Caribbean Public Health Agency
59th Annual Scientific Meeting

May 1 – 3, 2014

Renaissance Aruba Convention Centre
Aruba

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NCDs

Through the Life Course
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West Indian Med J 2014; 63 (Suppl. 2):
Policy Implementation for Better Health Outcomes: Grabbing the Low Hanging Fruits

D Ramlauth

The 2013 annual scientific meeting of the Caribbean Public Health Agency (CARPHA) provided a fertile environment for the genesis of regional action on childhood obesity. At this meeting, stakeholders engaged in research to policy dialogue on ‘Combatting the childhood obesity epidemic’. Building on this was the appointment of a CARPHA Public Health Nutrition Advisory Committee and the development of a draft ‘Plan of action for the prevention and control of childhood obesity’. Added to this was a recent policy dialogue on the ‘Prevention and control of childhood obesity in the Caribbean: a call to action’, the outcome of which was subsequently presented at the 2014 non-communicable disease (NCD) Child International Conference in Port-of-Spain. These are critical initiatives geared toward the collective strengthening of evidence-based policies and programmes to tackle childhood obesity in the Caribbean. Indeed, many CARICOM countries are engaged to varying extents in the formulation of relevant policies; however, to make this effort efficient with maximum impact, there is need to collectively strengthen and optimize the implementation of regional health policies.

At the regional (CARICOM) level, several policy frameworks have been developed, including a Regional Food and Nutrition Security Policy and Action Plan, a Strategic Plan of Action for the Prevention and Control of Non-communicable Diseases and the Caribbean Cooperation in Health (CCHIII). Successful implementation of these policies by member countries has been varied and limited; herein lies the challenge for achieving better health outcomes in CARICOM States. Among the possible explanations that would account for the current challenges to successful health policy implementation in the Caribbean are: lack of resources, unrealistic policies, poor implementation strategy, poor communication and engagement of implementers, lack of multi-sectoral collaboration and lack of political will. It should be noted that many countries, both developing and developed, share these common constraints in health policy implementation. In the CARICOM region, it is important to navigate these constraints by mobilizing and pooling resources, while attracting political support.

Health policy formulation should be based on credible evidence and there have been two notable attempts in the Region to strengthen the links between research and policy. A World Health Organization/Pan American Health Organization (WHO/PAHO) Evidence Informed Policy Network was launched in Trinidad and Tobago in October 2009, and in June 2013 the US Cochrane Centre officially launched its Caribbean Branch at The University of the West Indies, Jamaica. Added to these evidence repositories are the regular research outputs that are featured at scientific meetings such as the annual CARPHA Health Research Conference. The inevitable question that arises is, how well are we using the available evidence, both local and global, for formulation and implementation of health policy? Within the answer to this question is the recognition that available evidence may require adaptation to local needs and may not always be relevant and timely. However, given the stark reality of the prevailing NCD burden in the Caribbean, failure to formulate and implement policies that promote healthy populations should not be an option.

It is very likely that a crippling hurdle to effective policy implementation is the absence of adequate stakeholder engagement. Grand Challenges Canada has coined the term Integrated Innovation™ to capture the coordinated application of scientific, technological, social and business innovation to the development of solutions to complex challenges. It is reasoned that this integrated multidisciplinary approach provides the platform and opportunity to explore innovative solutions to solving emerging problems. For example, given the ubiquitous usage of mobile phones in the Caribbean, can the existing telecommunications network be optimized as a tool in implementing NCD-related health policies? The answer lies in active engagement of the key players in the telecommunications industry, in communities affected by policies and the workers tasked with the challenge of delivering healthcare, among others. Such a discourse would likely identify the requirements as well as barriers and facilitators for implementing a given policy.

Political will is an imperative for policy implementation and is perhaps the primary facilitator for effective policy implementation. It may be argued that if
there was strong political will to effectively battle the current NCD burden in the Caribbean, one would have seen the implementation of modest policies that could bring about increased population awareness for healthy lifestyles. Rather, the current approach is stuck in the disease management paradigm. Consider the following health policies that could be implemented with potential for major impact, with the only component lacking being political will. Of course, these potentially revolutionary actions may not be politically attractive; unlike the glamour associated with launching a new dialysis unit or chemotherapy suite or a kidney transplant centre. Regardless, there should be a concerted effort to build awareness for implementation of the following policies:

**Promotion of healthy lifestyles among school children**

**Build self-awareness among children:** Many countries are routinely collecting data on school children’s body mass index, waist circumference and blood pressure, to which could be added finger-prick fasting blood glucose. Children should be given these results biennially and a School Health Certificate at the end of primary and secondary school. This will empower children to become aware of their health status and have the opportunity to become involved in their health. This could eventually inculcate a culture of ownership and self-management of health.

**Build a supportive environment for healthy lifestyle among school children:** Enact Healthy Food for Healthy Child legislation to prohibit the adventitious sale of foods high in fat, sodium and sugar within the school environment. This should also include the phasing out of junk food advertising on school grounds. This is a small step in trying to empower children to make informed dietary choices. There is precedent for such legislation in Canada and the United Kingdom (UK); it requires quick action and engagement of the food providers including the beverage industry and school feeding programmes. In the UK, this approach resulted in a 25% reduction of sodium intake between 2000 and 2011, and prevention of approximately 9000 stroke-related deaths.

**Nutrition labelling legislation**

All advertisement of foods must be required to include the total calorie content of the serving shown along with the calories from fat, and sugar and sodium content. Such disclosure is required to counteract the overwhelming presence of fast food advertisements, and will assist consumers to discern the quality of the advertised food and hopefully make healthy choices. Similar legislations are already in place in many North American cities and target any food establishment that employs more than 20 persons.

