To identify maternal risk factors and sociodemographic parameters and complications of pregnancy, labour and postpartum period associated with no antenatal care; and 3. To evaluate the correlation between neonatal morbidity and mortality with the level of antenatal care.

Method: From March 1, 2011 to March 31, 2012, three cohorts of PMH's antenatal patients (no-antenatal care, suboptimal antenatal care and optimal antenatal care) with singleton pregnancies were interviewed postpartum as per the above stated objectives. The questionnaire used was modelled after the pregnancy risk assessment monitoring system (PRAMS) questionnaire. The questionnaire's pregnancy outcome data were obtained from clinical records. Quantitative data analysis were performed.

Results: For the 221 participants, their mean age was 26.51 (± 6.66) years old and 71.0% were high school educated: 62.1% of those getting optimal care (OC), 78.9% of those getting suboptimal care (SC) and 90.9% of whom got no antenatal care (NC) were single; 74.7% overall. Forty-three per cent had OC, 32.1% had SC and 24.9% had NC. In analysis; 46.3% with OC, earned \$15 000 – \$25 000 per annum, while 50.7% with SC and 58.2% of those with NC earned < \$15 000 per annum. For those with NC, 32.7% had a baby < two years ago ($p < 0.001$), 14.5% had > five children ($p < 0.001$), 1.8% ($p = 0.002$) claimed to have planned their pregnancy (while of those getting OC 23.2% did so), 25.5% experienced premature labour ($p = 0.029$) and 18.2% had a previous STI ($p = 0.013$). Main reason participants cited for not accessing early ANC were: 19.5% had difficulty getting an appointment, 11.8% had insufficient funds, 30.3% did not know they were pregnant, 35.5% did not want anyone to know they were pregnant and 22.5% could not get time off to go to clinic ($p = 0.005$). Overall, nine (4.1%) mothers were HIV positive; 4.2% of mothers taking OC, 1.4% of those having SC and 7.3% of those with NC ($p = 0.255$). Overall, 12 infants (5.4%) were admitted to NICU; for infants of mothers getting OC, 1.1% went to NICU, of those with SC it was 9.9% and of those with NC it was 7.3% ($p = 0.036$). Overall, 52 mothers had Caesarean section (CS); 36.8% of those with OC had CS,

15.5% of those with SC had CS and 10.9% of those with NC had CS ($p < 0.001$). Gestational age at delivery was obtained on 204 (92.7% of the) infants, for infants of mothers getting OC it was 38.57 weeks, and it was 38.0 weeks for infants of both mothers getting SC and NC ($p = 0.001$). Birthweight at delivery was obtained on 213 (96.4%) of the infants, for infants of mothers getting OC it was 3124.6 g, and it was 2858.1 g for infants of mothers getting SC and 2892.6 g for infants of mothers with NC ($p = 0.001$). Overall, 80.1% had APGAR scores of 89 at both one and five minutes; for those getting OC, this was 81.1%, it was 73.2% for those with SC and 81.3% for those with NC ($p = 0.890$).

Conclusion: This study provides evidence for changing antenatal care from a traditional risk oriented approach to a focussed one as frequent visits are often logistically and financially impossible for women to manage and are a burden on the healthcare system.

Suicide in The Bahamas: Curbing a National Epidemic

K Bethell, D Allen

The occurrence of suicide and suicidal attempts in The Bahamas should be a major public health concern. In the past decade, there has been a fluctuating trend in the number of suicides.

However, of much concern to us, is that in 2011, there were six reported suicides and in 2012, there were eleven. This is almost a 50% increase. There appears to be an increasing trend in suicidal attempts. To understand whether this is a developing trend in our country, we need to collect accurate data for the remainder of 2013. It has been hypothesized that the lasting implications of the drug epidemic of the 1980s and its sequelae, along with the recent socio-economic decline, has led to a serious social fragmentation of The Bahamian society. The breakdown in families, coupled with a modernized Bahamian culture with minimal moral values and a decline in the economy has led to a heightened state of chaos among citizens of The Bahamas, especially in New Providence.

