Past Research Day Abstracts
9th Annual Research Day: 25th September 2015

Maternal and Child Health

Neonatal Sepsis: A Global Issue Needs a Global Solution

N Kissoon

Sepsis is a syndrome in which an infection which results in a disregulated immune response in the body leading to decreased organ perfusion, multi-organ failure and if left untreated, death. However, the burden of sepsis is not represented in the Global Burden of Disease and DeathSeries of the Lancet journal, neither is it accurately represented in WHO and CDC Atlanta websites. The importance of highlighting sepsis is not merely cosmetic. Indeed, many of the interventions needed to treat sepsis must be made generically before firm diagnosis is made.

Moreover, many of these interventions are time sensitive and cannot rely on laboratory data. In addition, in severe sepsis, the treatment is time sensitive and similar and includes rapid diagnosis, administration of antimicrobials, fluids, oxygen and close monitoring. Indeed, the Ebola outbreak in West Africa is also due to sepsis. That sepsis is one of the most important diseases in the world is reflected in the global life years lost from severe infections leading experts to suggest that infectious diseases systematically steal human resources.

A comprehensive plan to address sepsis should include preventing infections such as vaccine related disease, strict hand hygiene and addressing those with nosocomial infections. The comprehensive plan should also include early recognition and aggressive treatment, antimicrobial stewardship, innovations in care and investment in the science of delivery including knowledge translation and advocacy.

There are many barriers to sepsis care in resource limited environments. However, innovative methods in which provision of low course antibiotics and tests to community health-workers, day clinics and home treatment have reduced mortality in many parts of the word, including Pakistan, Zambia, Bangladesh, Egypt, Ghana and Vietnam. Sepsis should also be thought of in broader context – it is a social disease as well as a clinical and political disease which is plagued by lack of or inappropriate use of resources. In addition, post discharge mortality after sepsis care in hospital is high and even higher than in-hospital care and should be addressed.

Advocacy is needed for the designation of a World Sepsis Day by the United Nations. This advocacy is being undertaken at the present time. You can be part of this by going to the World Sepsis Day website (http://world-sepsis-day.org), signing up as a supporter and pledging your support for World Sepsis Day. Moreover, you can also help by initiating quality improvement activities in your hospital or region, involving your healthcare authorities, involving sepsis survivors and their relatives, increasing awareness to lay people, public and the media, and sharing your experience with others by joining the Global Sepsis Alliance Committees. We all have a role to play.

Social Determinants of Maternal and Child Health in the Americas: Data, Policy Implications and Opportunities

G Eijkemans

The Social Determinants of Health (SDH) are defined by the World Health Organization (WHO) as "the conditions, in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life." This means that the conditions and contexts created by political systems and structures – economic activities and policies at the national and individual levels, social and cultural norms, to name a few – all influence and determine the health of people, families, and communities living within those conditions.

At the population level, poverty, social position (influenced by employment, education, gender, nationality and ethnicity), and the social and built environments in which a population lives are globally recognized SDH. It follows that these also influence the maternal and child health (MCH). International studies have identified determinants that explain inequity in infant mortality/birth outcomes; income inequality, social policies related to maternal health, socio-economic status (SES), race/ethnicity, and selected intermediary factors (such as psychosocial factors)

were specifically identified. These social determinants must be addressed to translate into improved MCH.

Globally, significant progress has been made towards improving MCH as defined in the millennium development goals (MDG) 4 and 5, targetted at reducing child mortality and improving maternal health. The under-five mortality rate has declined by 53% from 12.7 million in 1990 to 5.9 million in 2015. The number of maternal deaths also declined from an estimated 523 000 in 1990 to 289 000 in 2013. Despite the improvements, the MDG to reduce by two-thirds the under-five mortality rate and to reduce by three quarters the maternal mortality ratio, between 1990 and 2015, will not be met. To improve maternal and child health, all social determinants need to be addressed.

Regionally, marked improvements have also been made. The Caribbean region has more than halved the under-five mortality rate. Infant Mortality Rates (IMRs) decreased from about 90 to just over 31/1000 live births in a 40-year period in the Region of the Americas. Infant mortality in Barbados dropped by over 93% with universal access to healthcare and healthy environments being made a priority. In Brazil, by enacting policies that target SDH, such as purchasing power and access to water and sanitation, child stunting and IMR were positively and drastically impacted. The national prevalence of stunting fell by 20%, and all-cause IMR dropped from about 60/1000 live births to just over 20/1000 live births. Cuba's IMR is as low as 5/1000 live births. However, countries with higher GNPs show superior markers of change in MCH than those countries remaining. Paraguay, Guyana, Bolivia, and Haiti, representing the lower GNP, achieved a lower IMR reduction than the Region's average. Haiti specifically has highly inequitable skilled attendants present at birth, and currently has an IMR of 49/1000 live births, which is the highest in the region.

Evidence reveals significant, and often widening, disparities in health within and between more and less privileged people in low- and middle-countries like those in the Americas; significant pro-rich inequities within a country exist in access to healthcare. However, disease and disability are perceived differently among social groups; service availability may not be the only major barrier for the poor in accessing healthcare services, as evidenced by other SDH. Disparities are found also by gender and ethnicity, which are particularly relevant to MCH. Thus, mothers may not seek care due to discrimination or social barriers to receiving care based on her being female or being a certain race/ethnicity.