**Regional investment in a media blitz to increase consumption of fruits and vegetables**

A regional policy decision is urgently required to allocate funds for the promotion of fruit and vegetable consumption, and reduction of fried foods. It has been repeatedly documented that about 90% of persons in the Caribbean do not meet the daily intake of five servings of fruits and vegetables. In fact, available evidence shows that most persons are in the pre-contemplative stage of readiness for change; many are not even aware of the health benefit of fruits and vegetables. Further, there is huge economic potential to the local agriculture industry, food importers and producers to ensure the regular availability of sufficient and varied fruits and vegetables.

**NCD (diabetes, hypertension, coronary heart disease) health visit checklist**

Despite the input of huge resources into NCD management, optimal blood lipids, blood pressure and glycaemic control are notoriously difficult to achieve. This may be partially attributed to poor self-management among persons affected by NCDs, largely due to scant knowledge of their disease, its aetiology and management. Implementation of a checklist to persons affected by NCDs could help them to prepare for visits to their healthcare provider, and be better informed about what to expect at those visits. This would empower persons affected by NCDs to participate in their self-management.

The suggested health policies outlined above are obviously not exhaustive, but their quick and successful implementation would sound the battle cry for an enduring fight against NCDs. Urgent action is needed to counteract the raising threat by NCDs to regional development; failure to do so will commit our children to a legacy of high fat, high sugar diets and set them on a path of increased morbidity and reduced life expectancy.

*Honorary Professor, The University of the West Indies*
**CARIBBEAN PUBLIC HEALTH AGENCY**

*59th Annual Health Research Conference*

*Renaissance Aruba Convention Centre, Aruba*

*May 1 – 3, 2014*

## Programme

### Monday, April 28, 2014

- 8:00 am  
  22nd Meeting of the CARICOM Chief Medical Officers
- 8:00 am  
  CARPHA Basic Monitoring and Evaluation Workshop
- 8:00 am  
  CARPHA Data Analysis Using Epi Info Workshop

### Tuesday, April 29, 2014

- 8:00 am  
  22nd Meeting of the CARICOM Chief Medical Officers
- 8:00 am  
  CARPHA Basic Monitoring and Evaluation Workshop
- 8:00 am  
  CARPHA Data Analysis Using Epi Info Workshop
- 8:00 am  
  NIH/NCI – Cancer Surveillance for the Caribbean

### Wednesday, April 30, 2014

- 7:30 am  
  First CARICOM and Dutch Caribbean Meeting on Community Based Rehabilitation (CBR)
- 8:00 am  
  CARPHA Research to Policy Meeting
- 8:00 am  
  CARPHA Basic Monitoring and Evaluation Workshop
- 8:00 am  
  CARPHA Data Analysis Using Epi Info Workshop
- 8:00 am  
  NIH/NCI – Cancer Surveillance for the Caribbean

### Thursday, May 1, 2014

**Session 1**  
Opening Session  
Chairpersons: K Mungrue, MA St John  
Room A/B

- 8:00 am  
  Feature Lecture 1
  “Cancer surveillance globally and in the Caribbean: the Global Initiative for Cancer Registry Development (GICR)”  
  D Forman

**(O – 1)**  
8:45am  
Traumatic experiences, mental health and risky sexual behaviour in students at a Caribbean University campus  
NP Sober-Granum, LR Bishop, K Peltzer, TA Samuels

**(O – 2)**  
9:00 am  
Association between specific high-risk cervical human papillomavirus profiles and cervical abnormalities among human immunodeficiency virus-positive women in The Bahamas  
DN Dames, E Blackman, R Butler, E Taioli, S Eckstein, K Devarajan, A Griffith-Bowe, P Gomez, C Ragin
9:15 am  An assessment of behavioural risk factors in St Lucia  
P Leon, G Chery, L Atkins

9:30 am  Trans-generational epigenetic effects of folic acid supplementation of a ‘cafeteria’ diet on insulin-signalling, lipid and carbohydrate metabolism genes in Sprague Dawley rats  
CE Cuthbert, A Hawke, JE Foster, DD Ramdath

9:45 am  Carbapenemase-producing Enterobacteriaceae detected in sewage on the island of Barbados  
EG Knaizeh, SN Workman

10:00 am  Use of social media to strengthen disaster management in the Ministry of Health, The Bahamas  
D Brennen, C Moxey, N Brathwaite, L Smith, C Deleveaux

10:15 am  COFFEE BREAK /POSTERS/ EXHIBITS  
Room E/F

Session 2  
Chronic Non-communicable Diseases I  
Chairpersons: R Cummings, S Keizer Beache  
Room A/B

11:00 am  Feature Lecture 2  
“The economic benefit from intervening early to prevent NCDs”  
R Nugent

11:45 am  Biomarkers of chronic kidney disease and longitudinal bone loss in Tobago black men of African descent  
H Egwuogu, M Zmuda, AL Patrick, I Miljkovic, A Youk, Y Sheu, CH Bunker

12:00 pm  Early life social and biological determinants of blood pressure at 18–20 years old: the 1986 Jamaica Birth Cohort Study  
TS Ferguson, NO Younger-Coleman, MK Tulloch-Reid, JM Knight-Madden, M Samms-Vaughan, D Ashley, A McCaw-Binns, JK Cruickshank, O Molaodi, S Harding, RJ Wilks

12:15 pm  Prevalence and predictors of hypertension and prehypertension among University of the West Indies Cave Hill students in Barbados  
TA Samuels, L Bishop, K Peltzer