Method: A team of Bahamian professionals, which include researchers and psychologists, have sought to analyse the incidence of suicides in the country. To do this, we proposed to carry out two studies, one retrospective in scope and the other prospective. The retrospective study examined the cases of suicides that have already occurred. Data was collected from the Central Detective Unit (CDU), coroner's court, Sandilands, The Rand Memorial Hospital, Department of Statistics and Public Hospital Authority. Cases were analysed for the years 2000 to Present. In the prospective study, a sample ($n = 276$) of Bahamians was surveyed, in an effort to understand how suicide and mental distress, in the form of depression, are perceived by the Bahamian society. The study's null hypothesis was that in

The Bahamas, the rates of suicide among males and females, of all ages, would be the same.

Results: According to data provided by the Quality Control Section of the Central Detective Unit (CDU), there were ninety-six reported suicides in The Bahamas from 2000 to Present. However, to date, only fifty-five of these cases have been abstracted. After combining the data for 2000 to 2012, the overall rate of suicide in The Bahamas was 2.1 per 100 000. The suicide rates differed among males and females of various ages, in the ratio of 6:1. In terms of the method used to commit suicide, the majority of the victims (55%) hung themselves. Other methods used included gunshot wound (13%), fall (6%), overdose (6%), the use of sharp instruments (6%), burning (3%) and asphyxiation (1%).

Conclusion: Suicide is a social scourge. Because of the stigma of suicide in The Bahamas, we do not communicate openly about suicide. This must be changed, because in order to prevent suicides, people need to know that help is available. Suicide is an important public health problem that is usually left shrouded in secrecy. As a result, there is a limited amount of information available to those working to prevent suicide.

Effect of Previous Scorpion Stings on the Action of Intrathecal Bupivacaine: A Case Control Study

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Background: During the routine practice in the institution, it was observed that there were persistent incidents of inadequate/failed spinal anaesthesia in patients with a history of single or multiple scorpion stings. To test any possible correlation between scorpion bite and the altered response to spinal anaesthesia, a case control study was conducted involving patients with a history of scorpion stings and without such a history.

Methods: Randomly selected ($n = 70$) patients of either genders and age range of 18–80 years, were divided into two equal groups, giving past history of one or multiple scorpion stings and giving no such a history. The anaesthetic management was identical inclusive of subarachnoid block with 3.5 mL 0.5% bupivacaine heavy. The onsets of sensory, motor and peaks of sensory and motor blocks were observed with the pin-prick method and Bromage scale. After waiting for 20 minutes, if the block was inadequate, then balanced general anaesthesia was administered. The analysis of the data and application of various statistical tests was carried out using Chi-squared test, percentages, independent sample t -test and paired t -test.

Results: Demographically, both groups were comparable. In scorpion stings group, the time of onsets of both sensory and motor blocks and time for the peak of sensory and motor blocks were significantly prolonged. Four patients had failed/inadequate sensory block, and five patients had failed/inadequate motor block while all the patients in non-sting group had adequate intraoperative block.

Conclusion: We conclude that there appears to be a direct correlation between the histories of old, single or multiple scorpion stings and development of resistance to effect of local anaesthetics administered intrathecally.

A National Investment Reap National Dividends: Bahamian Graduates of the Faculty of Medicine, The University of the West Indies

C Siquee, R Roberts

Introduction: The economic cost of the five-year The University of the West Indies (UWI)-based undergraduate medical degree programme was estimated at an average of \$30 000 per student per year in 2013. The Governments of the region provide subsidies for their respective medical students ranging from 80 to 100% of the economic cost. We seek to determine the national returns to the Government of The Bahamas on this investment in human capital: are the Bahamian nationals graduating from the UWI Faculty of Medical Sciences returning home and providing medical service to the country and is this service provision being undertaken in the public *versus* the private sectors of the healthcare delivery systems.

Method: A retrospective analysis was performed of all the following databases for the entire period since the University's humble beginnings in 1948 to July 2013. (i) human resource files of the PMH, (ii) Registration files of The Bahamas Medical Council (iii) Faculty of Medicine UWI student database. For verification, physicians were contacted directly in person *via* telephone or email as required, especially for those physicians practicing outside the country.

Results: A total of 359 Bahamians graduated as medical doctors. Three periods of exponential growth were identified: 1957–1980, 1981–2000 and 2001–2013 with 40, 114 and 204 graduates, respectively. The demographics of gender reflect a major female shift: from 15% to 43% to 69% presently. Of 324 Bahamian physicians identified and accounted for in the study, 284 (87%) were employed by the Ministry of Health for at least one year beyond internship. Nineteen doctors have migrated with only six not providing service at all in The Bahamas after internship.