Social inequalities and health inequalities persist in countries of the Americas, perhaps as government health expenditures in developing countries are usually less beneficial for the poor or socially disadvantaged. Therefore, policy advances and funding opportunities must be tackled by looking at SDH, specifically in regards to race/ethnicity and gender. Indeed, the Americas must devote efforts and resources to improve MCH to ensure the best possible health outcomes for their countries.

Going forward, MDG and SDG, as guidelines and targets for SDH, are paramount to reducing gaps and to achieve equity in MCH. Sustainable development goals (SDG) take a more universal approach to enhancing world health, while still providing attainable targets and strategies for progress. Post-2015, MDG 4 and 5 fall to Sustainable Development Goal (SDG) 3: to ensure healthy lives and promote well-being for all at all ages. Sustainable Development Goals 3 directly aims to improve health outcomes, including MCH, where by 2030, the global maternal mortality ratio will be reduced to less than 70 per 100 000 live births and preventable deaths of new-borns and under-five children will be non-existent.

To begin the quest to achieve SDGs, considerations should be given to type of intervention, ability to deliver intervention to where it is needed most, and ability to collect data for comparison. Interventions delivered at community level tend to be much more equitable than those delivered in health facilities and emphasize SDH. By delivering services that address SDH such as education, gender, nationality and ethnicity, health outcomes for mothers and children can flourish. Last, once the appropriate strategy for delivering an intervention to reduce IMR and MCH is reached, and the appropriate audience and tactics are decided upon, it is imperative that data is collected either on site or thereafter. By doing so, progress towards SDG and equitable MCH can be tracked and utilized in the best way. Maternal and child health and IMR can be rehabilitated with political will, county-wide devotion, and attentiveness to the SDH.

Sociodemographic Factors Impacting Infant Mortality in The Bahamas

N Brathwaite, C Deleveaux, G Dean

Objective: To explore the influence of various sociodemographic factors on infant mortality in The Bahamas.
Design and Methods: The 2010 Bahamas Census was used as the data source. Females who had a live birth in the past year, with accompanying demographic, social, and fertility characteristics, were examined using bivariate and logistic regression analyses (p-value $\leq$ 0.05).
Results: Overall infant mortality was 2.8% among 5011 females. Logistic regression revealed for all females: increased parity, (OR 1.64; CI 1.36, 1.96), first child at 30 years or older (OR 1.85; CI 1.16, 2.96), five or more persons in household (OR 0.38; CI 0.26, 0.56), being married (OR 1.45; CI 1.01, 2.06) and being Bahamian (OR 2.47; CI 1.5, 4.06). For females under 35 years, final predictors were: increased parity (OR 1.41; CI 1.14, 1.74), being married (OR 1.86; CI 1.22, 2.83), Bahamian (OR 3.58; CI 1.76, 7.31), urban residence (OR 0.55; CI 0.34, 0.91) and five or more persons in household (OR 0.54; CI

0.35, .85). Females over 35 years of age, had decreased odds of infant mortality with households of five or more persons (OR 0.36; CI 0.19, 0.67) and not being the head of the household (OR 0.46; CI 0.27, 0.76).

Conclusions: Older age, smaller households and rural residence increased risk for infant mortality. Large household size appeared to be a protective factor regardless of age. Timely access to critical care for infants in rural areas is recommended along with wider implementation of paternity leave in the work place to increase maternal support.

Fetal Signalling in the Aetiology of Pre-eclampsia, Gestational Diabetes and Preterm Labour

J Espinoza

Successful pregnancies depend on a proper balance between increasing fetal demand for nutrients and a well-measured maternal investment to safeguard her reproductive future. Failure of the well-orchestrated maternal-fetal interactions may lead to a conflict of interests between the mother and her fetus and subsequent pregnancy complications. The "fetal-maternal conflict" is a conceptual framework whereby fetal growth and development can happen at the expense of maternal well-being.

A growing body of evidence indicates that fetal signalling may play an important role in the mechanisms of disease in pre-eclampsia, preterm parturition, fetal growth restriction and fetal death. For example, evolutionary fetal strategies to deal with chronic uteroplacental ischaemia associated with pre-eclampsia may include growth restriction, preterm parturition to exit an hostile intrauterine environment or fetal signalling to elevate the maternal systemic blood pressure in an attempt to improve blood perfusion to the fetal and placental tissues.

Accumulating evidence indicates that chronic uteroplacental ischaemia is associated with angiogenic imbalances characterized by an excess of antiangiogenic factors including the soluble form of vascular endothelial growth factor receptor 1 and soluble endoglin and low circulating maternal concentrations of vascular endothelial growth factors and placental growth factor.

Teleologically, it is difficult to believe that reproductive evolution allowed chronic trophoblast ischaemia to lead into angiogenic imbalances, endangering the survival of both the mother and the fetus. It is possible that in pre-eclamptic patients, the fetus may signal the placental release of antiangiogenic factors to increase maternal blood pressure in an attempt to compensate for the chronic uteroplacental ischaemia. Two elegant *in vitro* studies and a recent clinical report published by our group provided evidence in support of this view. These reports suggest that in patients with pre-eclampsia with ultrasonographic evidence of chronic uteroplacental ischaemia, the fetus may use adenosine signalling to increase the maternal blood pressure in an attempt to compensate for limited blood flow to the fetal and placental tissues.