12:30 pm  Prevalence of orthostatic hypotension among ageing patients on antihypertensive and antidepressants and assessment of the risk of falls  
L Smith, M Gossell-Williams, C Morris, D Eldemire-Shearer

12:45 pm  Resiliency and cardiovascular risk factors in Jamaican adolescents 15–19 years  
S McFarlane, N Younger-Coleman, G Gordon-Strachan, D Francis, RJ Wilks

1:00 pm  LUNCH (Pre-Function Area)  
Sponsor: John Hopkins Medicine International  
“Novel pathways linking obesity to heart failure”  
C Ndumele
Session 3a  Concurrent  Chronic Non-communicable Diseases 2
Chairpersons: D Johnson, P Adams
Room A/B

(O − 12) 2:00 pm  Associations of social determinants of health with non-communicable disease prevalence in the Trinidad and Tobago Population – Exploratory analysis of the STEPS data
AQ Hinds, HC Yeh, F Hill-Briggs

(O − 13) 2:15 pm  Medication adherence and associated glycosylated haemoglobin $A_1c$ in Type 2 diabetics in New Providence, Bahamas
D Archer-Cartwright, M Millar, D Bain, T Hanna, MA Frankson, S Pinder-Butler, C Hanna-Mahase

(O − 14) 2:30 pm  An exploratory investigation into the effectiveness of, and satisfaction with, the Diabetes Association of Barbados’ counselling service
T Blackman, N Unwin

(O − 15) 2:45 pm  Nutritional knowledge, attitude, and practice of diabetic clients attending an outpatient clinic in Trinidad and Tobago
M Webb, J Aguilar

(O − 16) 3:00 pm  The burden of sight-threatening diabetic retinopathy
L Mowatt, G Gordon-Strachan

(O − 17) 3:15 pm  Prevalence of sleep disorders in patients with Type 2 diabetes in Trinidad
R Ramtahal, C Khan, K Maharaj-Khan, S Nallamothu, M Lazo, F Hill-Briggs

3:30 pm  COFFEE BREAK /POSTERS/ EXHIBITS
Room E/F

Session 3b  Concurrent  Family Health
Chairpersons: F Hickling, M Frankson
Room C

(O − 18) 2:00 pm  Knowledge and awareness about sickle cell disease in mothers with positive prenatal sickle cell haemoglobinopathy screening test at the Princess Margaret Hospital and prevalence of sickle cell trait in this group
D Ferguson-Saunders, C SinQuee, A Frankston, T Gibbs

(O − 19) 2:15 pm  Universal newborn screening for haemoglobinopathies in Guadeloupe (French West Indies): Basis of a collaboration in the Caribbean area
C Saint-Martin, G Wheeler, K Lee, M Romana, A Lecointe-Jones, L Keclard-Christophe, M Etienne-Julian, M-D Hardy-Dessources

(O − 20) 2:30 pm  Attitudes toward receiving blood transfusions among clinic attendees in Trinidad
K Metivier, K Sammy, S Labban, M Rudder, S Singh, A Reginald, S Ramoutar, G Legall, K Charles

(O − 21) 2:45 pm  Attitudes toward blood donation: A 10-year follow-up study of residents of Trinidad and Tobago
K Chisholm, K Gabourel, K Philip, S Ramdath, H Abdul-Hakeem, K Charles

(O − 22) 3:00 pm  The health of at-home and abroad Caribbeans
K Lacey, K Powell-Sears, N Matusko, J Jackson
The impact of exercise on cognitive function in the elderly attending gerontology clinics, New Providence, Bahamas
I Minus-Grimes, C Hanna-Mahase, D Eldermire-Shearer, MA Frankson

3.30 pm
COFFEE BREAK /POSTERS/ EXHIBITS
Room E/F

Session 4a Concurrent Chronic Non-communicable Diseases 3
Chairpersons: A Samuels, G Hutchinson
Room A/B

4.00 pm
Diagnosis of non-traumatic chest pain presentations to the Accident and Emergency Department at the San Fernando General Hospital, Trinidad and Tobago
S Kowlessar, K Gosine, R Hosein, S Jagassar, V Jagessar, J Mohammed, A Permanand, G Hutchinson

4.15 pm
Comparison of asthma control using the Caribbean guidelines and patient perception of control
S Beharry, D Gidla, A Maharaj, S Bissram, S Sakhamuri, TA Seemungal, LM Pinto-Pereira

4.30 pm
When a cough is not a cold: Healthcare seeking behaviours of asthmatic children's caretakers in St Kitts and Nevis
S Moore, J Richardson, I Jacobs, N Slack-Liburd

Session 4b Concurrent Environmental Health
Chairpersons: C MacPherson, T Maitland
Room C

4.00 pm
Spatial distribution of epidemiological cases of dengue fever in Suriname, 2001–2011
D Hamer, M Lichtveld

4.15 pm
An assessment of mercury exposure for two vulnerable communities in Suriname, South America
W Hawkins, P Ouboter, M Lichtveld

4.30 pm
Review of potential health outcomes from exposure to contaminants of emerging concern in the Caribbean
MS Forde

4.45 pm
Antiproliferative effects of Surinamese medicinal plants against warts in a human malignant melanoma cell line
DRA Mans, P Pinas, P Magali, R Soekhoe, JR Toelsie, R Bwap, JA Hasrat, S Huang

Friday, May 2, 2014
7:00 am
Breakfast Session (Pre-function Area)

“Getting your research proposal funded”
D Ramdath
**Session 5a**  
**Concurrent** Chronic Non-communicable Diseases 4  
Chairpersons: M Thame, M Pitts  
Room A/B

8:00 am **Feature Lecture 3**  
“SCI: Transforming the care of children with cancers and serious blood disorders”  
U Allen