Two hundred and twenty-two of 339 (62%) identified, embarked on postgraduate training after internship, with 138 being credentialed with diplomas or specialist degrees. Fourteen have gone on to subspecialty training with three still in training. Sixty-three physicians are still

in specialty training; and only 17 (< 8%) did not complete training that was started. For persons currently in training, 47 of the 62 are enrolled in local training programmes. The remaining 15 physicians are seeking training in the United States of America, South Africa, United Kingdom and Jamaica. The local training postgraduate programmes were started in 2002. Prior to this, one candidate graduated with a diploma in child health.

Conclusion: The national investment in physician capital development has yielded healthy returns. Over the 65 years existence of the UWI producing Bahamian physicians, near 90% have given service to the Bahamian public, with over 50% remaining employed directly in the public sector over the span of their medical careers; this reflects for both specialist and non-specialist trained physicians. The “brain drain” of medical professionals noted in the Caribbean and other Developing countries did not occur in The Bahamas.

Curbing the Non-communicable Disease Epidemic in the Caribbean

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The epidemic of chronic non-communicable diseases (NCDs) in the Caribbean is one in which a group of diseases, namely, cardiovascular diseases (heart disease and stroke), diabetes, cancers and chronic lung disease account for 65% of the burden of disease in the region. This group of diseases is influenced by lifestyle, medical care delivery, environment and heredity. They occur as a consequence of unhealthy diet, exposure to tobacco smoke, abuse of alcohol and inadequate physical activity, resulting in, and associated with, physiological derangements of elevated blood pressure, obesity, high blood sugar and abnormal serum lipids.

Several declarations, statements and strategic plans that have been produced, both regionally and internationally, aimed at informing of the significant health and developmental impact of NCDs and charting a way forward for tackling them globally, regionally and nationally. In the Caribbean, these efforts reached their zenith in 2007, when Heads of Government of CARICOM held a Summit in Port-of-Spain on NCDs at the conclusion of which the “Declaration of Port-of-Spain: Uniting to Stop the Epidemic of NCDs” was issued as a series of recommendations aimed at reducing the burden of NCDs by comprehensive and integrated preventive and control strategies through multi-sectoral, collaborative approaches in the region. This seminal event was followed by and in many respects was the catalyst for several global and regional consultations and conferences, including the United Nations High Level Meeting on NCDs, 2011 and the sub-

sequent Political Declaration that show agreement on a way forward in responding to the epidemic of NCDs.

A review of the strategic plans and declarations arising out of meetings and consultations held globally and regionally, reveals that several agreed essential approaches are recommended in response to the epidemic of NCDs. These include the need to effectively address the lifestyle risk factors that contribute to the NCDs particularly by taking such actions as population salt reduction to lower blood pressure; enactment of legislation to forbid smoking in public places, ban advertising and promotion of tobacco products, prohibition of the sale of cigarettes to minors, and increased taxes and duties on tobacco products; policies for responsible drinking of alcohol, and dietary improvement with reduction of intake of saturated fats and zero consumption of trans-fats. A further recommendation is the adoption of a “health in all policies” and a “whole of society” approach, recognising that many of the required corrective measures are outside the realm and purview of health. A “whole of society” strategy would see the active engagement and participation of all sectors of the society in the process, including civil society and the private sector. Common to the several consultations, declarations and strategic plans is the recognition of the need for universal access to healthcare, improved management of NCDs and the reorientation of health services with application of the chronic care model. Finally, there is recognition of the causative role of certain factors, including lack of education, poor socio-economic conditions, lack of empowerment, vulnerable people and the so-called “causes of the causes” that need to be addressed in the response to the NCDs.

The NCDs present a major health and development burden for the Caribbean and as expressed by a Leader of the Caribbean some years ago “unless they are effectively tackled all the gains made since independence in many Caribbean countries will be reversed”.