David Haig, in a very insightful article proposed that gestational diabetes mellitus (GDM) may also be the result of a fetal-maternal conflict. Dr Haig proposed that a mother and her fetus compete after every meal over the glucose share that each one receives in a way that "the longer the mother takes to reduce her blood sugar, the greater the share taken by her fetus". Thus, the increased insulin resistance in late pregnancy may be caused by fetal signalling using placental allocrine hormones including human placental lactogen and human placental growth hormone among others to guarantee its adequate glucose supply, whereas the increased production of insulin would be a maternal countermeasure.

Human experimentation in the late 1960s provided evidence supporting the notion of the diabetogenic effect of human placental lactogen. Indeed, intravenous infusion of physiologic amounts of human placental lactogen to non-pregnant women is associated with glucose intolerance despite increased insulin responses. It is possible that failure of a well-orchestrated maternal-fetal interaction between fetal signalling increasing the placental production of diabetogenic hormones and maternal countermeasures may lead to GDM. Thus, glucose intolerance would develop when a woman is unable to increase her insulin production sufficiently to match the increased peripheral insulin resistance.

Fetal signalling may play an important role in pre-eclampsia and GDM as well as in other pregnancy complications. However, an abnormal maternal response to fetal signalling may also contribute to the development of these complications. Moreover, these abnormal maternal responses may uncover a subjacent predisposition to chronic diseases as demonstrated by the increased risk to develop chronic hypertension or Type II diabetes later in life among patients with pre-eclampsia and GDM, respectively.

The Prevalence and Associated Risk Factors for Iron-deficiency Anaemia in 12-Month Old Infants Attending the Public Clinics in New Providence

N Adderley, C Sinquee, S Pinder-Butler, M Frankson, C Farquhason

Background: Anaemia affects one quarter of the world's population with approximately half of the cases occurring as a result of iron-deficiency anaemia; a condition associated with short and long-term complications. The paediatric population is at an increased risk of developing iron-deficiency anaemia because of rapid physical growth and limited dietary options to supplement the increased iron requirements. There is an extensive body of research which documents the prevalence and risk factors of this

condition. However, there is limited research in The Bahamas and consequently the prevalence of this condition in New Providence is unknown.

Objective: To determine the prevalence and associated socio-economic and demographic risk factors of anaemia and iron deficiency anaemia in 12-month old at-risk infants attending public clinics in New Providence.

Design and Methods: We recruited 341 infants and their respective guardians from individuals attending well baby clinics at seven public clinics on the island of New Providence. The study period extended from January to March 2015. These participants were selected by convenience sampling to be enrolled in a cross-sectional study. Information on the demographic and socio-economic variables was then collected *via* a questionnaire. Upon completion of the questionnaire by the accompanying guardians, a blood sample was drawn from the infants. The haematological indices were analysed using an Abbot Celldyn 3700 machine. The relationship between anaemia and the sociodemographic variables was assessed *via* ANOVA, linear and logistic regression.

Results: A total of 325 infants and their respective guardians participated in the study. The prevalence of anaemia in 12-month old infants was 19.7%. The prevalence of iron deficiency anaemia in 12-month old infants was 8.3%. The demographic data showed that increased maternal and paternal academic level achievements were positively correlated into increased yearly household income ($p < 0.001$, $p = 0.006$). The comparison of anaemic and non-anaemic infants revealed that the anaemic infants were more likely to live in rented apartments. Also, non-anaemic infants were more likely to be given vitamin supplementation ($p = 0.012$). No other associations, socio-demographic or otherwise were found in this study.

Conclusion: This current study found that the prevalence of anaemia and iron-deficiency anaemia within this age group was at a relatively high rate than was previously unrecognized. Attendance to the infants' living conditions and vitamin supplementation may further reduce the prevalence of these conditions in New Providence.

Pre-pregnancy Health and Pregnancy Planning in The Bahamas

G Dean

Introduction and Objective: While there is significant perinatal data available for programme planning and evaluation, there is no comprehensive data on the various dimensions of pre-pregnancy health and pregnancy planning. A survey was therefore undertaken in an effort to generate data necessary for the planning and evaluation of components and activities for a pre-pregnancy health initiative.

Method: A cross-sectional survey was conducted among 750 pregnant women residing in The Bahamas (New Providence and the Family Islands). The survey tool was a self-administered questionnaire targeting antenatal clients who visited selected facilities during the months of April 2012 – September 2012.

Results: This study documented the high percentage of women who do not plan their pregnancies. Close to 70% of pregnancies in this survey were unplanned. Among the adolescent population, the rate was even higher at 81%. Approximately 66% of the women surveyed said they did not have a routine check-up within the last year and 9% did not have a check-up within the last five years. The study also identified other behaviours or conditions associated with poor pregnancy outcomes including: a mean BMI of 29, no routine dental check-up or cleaning among 65% of women and inconsistent or no condom use among unmarried women.

Conclusions: The majority of women in The Bahamas do not plan their pregnancies. The unplanned pregnancy rate found in this study was 20% higher than the findings in the United States of America (USA) based studies which show that approximately 50% of pregnancies are unplanned. This study highlighted the need for effective programmes to address the areas of pre-pregnancy health and family planning. It also suggests avenues for further research such as intimate partner violence, the male influence and the adolescent risk for unintended or early pregnancy.