(O − 33) 8:45 am **Novel non-invasive procedures for early detection of diabetes mellitus in community-based samples**  
AS Dhanoo, F Hill-Briggs, M Lazo, S Nayak, BN Cockburn

(O − 34) 9:00 am **Cross-sectional evaluation of the Finnish Diabetes Risk Score as a screening tool for undetected Type 2 diabetes and dysglycaemia in Aruba**  
P Suykerbuyk, S van der Linden, D Helder

(O − 35) 9:15 am **The association and diagnostic importance of NT-proBNP and hsCRP in Type 2 diabetics in Trinidad**  
J Rampersad, S Ramkissoon, S Biswah, A Mohammed, A Maraj, C Rampersad, BS Nayak

(O − 36) 9:30 am **Minimal improvement in management of diabetes in primary care in Jamaica, over two decades: A clinical audit**  
M Harris, K James, N Waldron, TS Ferguson, JP Figueroa

(O − 37) 9:45 am **The association of age, gender, ethnicity, family history, obesity and hypertension with Type 2 diabetes mellitus in Trinidad**  
A Sobrian, N Samuel, D Pope, K Latiff, K St Clair, K Lourenço, A Rampersad, BS Nayak

10:00 am **COFFEE BREAK /POSTERS/ EXHIBITS**  
Room E/F

**Session 5b**  
**Concurrent** Communicable Diseases  
Chairpersons: RC Landis, M Litchveld  
Room C

(O − 38) 8:45 am **The distribution of respiratory viruses among severe cases of respiratory illness and their association with severe acute respiratory illnesses related deaths in Barbados**  
M Thorne, K Springer

(O − 39) 9:00 am **Prevalence and aetiological agents of urinary tract infections in long-term care facilities in Georgetown, Guyana**  
P Cheddie, BS Farouk, J Jainarine, T Holder

(O − 40) 9:15 am **Acinetobacter sp: Emerging as an increasing threat at a tertiary care hospital in Guyana**  
E Tyrell, A Wilson-Pearson

(O − 41) 9:30 am **An investigation into the carriage of methicillin-resistant staphylococci on fomites at The University of the West Indies, Cave Hill Campus**  
K Knight, SN Workman

9:45 am **Chikungunya update**  
B Olowokure

10:00 am **COFFEE BREAK/POSTERS/ EXHIBITS**  
Room E/F
Session 6a  Concurrent  Chronic Non-communicable Diseases 5  
Chairpersons: C Ragin, M Reid  
Room A/B

10:45 am  Feature Lecture 4  
“Maternal death surveillance and response beyond 2015: Jamaica”  
A McCaw-Binns

11:30 am  Head and neck cancer trends in Trinidad and Tobago  
C Ragin, JC Liu, E Blackman, V Roach, K Devarajan, K Tam-Ashing, G Andall-Brereton,  
S Gathere, E Taioli

11:45 am  Human papillomavirus genotype distribution in cervical samples among vaccine naïve Barbados women  
J Ward, K Schmalenberg, NA Antonishyn, H Thomas, C Chase, PN Levett,  
M Gittens-St Hilaire

12:00 pm  Factors of knowledge, attitudes and spirituality as predictors of breast cancer screening practices in Bahamian women  
I Gibson-Mobley

12:15 pm  The impact of prostate cancer on the health system in Trinidad  
M Gangar, M Shah, S Ali, W Cuffie, N Dodough, L Mohammed, V Mungroo, J Ramsahai,  
J Ramdath, K Mungrue

12:30 pm  The epidemiology of an emerging epidemic of cancer in Nevis, St Kitts and Nevis  
G Avery, D Baskaran, H Mouseghy, G Matthew-Mattenet

12:45 pm  Oncology training needs assessment for clinical healthcare workers in Trinidad and Tobago  
A Richardson, Z Ali, A Lum Lock, K Capildeo, C Bodkyn, D Narinesingh, A Sinanan

1:00 pm  CARPHA Clinical Guidelines Update  
K Connell

1:15 pm  LUNCH (Pre-function Area)  
Sponsor: John Hopkins Medicine International  
“Population health: Strategies for improving health and reducing costs”  
L Dunbar

Session 6b  Concurrent  HIV  
Chairpersons: K Harvey, B Bain  
Room C

11:30 am  Anosognosia in HIV/AIDS at Tobago Health Promotion Clinic, 2003–2012  
R Noel, K Gomez-Adams, C Pantin, I Neckles

11:45 am  Understanding attitudes, barriers, and challenges in Barbados to partner notification for HIV and other sexually transmitted infections  
OP Adams, AO Carter, L Redwood-Campbell

12:00 pm  Attitudes of Public Hospitals Authority physicians in New Providence, Bahamas toward persons living with HIV/AIDS  
SR Carroll, MAC Frankson, H Orlander, F Williams, C Hanna-Mahase
Assessment of training to reduce stigma and discrimination among healthcare providers in Trinidad and Tobago  
A Lum Lock, M Hainsworth, E Pope, A Richardson, Z Ali

Monitoring viral load, CD4 and outcome in pregnant women in Barbados  
C Greaves, MA St John, F Denny, S Crichlow, A Best

HIV viral load trends in Organization of Eastern Caribbean States utilizing the Ladymeade Reference Unit Laboratory referral service in Barbados  
RC Landis, KC Simmons, A Best

LUNCH (Pre-function Area)  
Sponsor: John Hopkins Medicine International

“Population health: Strategies for improving health and reducing costs”  
L Dunbar