Asthmatics’ Comprehension of the Emergency Care and the Discharge Instructions Communicated to them at the Asthma Bay of the Princess Margaret Hospital

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Objective: In order to comply with advice given by physicians in the Emergency Department, patients must be able to understand the instructions. This study aims to determine the extent to which patients seen in the Asthma Bay at the Accident and Emergency Department, Princess Margaret Hospital, Nassau, The Bahamas, comprehend the emergency care that they received in regards to diagnosis, treatment, disposition and discharge instructions.

Methods: Data were collected from 277 patients registered to the Asthma Bay on randomly chosen shifts over a six-month period. Interviews were conducted immediately post discharge and again seven to fourteen days later.

Participants rated their subjective understanding of diagnosis, Emergency Department (ED) care, post-ED care and return instructions. Complete concordance between the patients’ recall and the six domains of their (a) diagnosis, (b) investigations, (c) medications received in the ED, (d) prescription, (e) discharge instructions and (f) follow-up care and the information obtained from chart review were also assessed.

Results: More than 90% of participants stated that they understood their diagnosis, ED care, post-ED care and return instructions at discharge and two weeks later. 50.2% of participants had complete concordance in all six domains initially *versus* 48.2% at the two week follow-up, 24.4% *versus* 15.9% in five domains, 10.5% *versus* 21.7% in four domains, 10.1% *versus* 6.5% in three domains, 2.5% *versus* 6.5% in two domains and 0.4% *versus* 1.1% in one domain. No participant was deficient in all six domains.

Conclusion: While the majority of patients appear to understand their emergency care and discharge instructions, a significant percentage still have some comprehension deficiencies. More patient education about their illness and physician and continuing medical education seminars on communication skills are recommended.

Socio-economic Differences in Mortality among Adults in The Bahamas

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Objective: To examine differences in mortality rates by socio-economic status (SES) among adults in The Bahamas.

Design and Methods: A subsample of adults 25 to 59 years old was extracted from registered deaths databases for the years 2000 to 2009. Occupation as coded in the dataset was used to determine socio-economic status. The outcome variable was crude rates per 10 000 persons for each occupational class, derived from the 2000 Census. Descriptive statistics, the absolute range, relative range, the population attributable risk and the effect index were all used to examine differences for all causes and selected causes of mortality.

Results: The median number of deaths for this period was 486. Mortality rates showed a gradual increase as SES decreased (13.1 of the highest class, 52.0 of the lowest). High (4.0 or greater) relative ranges and/or PARs (60% or greater) existed for all-cause mortality, all-cause mortality for males, females heart diseases, male cancer, all external causes, male external causes and all stroke. The highest discrepancy of mortality by SES was for HIV disease, with relative ranges of around 10 and PARs of approximately 80%. The effect index for HIV ranged from 1.6 for all persons (CI 1.2, 2.0) to 1.8 (CI 1.1, 2.6) for males.

Conclusions: While the overall results were expected, the social class discrepancy for AIDS mortality was surprising. This may be real, or due to recording differences on death certificates. The next step is to examine why the poor tend to die at a higher rate, so specific interventions can be established to reduce disparities.

Childhood Obesity: Current Situation in the Caribbean*

C Bocage

Obesity is generally defined as an excessively high amount of body fat in relation to lean body mass. There has been a doubling of overweight and obesity in children under five years: preschoolers and in adolescents ranging from 25%–30% (with obesity accounting for as much as 14%). Data from the Caribbean also show positive correlations of various modifiable risk factors to childhood obesity: increased sedentary living, reduced physical activity, increased consumption of sodas/carbonated beverages, reduction in fruits, vegetables and legumes intake. The low

rates of exclusive breastfeeding in the region is also a critical factor in the development of childhood obesity. The resultant co-morbidities associated with childhood obesity: diabetes, hypertension and cardiovascular diseases are increasing in adolescents in alarming proportions.

There are several gaps in research in the Caribbean and stakeholders are urged to take them on board so policy development and decision-making can be more scientifically supported. Childhood obesity is an epidemic in the Caribbean but it can be curtailed with committed governments, relevant research, public policies and actions, among other things. The need to work with multi-sectoral partners and the continued support and cooperation of sectors, for example, the involvement of school health services in obesity prevention efforts, are critical.

The Settings Approach is key to prevention: it is embedded in our health promotion strategies and designed as key to behaviour change. However, to get behaviour change we need to attempt to move away from changing behaviours in settings to changing settings to support behaviour change.

***Abstract presented in 2007 and 2009**