The Challenges of Antenatal Care in The Bahamas

V Sakharkar

Antenatal care is the backbone of maternal healthcare in any country. The ultimate goal of antenatal care is a healthy mother and a healthy newborn. Antenatal care of the pregnant mother has played a key role in the reduction of maternal mortality worldwide. Ideally, antenatal care should start before conception, involving counselling and preparation of future parents for parenthood and optimization of maternal health. Antenatal care has an overarching goal towards social-health which also includes a support system, patient education and health awareness.

Regular visits after conception should identify warning signs and symptoms of various conditions complicating pregnancy in a timely manner and should prevent catastrophic events leading to maternal morbidity and mortality. A good antenatal care optimizes neonatal outcome.

In The Bahamas like many developing countries, antenatal care usually starts after conception. Traditional antenatal care has been designed on a risk based approach. The pregnant mothers are categorized into high risk and low risk group using some set criteria. It requires a fixed schedule of antenatal visits and there is a set list of 'things to do' at each visit. This fixed schedule model was recommended in 1929 by the Ministry of Health in the United Kingdom (UK) without any rationale and most of the countries are still following it.

Traditional antenatal care has been scrutinized in the recent past as many studies have shown that the maternal as well as neonatal outcomes are not related to the number of antenatal visits. The antenatal visits have become more of a ritual than actual care. As more mothers are seen more often, burdening and crowding the antenatal clinic, important clinical findings are being missed.

In The Bahamas we follow the same traditional antenatal care system. The crude birth rate in The Bahamas is 15.9/1000. Almost 70% of the births occur in Princess Margaret Hospital (PMH), Nassau. In 2012, there were 3274 total deliveries in PMH with 28.2% of them being Caesarian sections. Almost all deliveries occur in the hospital. The average number of antenatal visits is seven; however, half of the women start their antenatal visits after 20 weeks of gestation. Our immunization, laboratory tests, iron supplementation, Pap smear, STI screening and HIV surveillance are probably the best in the Caribbean but our maternal mortality ratio (MMR) is not. It is 47/100 000 live births, which is higher than Trinidad and Grenada. In the year 2012, 6% of women did not attend antenatal care. About 60% of those who had five or less antenatal visits either did not know they were pregnant or did not want others to know that they were pregnant. Almost 20% had difficulty in getting a clinic appointment and about 65 per cent perceived the healthcare providers to be unfriendly. Although the incidence of preterm labour and stillbirth was slightly higher in no care group than in any antenatal care group, there was no statistical difference in the rate of Caesarean sections, obstetric haemorrhages, hypertensive disorders and other maternal complications between optimal and suboptimal or no care groups. Neonatal outcomes such as gestational age and birthweight at delivery, respiratory problems, congenital abnormalities *etc* were also not different in these groups. These observations were unexpected but not surprising. As mentioned earlier, the effectiveness of a ritualistic traditional approach to antenatal care is questionable.

The World Health Organizations (WHO) and the United States Agency for International Development (USAID) have suggested a new model called 'Focussed Antenatal Care', which shifts the emphasis from more number of visits to less number of visits but more comprehensive visits to overcome the pitfalls of the current system. Although the focussed approach seems to be effective in low resource and developing countries, whether it will be effective in The Bahamas is questionable.

Professor Kypros Nicolaides of King's College, London, has suggested an individualistic inverse pyramid approach to antenatal care, where more emphasis is given to early detection maternal and fetal conditions using various biomarkers and ultrasound. His approach is probably too ambitious, as it requires substantial investment in laboratories and expertise. Some sort of combination of these two approaches may prove beneficial to us. In any case, it is time for us in The Bahamas to take a serious look at our antenatal care system.

Descriptive Epidemiology of Select Paediatric Cancers among Persons 19 Years Old and Younger from January 1, 2000 to December 31, 2012 and Survival Outcomes at the Princess Margaret Hospital, The Bahamas

D Williamson, C SinQuee, M Frankson

Background: Childhood cancer is rare and the incidence and survival rate have been described in the United States of America (USA) and the United Kingdom (UK). The determination of the incidence of childhood cancer and survival rate for The Bahamas has not been performed. The most common type of cancer diagnosed in the paediatric population worldwide is leukaemia.
Objectives: To ascertain the incidence of select cancers and survival rate in paediatric patients who presented to the PMH, Nassau, The Bahamas, from 2000 to 2012.
Designs and Methods: A descriptive study design was used to determine the incidence and survival rates of cancer in paediatric patient's 0–19 years old who received care at the PMH from January 2000 to December 2012. All available medical records (a minimum of 154), pathology reports (approximately 32 000) and imaging reports (five) were reviewed and information entered using a Pro Forma.
Results: A total of 127 paediatric patients were diagnosed with cancer. Overall incidence was 8.3 per 100 000 per year. Overall five-year survival rate is 42%. Leukaemia (32.3%) is the leading type of cancer, acute lymphoblastic leukaemia being the most common type. Acute myeloid leukaemia had a higher proportionate contribution compared to the USA.
Conclusion: The overall incidence was similar to Trinidad and Tobago, but lower than the USA. The survival rate was much lower than USA and UK.

Failure to Immunize: The National Global Tragedy

N Kissoon

Vaccines have been described as the leading public health intervention of the last century. The work of Jenner in the 1790s lead to the first global vaccination campaign, and in the 1977 eradication of an infectious disease, smallpox. Since then, there has been a great deal of optimism regarding the possibility of control of vaccine preventable infectious diseases. Despite the great successes, the present reality is such that in several areas of the world we are failing to achieve immunization rates that are compatible with universal coverage. Currently, there are many places in the developing world where coverage is over 80%–85% for these core vaccines. Yet vaccine preventable deaths,

such as deaths from rotavirus, which is the leading cause of gastroenteritis, is very high with the largest burden of deaths in Africa and Asia.