Saturday, May 3, 2014

Session 7

Chairpersons: G Avery, J Hospedales

Room A/B

Medication adherence and health insurance/health benefit in adult diabetics in Kingston, Jamaica  
RJ Bridgelal-Nagassar, K James, RP Nagassar, S Maharaj

Exploring the attitudes that influence the non-urgent patient utilization of the Accident and Emergency Department in St Vincent and the Grenadines: A qualitative interview study  
S Ketzer Beache, C Guell

User satisfaction survey in the Accident and Emergency Department at a major hospital in Trinidad  
LKT Boppana, C Buffong, N Gopeesingh, R Hosein, N Persad, K Rohit, A Sankar, E Haqq, T Seemungal, S Pooransingh

A needs assessment of disabled people living in Nevis  
U Thomson, H Cornielje, G Liburd

The proper use of pharmaceuticals amongst elderly persons suffering from Metabolic Syndrome X  
S Maharaj, R Parasrasingsh, M Lalla, L Jagessar, R Gobin, R Mahabir, A Baig, A Ramdass

A Geographic Information System-based analysis of syphilis in Trinidad: Applying new technologies to an old disease  
K Mungrue, A Fyzul, B Boodhai, A Narinesingh, S Nanlal

A review of health information systems at selected health institutions in Trinidad and Tobago  
R Abdullah, S Battersby, K Ramoutar, A Seecharan, T Seemungal, S Pooransingh

S Quesnel-Crooks, A Hinds, E Bissessarsingh, N Elias
Session 8

Nutrition
Chairpersons: D Ramdath, T Ferguson
Room A/B

(O – 62) 11:00 am Misalignment of perceived weight with actual body mass index in The Bahamas
C Chin, N Forbes, M Frankson, S Knowles, T Humes, A Wallace

(O – 63) 11:15 am Acanthosis nigricans is associated with higher waist circumference and body mass index in adolescent children in Trinidad
S Pooransingh, F Lutchmansingh, L Pinto-Pereira, T Seemungal, BS Nayak, S Teelucksingh

(O – 64) 11:30 am Healthy eating practices: Perceptions, facilitators and barriers among caregivers of primary school children in North East Trinidad
I Granderson, A McDonald, K Gray-Donald

(O – 65) 11:45 am Nutrition and physical activity among youth aged 12–19 years in Aruba – Findings from the Youth Health Survey 2012
M Tromp, E Maduro, G de Veer, U Thomson

(O – 66) 12:00 pm Trends in obesity and other cardiovascular disease risk factors among elementary school children in the Turks and Caicos Islands (2008–2013)
TE Maitland, S Malcolm, S Handfield, K Malcolm

(O – 67) 12:15 pm Improving trend in anaemia status of Turks and Caicos elementary school children across the decades
TE Maitland, S Malcolm, S Handfield, K Malcolm

12:30 pm Feature Lecture 5
“Owning our madness; a narrative of survival”
F Hickling

1:15 pm Presentation of Prizes and Closing Remarks
DT Simeon
**59th Annual CARPHA Health Research Conference 2014**

**Poster Programme**

**Chronic Non-Communicable Diseases**

*(P − 1)*  The epidemiology of cancers in Trinidad and Tobago  
A Carrington, J Shafe, D Paynter

*(P − 2)*  Barbadian women’s attitudes toward and knowledge of cervical cancer screening: An interview study  
T Christian, C Guell

*(P − 3)*  Knowledge, attitudes and beliefs toward Papanicolaou smear testing among women attending the outpatient clinics in Nassau, The Bahamas  
B Cooper, P Darville, L Farrington, B Gaitor, C Gomez, MAC Frankson, V Sakharkar, C Hanna-Mahase

*(P − 4)*  Examining the influence of stigma on Pap testing among women in Trinidad and Tobago  
K Ashing, A Carrington, V Roach

*(P − 5)*  A retrospective review of demographics of breast cancer patients at the National Radiotherapy Centre, St James, Trinidad, Year 2000–2005  
A Carrington, D Paynter

*(P − 6)*  The relationship between health beliefs and beliefs about breast self-examination among Grenadian women  
P Alexander-Delpech, G Haynes-Smith

*(P − 7)*  Smoking and alcohol use as a risk factor for breast cancer incidence among patients at the National Radiotherapy Centre, St James, Trinidad and Tobago  
A Carrington, D Paynter

*(P − 8)*  Prostate-specific antigen based screening in the Afro-Caribbean male: A survey of urologists  
S Persaud, W Aiken

*(P − 9)*  The prevalence of use of natural products among prostate cancer patients in Jamaica: A cross-sectional study  
S Wright, H Asemota, WD Aiken

*(P − 10)*  Waiting times along the lung cancer management pathway  
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C Boston, K Jones, S Nardin
Objective: To determine the relationship between mental health indicators and risky sexual behaviour in university students aged 18–30 years.

Design and Methods: A cross-sectional survey was administered to students at Cave Hill, The University of West Indies. Each student completed a self-administered questionnaire. Participants were asked if they had ever experienced traumatic experiences such as being hit by a sex partner. Depressive symptoms were assessed using the Center for Epidemiological Studies Depression (CES-D) scale. Human immunodeficiency virus (HIV) risk behaviour was assessed by asking students their number of sexual partners within the past 12 months, the frequency of protected sex, and alcohol use before sex.

Results: Of the 1400 students sampled, 582 agreed to participate; 57.4% of which were men. The mean age of the study population was 21.6 years (SD 2.8 years). Regarding traumatic experiences, 7.1% reported having been hit by a sex partner and 7.5% reported having ever been forced to have sex. Having been hit was significantly associated with inconsistent condom use (OR 2.37, 95% CI 1.11, 5.06) and having sex after alcohol (OR 2.39, 95% CI 1.08, 5.25). A positive screen for depression was associated with two or more sexual partners (OR 2.57, 95% CI 1.13, 4.16) while women were more likely to report inconsistent condom use.