In order to make greater gains, we need to address the reasons for suboptimal vaccination rates including, political and social barriers and parental vaccine hesitancy. These include perceived lack of need, safety of vaccines, lack of trust in healthcare providers and government, perceived lack of involvement in decision-making, the issue of vaccines and perceived link to autism, immune system overload, lack of adequate time and resources and religious objections. There are, however, models of determinants and methods of addressing vaccine hesitancy including risk communication.

There are also models demonstrating the power of advocacy, such as the polio campaigns that occurred with the formation of the National Foundation for Infantile Paralysis in 1938.

There is no doubt that when vaccination rates decline, rates of disease increase. As an example, in the 1980s, states in the former Soviet Union saw vaccine supplies disrupted, collapse of public health systems and socio-economic instability. The result was a decrease in childhood immunization rates which was closely followed by an epidemic in which more than 150 000 cases and more than 4000 deaths occurred in the newly independent Baltic States. Mass vaccination programmes eventually controlled the epidemic. The lesson therefore is that complacency can be fatal. Medical personnel as well as lay individuals have major roles to play in achieving vaccination rates compatible with prevention of vaccine related disease.

Exploring Perceptions and Impact of Violence as Experienced by the Emergency Department Staff of the Princess Margaret Hospital in The Bahamas

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Background: Violence of all forms including workplace violence is considered a major public health issue that is just as hazardous as any microbial disease. Healthcare settings are identified as major workplace sites for violence, with a reported occurrence rate three times more than that of general workplace settings. Within healthcare settings, emergency departments (ED) are considered the high-risk areas for violent events. Emergency departments violence is not an uncommon phenomenon in The Bahamas, however literature review shows no studies addressing ED violence in this local practice region and studies identified were mostly of quantitative domain.

Aim: This study was, therefore, conducted to explore the perceptions and impact of violence experienced by ED staff of the Princess Margaret Hospital in The Commonwealth of The Bahamas.

Design and Methods: A qualitative research design and an interpretative epistemological view point was adopted. Purposive sampling method was utilized and twelve participants were recruited for the study. Data collected from semi-structured interviews were transcribed and thematically analysed to identify common themes.

Results: Apart from some unique findings, five major themes were common to all interviews. First was the overwhelming perception of violence being an innate and inevitability ED occurrence. Second, facilitating elements were viewed multifactorial with verbal abuse perceived as the most common form experienced. Third, that the viewed personal and professional deleterious impact of ED violence had the potential to negatively affect patient care. Fourth, that support and coping measures viewed as post-incidences essentials were considered lacking. Finally, that the suggested measures to decrease ED violence which related to areas of patient, staff and ED improvements, was seen as highly unlikely to be effectively implemented.

Conclusion: The study provides a useful insight into the perceptions and impacts of violence experienced by staff in the ED. Although some unique findings were observed from this study, the perceived negative impacts and consequential potential for compromised patient care were in keeping with findings from related studies in the literature review. The results of this qualitative study is not only intended to achieve a better understanding of this issue but to increase awareness and thereby prompt behavioural changes to aid in the curtailment of this debilitating ED occurrence.

Knowledge, Attitudes, Practices, Intentions and Prevalence of Obesity in Healthcare-workers of the Public Community Clinics on New Providence, The Bahamas

A Dorsett-Williams, C Chin, S Pinder-Butler, C Farquharson, M Frankson

Background: Overweight and obesity affect millions globally, including The Bahamas. Few local studies exist on the subject in healthcare-workers (HCWs). This study sought to determine the knowledge of overweight and obesity, attitudes, healthy lifestyle practices and intentions of HCWs toward their body mass index (BMI). Additionally, to determine the prevalence of overweight and obesity and any associated illnesses of HCWs in the public community clinics on New Providence, The Bahamas.

Design and Methods: Using a cross-sectional study design, 163 HCWs of eight community clinics were surveyed. Each participant completed a questionnaire and had weight, height and abdominal circumference measured. Data were analysed using IBM SPSS, v.22.

Results: Overall median knowledge score percentage was 62.0%. Daily intake of two fruits was 21.0%, three vegetables was 9.3% and seven to eight glasses of water was 29.4%. Participation in moderate or vigorous physical activity was 24.5% or 20.9%, respectively. Combined pre-

valence of overweight and obesity was 81.6%, of which 26.4% were overweight and 55.2% were obese.

Males were 23.1% overweight and 69.2% obese; females were 26.7% overweight and 54.0% obese. Misperceived BMI was 55.8% and high risk abdominal circumference was found in 68.5%. Healthcare-workers having weight concerns were 85.3%. Mean score percentage for willingness to participate in workplace wellness programmes was 80.5%.

Conclusions: Healthcare-workers are knowledgeable about healthy lifestyle practices; however this did not translate into healthy behaviours. Many are concerned about their BMI and are inclined to participate in work wellness programmes. High prevalence of overweight and obesity among HCWs is consistent with the high national prevalence in The Bahamas.

Alcohol Use Disorder and its Relation with Depression and Smoking among Patients Presenting To Public Clinical Settings in The Bahamas

P Darville, M Frankson, C Farquhason, J Rogers, N Clarke

Background: In The Bahamas, several medical practitioners have an interest in exploring the prevalence of, and associations among alcohol use disorders, depression and smoking.

Aim: This study's overall objective is determining the prevalence of alcohol use disorder, and exploring its relations with depression and tobacco use among persons presenting to public clinical settings in The Bahamas.

Design and Materials: A convenience sample of 485 persons (ages 18 years and above) from the Family Medicine Clinic, Orthopaedic clinic, Ambulatory Care at the Accident and Emergency Department, Radiology Department and Outpatient laboratory were interviewed. AUDIT (Alcohol Use Disorder Identification Test) and PHQ9 questionnaire, sociodemographic information and questions on smoking and binge drinking were asked. Scores were tallied for each area. Descriptive and Inferential statistical analyses including ANOVA and logistic regression were performed to determine possible differences and associations.

Results: Thirty-four (7.1%) of participants screened positive for hazardous drinking (AUDIT score > 8). Six per cent of the males (8) and 2.1% (7) of the females screened positive for alcohol dependence and 20.3% were binge drinkers. Current smokers comprised 10.1%. Statistically significant relationships were found between smoking and AUDIT scores. About 15.8% (75) screened positive for mild depression, 4.2%, for moderate, 1.1% for moderately severe and 1.1% for severe. A significant association was seen between Bidi smoking and PHQ9 scores ($p < 0.001$). A linear trend was seen in the relationship between AUDIT scores and PHQ9 scores; a statistically significant difference ($r = 0.176$, $p < 0.001$).

Conclusion: Alcohol use disorder (and binge drinking) is (are) modestly prevalent in The Bahamas and is associated with smoking and higher PHQ9 scores. A statistically significant but quite weak relationship was seen between AUDIT scores and PHQ9 scores for depression ($r = 0.176$, $p < 0.001$).

Cardiovascular Risk Factors Knowledge, Attitudes and Behavioural Patterns among Adults Attending Outpatient Clinics at the Public Hospitals Authority – Princess Margaret Hospital, New Providence, The Bahamas

S Butler, C Hanna-Mahase, S Pinder-Butler, P Cargill, C Farquhason, M Frankson

Background: Concerns exists about patients' awareness of cardiovascular disease, the leading cause of death in The Bahamas. This knowledge, attitudes and behavioural deficit may well have a far reaching impact extending beyond the increased health burden and include economic and social deprivation.

Objective: To ascertain ambulatory patients' knowledge, attitudes and behavioural patterns, which are fundamental determinants toward reducing cardiovascular disease.

Methods: This cross-sectional study involved a convenience sample of adults attending outpatient clinics at the Princess Margaret Hospital, Nassau, The Bahamas, during March and April 2014. The data collection instrument was a self-administered questionnaire. Descriptive and inferential analysis was done using the Statistical Package for the Social Sciences (IBM SPSS, V22.0).

Results: Five hundred and sixty persons participated, their median age was 41–50 years and 72.4% were female. Participants' median educational level was high school graduates. Healthwise, 43.6% had hypertension, 31.7% hypercholesterolaemia and 22.2% diabetes mellitus. Overweight and obesity predominated as their mean BMI was 31.5 (± 7.93) kg/m^2. At 58.1%, participants' level of physical inactivity was high. The mean proportion with correct knowledge of CVD risk factors was 53.5 (± 18.10)%. Participants recognized 48.5% of the major causes, 52.7% of stroke and heart attack symptoms and 59.9% of behaviours associated with prevention. Regarding behavioural patterns, 27% of males and 19.1% of females met the recommended exercise goals.

Of the 58.3% of subjects who drank alcohol, males indulged more frequently. Smoking practice was minimal (9.7%). A prior history of heart-attack (5.4%) and stroke (8.2%) was present with significant co-morbidities. Patients exhibited an overall positive attitude regarding cardiovascular health promotion.

Conclusions: Regarding cardiovascular risk factors, Bahamian residents have significantly suboptimal knowledge and behavioural patterns but positive attitudes.

The Emergency Department Virtual Ward Boarded Patients' Preference for Boarding, Length of Stay and Medical Essentials

R Davis-Hall, C Bullard, M Frankson

Introduction: The virtual ward concept originated in England in 2004 but has been redefined out of necessity to address specified needs of the Emergency Department (ED) Princess Margaret Hospital, Nassau, The Bahamas. Boarded inpatients are housed there when the hospital is full to capacity.

Aim and Objectives: The aim of this study was to evaluate preference for boarding, length of stay and assessment of medical essentials of boarded inpatients (medical admissions) of the virtual ED ward. The objectives were to determine the sociodemographic variables of these patients, preference for boarding and gender specific boarding assignments, length of stay (LOS) in the ED virtual ward, perception of privacy in the virtual ward, privacy for physical examinations, medical information and commencement of medications.

Methodology: This was a cross-sectional study conducted in two phases. The first phase began on October 1, 2011 to March 30, 2012 and the second was during January 1 to March 31, 2013 at the Princess Margaret Hospital. A questionnaire was administered to patients *via* the research team. The data was analysed using the Statistical Package for the Social Sciences (IBM SPSS) for statistical analysis.