Conclusions: Having been hit by a sex partner is a strong predictor of risky sexual behaviour. Persons experiencing intimate partner violence may be targets for HIV/sexually transmitted infection (STI) prevention programmes. Further study is needed to explore factors influencing condom use in women.
squamous cells of undetermined significance (ASCUS), while eight (16.3%) women presented with dysplasia.

**Conclusions:** High-risk HPV genotypes 52 and 58 along with 16 and 18 may be most influential in the development of cervical abnormalities among HIV-infected females in The Bahamas. Further studies are needed to determine whether HPV 52 and 58 play a significant role in the development of cervical cytological abnormalities in HIV+ women. Triage of HIV+ women with specific HPV genotype profiles may be helpful for cervical cancer control in this population.

O − 3

**An assessment of behavioural risk factors in St Lucia**

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**Objective:** To assess the prevalence of combined chronic non-communicable diseases (CNCD) risk in a St Lucian sample.

**Design and Methods:** Using the framework of the World Health Organization (WHO) Behavioural Risk Factor STEPwise Approach to Surveillance (STEPS) survey, a sample of 1834 person aged 25–64 years was surveyed using a stratified cluster sampling design at the enumeration district level. Combined risk prevalence was determined using the following five risk factors: daily smoking, consumption of < 5 servings of fruits and vegetables per day, low levels of activity, overweight/obesity, raised blood pressure.

**Results:** Data were analysed from 1834 respondents. Of these, 62% were female. The prevalence of daily smoking, intake of < 5 servings of fruits and vegetables daily and raised blood pressure was 63.7% [95% CI 52.2, 75.1], 88.3% [95% CI 74.7, 101.9] and 27.3% [95% CI [23.7, 30.9], respectively with no significant difference between the genders. Prevalence of low levels of physical activity and overweight/obesity was 29.7% [95% CI 21.4, 38.0] and 65.6% [95% CI 61.1, 70.1], respectively with significant differences between the genders. Combined risk assessment revealed a low prevalence of 2.3% [95% CI 0.6, 3.9], with no risk factor for chronic disease; 36.9% [95% CI 29.1, 44.6] had three to five risk factors and 60.9% [95% CI 54.2, 67.5] had one to two risk factors. There were no significant gender differences.

**Conclusion:** With 97.8% of respondents having at least one risk factor for CNCD, the need for the implementation of risk management strategies, interventions and polices should be paramount.

O − 4

**Trans-generational epigenetic effects of folic acid supplementation of a ‘cafeteria’ diet on insulin-signalling, lipid and carbohydrate metabolism genes in Sprague Dawley rats**

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**Objective:** To determine whether prenatal folic acid supplementation alters DNA methylation percentage changes induced by high-fat, high-sucrose (HF/HS) exposure in male offspring (rat) for insulin-signalling, carbohydrate and lipid metabolism genes.

**Design and Methods:** Pregnant Sprague Dawley rats were randomly assigned to a control, HF/HS or folic acid-supplemented HF/HS (HF/HS/FA) diet (n = 5/group). Litter weight data were collected for ten weeks during which they were fed American Institute of Nutrition (AIN) control diet. Mean DNA methylation percentages were obtained for male offspring skeletal muscle and dam and male offspring livers. Mean differences were assessed by one-way analysis of variance (ANOVA) [p ≤ 0.05 significant] with Bonferroni’s post-hoc test for multiple comparisons.

**Results:** High-fat/high-sucrose (HF/HS) offspring had significantly higher mean litter weights than control or HF/HS/FA from postnatal weeks seven to 10 (p ≤ 0.05). Carbohydrate and lipid gene methylation percentages were significantly lower in HF/HS/FA vs HF/HS offspring (p ≤ 0.05). Hepatic genes were generally hypermethylated while skeletal muscle genes were hypomethylated for both groups. Significant differences existed between control and HF/HS/FA dams in the methylation percentages for the insulin receptor substrate 1 and lipoprotein lipase genes (95% CI: 0.133, 9.183 and 0.241, 1.90, respectively).

**Conclusions:** Male rat offspring liver and skeletal muscle DNA methylation percentages can be altered significantly by folic acid-supplementation of a prenatal HF/HS diet.

O − 5

**Carbapenemase-producing Enterobacteriaceae detected in sewage on the island of Barbados**

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**Objectives:** To screen sewage for carbapenemase-producing Enterobacteriaceae and to determine the susceptibility of the isolates to a variety of antibiotics.

**Design and Methods:** Raw and treated sewage were collected from the two wastewater treatment plants on Barbados over a two-week period. Diluted samples were enriched in brain-heart infusion broth in the presence of meropenem to select for carbapenemase-producers. The enriched samples were plated on eosin methylene blue agar. Phenotypic confirmation of carbapenemase production was performed by the modified Hodge test using ertapenem as the indicator. The susceptibility of carbapenemase-producing isolates to a panel of eight antibiotics was determined by disc diffusion assay according to Clinical Laboratory Standards Institute (CLSI) guidelines.

**Results:** All sewage samples yielded carbapenemase-producers. One hundred and thirty presumptive carbapenemase-producers were isolated, of which 120 (92%) were confirmed. Of the 120 confirmed isolates, 110 (92%) were identified as Klebsiella pneumoniae, seven (6%) were identified as Enterobacter aerogenes and three (2%) were identified as E. intermedius. There was a high-level resistance to amikacin (69%) and gentamicin (65%). The isolates were largely susceptible to doxycycline (54%), tigecycline (56%) and fosfomycin (56%). Ninety per cent of the isolates were resistant to more than one class of antibiotic.