Results: A total of 350 patients participated, 47% (164) males and 53% (186) females. There were 94.3% (330) Bahamians and 5.7% (20) Non-Bahamians. Boarding location preference was 86% (301) for the inpatient ward. Gender specific preferences for wards were that 96.3% (180) of women preferred female wards and 78% (128) of men preferred male wards. Length of stay variable had a median time > 48 hours (p = 0.016, K-W ANOVA). Privacy while boarding was given a fair rating by 36% (128) participants (p = 0.025, Spearman's R = -0.120). Privacy for physical examinations was rated poor by 38% (133) of patients. Privacy for dissemination of medical information was rated poor by 43% (151) of participants. Medications ordered by admitting team were started within ½ – 1 hour for 30% (105) patients after ordered by the admission team.

Conclusion: Boarded virtual ward ED patients preferred inpatient wards, males and females preferred gender specific wards, privacy while boarding was fair, privacy for physical and medical examinations were considered poor. Commencement of medications was given in a timely manner. Current recommendations, advise that ED boarding is not the ideal. Hence further alternate locations for inpatient boarding, which is the preference, should be identified. All patients should have a right to privacy, which should be standardized, preserved and maintained at its optimum, from door to discharge. Finally, commencement of medication of any boarded patient should be initiated in a timely manner.

Update: Mother-to-Child Prevention in The Bahamas

P McNeil

Twenty years after the introduction of zidovudine to HIV-positive pregnant women was shown to effectively decrease mother-to-child transmission, many countries are now interested in the validation process for the elimination of HIV and congenital syphilis.

Cuba has been validated as the first country in the world to eliminate the mother-to-child transmission of HIV and congenital syphilis.

As we begin to document and verify the sustained elimination of congenital syphilis and HIV in The Bahamas, what research topics and health systems strengthening projects would facilitate this process?'.

An Assessment of Burnout in Physicians Employed with the Public Hospital Authority in Nassau, The Bahamas

M Wallace-Bain, M Gonzales-Cameron, R Roberts-Carter, S Zonicle-Newton, S Pinder-Butler, M Frankson

Objectives: To identify factors associated with the Burnout Syndrome in light of the prevalence of that syndrome in physicians working in the Public Hospital Authority (PHA), Nassau, The Bahamas.

Design and Methods: A cross-sectional study was done utilizing a self-administered survey comprising of demographics, general health, work environment and Maslach Burnout Inventory items to assess burnout among salaried physicians working in nine departments of PHA. The Statistical Package for Social Sciences was used for data analysis.

Results: One hundred and fifty-three physicians participated. Their mean age was 35.84 (± 7.09) years old; median 34.00 (IQR: 31.00, 40.00) years old. 64.7% (99) were females while 35.3 % (54) were males. No association was found between these, other sociodemographic variables measured and burnout status. Physicians in the Department of Internal Medicine represented 22.2% (34), family medicine 20.3% (31), emergency medicine 19.6% (30), paediatrics 13.7% (21) and physicians in other departments 22.3% (34). There was a moderate level of burnout in 54.2% of physicians employed under the Public Hospital Authority collectively exhibited. Separately, poor balance of family, 15 work environment potential stressors and four potential stress relievers were found to be each weakly or very weakly related to burnout status. Postgraduate programme year, irregular sleep pattern and lack of appreciation were moderately strong positively related. Logistic regression analysis showed the key

predictors of burnout status to be lack of appreciation (OR = 1.69, p = 0.002) and number of years worked post-internship (OR = 0.94, p = 0.039).
Conclusion: Physicians sensing of appreciation and number of years worked post internship were clear predictors of burnout.

Effect of a Brief Educational Intervention Concerning the Human Papillomavirus on the Knowledge and Attitudes of Antenatal Patients in New Providence, The Bahamas
I Pratt, J Thompson, R Butler, A Frankson, C Rattry

Introduction: Human papillomavirus (HPV) is the most common sexually transmitted disease. If left untreated, it can affect the cervix causing cancer. Cervical cancer (CC) is among the top five cancers that affect women globally. One of the main barriers to effectively treating HPV-infections appears to be a lack of knowledge in the general population about HPV and the need for regular Pap screens or the availability of the HPV vaccines.
Objectives: This study sought to determine the level of awareness about HPV and the effect of HPV-related educational intervention in antenatal patients in New Providence.
Method: A Solomon's four group experimental design was used to assess the effect of HPV-related educational intervention. Patients were randomly assigned to one of four arms of the study. During the study's pretest phase Groups A and B were asked to complete self-administered questionnaires.
Results/Conclusions: The role of HPV as an oncovirus is a cause of significant public health concern. Knowledge of HPV varied from 14–32% in the control group and improved to 52–72% after intervention. Attitudes toward HPV were impacted by the study. After intervention, the percentage of patients who would get the vaccine improved from 52% to 62%. The results from this study were statistically significant at showing an improvement in the scores on questionnaires about HPV after education.

Impact of Gynaecological Tumour Board Rounds on Patient Care
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Objectives: The objective of this study was to determine the impact of weekly tumour board rounds on the management of patients with gynaecologic tumours.
Methods: A retrospective chart review of cases discussed at the tumour board rounds at the Tom Baker Cancer Centre was done. Data regarding patients' demographics, tumour type, stage of disease and pathology were collected. We sought to determine if there were any discrepancies between the pre and post-tumour board diagnoses. A major dis-crepancy was defined as changes that affect patient care while a minor discrepancy was defined as changes that did not affect patient care.
Results: Over a three-year period between January 2010 and December 2013, 1604 tumuor board chart reviews were done. The mean age was 57.6 ± 14.1 years. Endometrial conditions were the most frequent accounting for 43% of the discrepancies, followed by ovarian (25%) and cervical abnormalities (23%). Overall, 13.2 % (212) were found to have discrepancies, 3.4% (54) major and 9.9% (158) minor. When a major discrepancy was noted, 18 (33.3%) required no additional treatment, 17 (31.5%) required chemotherapy, four (7.4%) required a change in the chemotherapy regime, 10 (18.5%) required additional surgery and five (9.3%) required radiation/chemoradiation.
Conclusion: This project shows that tumour board reviews are an important quality control measure in the management of gynaecologic oncology tumours and affect patients' management. When a discrepancy is found, one of four patients will have a change in management.