**Conclusions:** This study demonstrated the presence of carbapenemase-producers in sewage from Barbados which may implicate the community as a reservoir for these pathogens. The carbapenemase-producers demonstrated a high-level of co-resistance but were largely susceptible to doxycycline, tigecycline and fosfomycin.

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**O – 6**

**Use of social media to strengthen disaster management in the Ministry of Health, The Bahamas**

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**Objective:** To assess social media use in The Bahamas, and its suitability for use in disaster management.

**Design and Methods:** The study was carried out in two phases. Phase I – nationally representative sample where telephone interviews assessed the population’s social media use and willingness to employ it in emergencies. Phase II – subset from Phase 1 was assessed on receipt of a transmitted social media message.

**Results:** Phase I had - 751 respondents, ages 18–90 years (median 38 years). Many persons (84.8%) had internet access. Social media was used among 88.1% of the respondents; text messaging (41.2%, CI 37.4%, 45.0%), Facebook™ (30.3%, CI 26.1%, 34.5%) and e-mail (18%, CI 14.5%, 21.5%). Persons 18−34 years were more likely to use Facebook™ (91.0%, CI 84.5%, 94.9%) whereas those 35−44 years preferred e-mail (71.0%, CI 62.1%, 78.5%). Those with college degrees used e-mail (33.0%, CI 25.2%, 41.9%) while those with primary school education used text messaging (49.4%, CI 27.1%, 71.9%, p < 0.0005). Social media users wanted to receive alerts, including location of medical services (60.7%) and food/water (56.9%). Further, 34.5% (95% CI 27.3%, 42.3%) have used e-mail and 24.2% (95% CI 17.9%, 31.5%) Facebook™ to get information about an emergency. In Phase II, 365 respondents (49%) consented; 10% (36 persons) was selected for follow-up and were sent alerts via their preferred social media contact, eight (22.3%) responded.

**Conclusions:** Social media use is popular in The Bahamas, and the population is willing to use it in emergency situations. Preferred methods of communication were shown to vary by age, thus a variety of approaches should be used.
Biomarkers of chronic kidney disease and longitudinal bone loss in Tobago Black men of African descent

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Objective: To determine the relationship between markers of chronic kidney disease (CKD): serum creatinine and cystatin C, and urinary albumin-creatinine ratio (ACR), with bone loss among Afro-Caribbean males 40 years and older and to compare our findings with those of the Osteoporotic Fractures in Men (MrOS) study, among Caucasian men in the United States of America.

Design and Methods: Approximately 1425 Afro-Caribbean males from Tobago were included. In 2004/2007, questionnaires were administered to ascertain demographic information, medical history and risk factors. Dual X-ray absorptiometry of total hip and its sub-region (trochanter and femoral bone) were measured in 2004/2007 and at follow-up visits in 2012. Serum creatinine and cystatin C were measured using Jaffé reaction and Dade Behring nephelometry, respectively. Urinary albumin and creatinine were measured by turbidimetric procedure and Jaffé reaction, respectively, to determine ACR. After a mean follow-up of six years, the relationship of annual percent bone mineral density (BMD) change with quartiles of markers of CKD was analysed. Annual per cent bone loss was compared with published bone loss data in Caucasian men in the MrOS Study.

Results: There was a consistent decline in annual per cent BMD across increasing quartiles of ACR, serum creatinine and cystatin C in trochanter, femoral neck and total hip bones. Based on quartiles of cystatin C, the rate of bone loss was similar to that in Caucasian men.

Conclusions: After controlling for age and other confounders, BMD declined over time even at mild levels of kidney impairment. Bone decline rates were similar in Afro-Caribbean and Caucasian men with CKD.

Early life social and biological determinants of blood pressure at 18–20 years old: the 1986 Jamaica Birth Cohort Study

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Objective: To evaluate the effects of social and biological factors at birth and at age 18–20 years on systolic blood pressure (SBP).

Design and Methods: This was a longitudinal study of 794 participants (364 males, 430 females) from the 1986 Jamaica Birth Cohort Study. Trained nurses measured blood pressure (BP) and anthropometry, and conducted face-to-face interviews between 2005 and 2007. Gender-specific multi-level mixed-effects linear regression models were used to examine associations between SBP at 18–20 years and birthweight, birth length, maternal age, height and socio-economic circumstances (SEC) at birth, and participants’ body size and SEC at 18–20 years.

Results: In bivariate analyses, SBP was associated with birthweight (500 g categories) among women but not among men. Using birthweight 3000–3499 g as the reference category, regression coefficient (b) for SBP (expressed in mmHg) was +4.0, p = 0.006, for birthweight <2500 g among women. In gender-specific, multi-level models adjusted for current age, body mass index (BMI), height, mother’s age at child’s birth and mother’s occupation at child’s birth, lower birthweight was associated with higher SBP among women: β +4.0, p = 0.004 for birthweight <2500 g and β +2.4, p = 0.014 for birthweight 2500–2999 g. Among men, compared to skilled/highly skilled mothers, those whose mother’s had lower SEC had higher SBP: semi-skilled/unskilled, β +3.6, p = 0.028; unemployed, β +4.7, p = 0.001; housewives, β +3.2, p = 0.024. Current BMI was associated with SBP among both men (β +0.8, p < 0.001) and women (β +0.4, p < 0.001).

Conclusions: Determinants of SBP in young adulthood differ between men and women, with birthweight appear-
ing to be an important correlate for women and lower maternal SEC for men.