Male Circumcision in The Bahamas: Attitudes and Practice among Healthcare Providers
R Roberts, C George, D Brennen, L Deveaux, S Read

Several large randomized controlled trials in African countries with high prevalence of HIV have shown significant efficacy of male circumcision (MC) in reduction of HIV acquisition in heterosexual men by between 38% and 66% over 24 months. There is also evidence that MC may reduce the risk of transmission of HPV between men and women.

We have conducted a study on MC in The Bahamas, examining attitudes and practices among healthcare providers, men and women in the general public, both adults and youth, as well as other targetted groups such as men who have sex with men.

By gathering information on attitudes and approaches towards MC among men, women and healthcare practitioners in The Bahamas, this study can provide information for policy development at the institutional level as well as for educational campaigns which could have a perceptible impact on the future attitudes and practices regarding MC. Here we present findings on attitudes and practices of physicians and nurses, as they relate to MC in The Bahamas.
Methods: We conducted a cross-sectional study among physician and nurses. The questionnaire was completed between 2014–2015. It was developed and piloted among healthcare providers. For the physicians, an on-line version was available. Medical students assisted in approaching physicians by phone or office visits. For the nurses, administration of the questionnaire was carried out with the assistance of the research nurse, from the Department of Nursing at Princess Margaret Hospital. The Department of

Public Health assisted in the distribution of the questionnaires to their nurses. The completed questionnaires were entered in SPSS database, in separate databases.

Data Analysis was done in SPSS. We conducted frequency analysis to describe the participants and their attitudes for this study.

Results: Two hundred and two physicians and 92 nurses completed the questionnaire. Of the physicians, 52% were males, 56% were between 30 and 49 years of age and 64% had been in practice more than 10 years. Thirty-nine per cent had performed MC and 73% had assisted. When asked if they would recommend MC, 60% said 'yes' with 26% uncommitted. Only 9% said 'no' and 4% said 'strongly no'. Twenty-five per cent said they would be willing to provide MC services but one of the major deterrents was cost. Seventy per cent thought that the best time to do MC was in infancy. Seventy per cent thought there were advantages to MC including improved hygiene and prevention of STI's. Only 44% indicated that HIV prevention was an important reason.

Of the 92 nurses, 50% were from Princess Margaret Hospital and 48% were from Public Health Clinics. Ninety-five per cent were female. Forty-four per cent had been in practice for more than 10 years and 30% had assisted in MC. When asked if they would recommend MC, 4% said 'no', 80% said 'yes' or 'strongly yes' and 12% were undecided. As with physicians, 69% thought the best time for MC was in infancy. Fifty-nine per cent thought there was an advantage to MC with 86% indicating that it improved hygiene, 54% thought it reduced STIs and 31% thought it reduced the risk of acquiring HIV.

Conclusion: Of 294 healthcare providers surveyed, most indicated that they would recommend MC and that the best time to do this was in infancy. Also, most thought that there was an advantage to MC, with hygiene being the most significant followed by reduction in STIs. Less than half appeared to be aware that MC reduces the risk of HIV acquisition. One of the major deterrents to MC is cost.

Further analyses will provide more detailed information.

Epidemiological Risk Factors, Knowledge and Attitudes Concerning Osteoporosis among Women in a Primary Care Setting In Nassau, The Bahamas

KC Smith, CL Chambers, S Pinder-Butler, MA Frankson

Objective: To determine perimenopausal and postmenopausal women's epidemiological risk factors (including the calculated ten-year fracture probability of obtaining an osteoporotic fracture), knowledge and attitudes toward osteoporosis in a specialist family medicine practice setting in The Bahamas, .

Methods: Using a cross-sectional survey design, researchers determined epidemiological risk factors, knowledge and attitudes concerning osteoporosis among Bahamian perimenopausal and postmenopausal women and calculated their FRAX scores for a major osteoporotic and hip fracture. Informed consent was obtained from all participants. The study took place in the Family Medicine clinic of the Public Hospital Authority and selected Public Health Clinics. Data were collected using questionnaires and analysed using the Statistical Package for the Social Science (SPSS).

Results: The 347 enrolled female participants mean age was 57.91 (± 8.98) years old and 76.9% knew what osteoporosis was but had less accurate knowledge about the risk factors, 47.6% knew menopause was a contributing factor, 93.1% did not know the recommended daily calcium amount and 34% consumed calcium rich meals daily, 88.3% knew and practiced walking as a preventative method. Attitudes were mainly positive as 82% thought it should be discussed with their physician. FRAX scores were relatively low with only 20% requiring a bone density scan.

Conclusion Overall, low FRAX scores indicated low fracture risk among The Bahamian women. However, limited knowledge about related risk factors was also evident. Increasing awareness through public education campaigns, addressing modifiable risk factor and involving younger women as well can avoid major complications from osteoporosis in the future.