**O – 9**
Prevalence and predictors of hypertension and pre-hypertension among University of the West Indies Cave Hill students in Barbados

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**Objectives:** To determine the prevalence and predictors of hypertension and pre-hypertension among University of the West Indies (UWI) undergraduates 18–30 years old at Cave Hill campus.

**Design and Methods:** A cross-sectional prevalence study was conducted on 582/1400 randomly selected undergraduates at UWI Cave Hill campus between January and May 2013. Demographic and behavioural data were self-reported by a validated questionnaire, and anthropometric measures collected using standardized protocols. Hypertension was defined as systolic blood pressure ≥ 140 or diastolic blood pressure ≥ 90 mmHg. Prehypertension was systolic blood pressure ≥ 120 or diastolic blood pressure ≥ 80 mmHg, and not classified as having hypertension.

**Results:** The study population included 334 males (57.4%) and 247 females (42.4%), with a mean age of 21.6 years (SD 2.7). The prevalence of hypertension was 6.9% overall, 9.3% among males vs 3.6% among females (p-value = 0.008). Prevalence of prehypertensive readings was 54.5% among males and 18.6% among females (p-value = 0.000). Normal blood pressure levels (<120/80) were recorded among 36% males and 77.6% females. To analyse predictors, prehypertensives and hypertensives were combined. Multiple regression identified predictors among males as obesity, eating red meat ≥ 3 times/week and being sedentary (sitting for > 6 hours/day). Predictors among women were obesity and number of snacks/day.

**Conclusions:** Male students are at high-risk for prehypertension and hypertension related to risk factors of obesity, eating red meat and being sedentary. Females are at lower risk, but share the risk factor of obesity, along with number of snacks/day. Physical inactivity, diet and obesity are major risk factors for elevated blood pressure readings in this student population.

**O – 10**
Prevalence of orthostatic hypotension among ageing patients on antihypertensive and antidepressants and assessment of the risk of falls

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

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

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

**Conclusion:** There is a high prevalence of OH among ageing patients on antihypertensive and antidepressant drugs and they are at a greater risk of falling. Therefore, it is imperative to monitor ageing patients on antihypertensives and antidepressants for these possible adverse events.
Objective: To assess the resiliency factors in Jamaican adolescents 15–19 years old that may be associated with the prevalence of cardiovascular disease (CVD) risk factors.

Design and Methods: A cross-sectional national study of 1317; 15–19 year olds used interviewer administered questionnaires to obtain information on sociodemographic indices, lifestyle practices and resiliency indicators such as caring relations inside and outside the home. Cross-tabulations and logistic regression determined the association of resiliency factors and CVD risk.

Results: More than 50% of respondents possessed each of the protective factors, except living in a nuclear family. More males than females (M: 31.1%, F: 24.5%, $p = 0.01$) reported living in a nuclear family. There were sex differences in the proportion of youth with the risk factors “low socio-economic status” [SES] (M: 28.6%, F: 34.4%, $p = 0.03$), “no religious affiliation” (M: 20.5%, F: 10.1%, $p < 0.001$); and ≤ 2 risk factors (M: 49.5%, F: 41.8%, $p = 0.02$). However, more males reported > 2 risk behaviours (M: 34.6%, F: 15.4%, $p < 0.001$) such as sexual activity, and inappropriate use of alcohol, tobacco and marijuana. Forty-seven per cent of males and 44% of females possessed at least one of the six CVD risk factors considered. Youth who had resiliency factors were more than 30% ($p < 0.05$) less likely to have any CVD risk factor. This association remained statistically significant after adjusting for the presence of risk factors and behaviours.

Conclusion: The prevalence of CVD risk factors in Jamaican 15–19 year olds may be ameliorated by supportive home and school environments. Interventions should lead to public education programmes that promote safe parenting and mentoring practices for our youth.
O – 12
Associations of social determinants of health with non-communicable disease prevalence in the Trinidad and Tobago population – Exploratory analysis of the STEPS data

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Objective: To examine associations between social determinants of health and the prevalence of chronic non-communicable disease (CNCD) in a population-based health survey in Trinidad and Tobago.

Design and Methods: This study utilized secondary data collected from the 2011 STEPS study – a nationally-representative survey of 2724 persons in the 15–64-years age group in Trinidad and Tobago where questions were asked on risk and protective factors for CNCDs. Anthropometric and biochemical measures were taken. Chi-squared tests were used to assess associations between sociodemographic factors (age, gender, ethnicity, income, and education) and clinically significant measures of CNCD prevalence (elevated blood pressure (BP), cholesterol and glucose).

Results: The prevalence of systolic BP (SBP) > 140 mmHg was 23.1% overall and was higher in men than women (25.1% vs 21.7%, p = 0.043). Age group (p < 0.001), household income (p = 0.044) and educational level (p < 0.001) were significantly associated with elevated SBP. No association was found between ethnicity and blood pressure. Fasting blood glucose (FBG > 126 mg/dL) was found in 14.9% of subjects and was significantly associated with CNCD prevalence (elevated blood pressure (BP), cholesterol and glucose). Fasting blood glucose (FBG > 126 mg/dL) was found in 14.9% of subjects and was significantly associated with CNCD prevalence (elevated blood pressure (BP), cholesterol and glucose).

Conclusion: The influence of the social determinants of health on the prevalence of clinically significant derangements in blood pressure, fasting glucose and total cholesterol appears, at first pass, to outweigh the influence of ethnicity, frequently referred to in literature as pertinent to Trinidad and Tobago. The influence of educational level, in particular, warrants further attention.

O – 13
Medication adherence and associated glycosylated haemoglobin A1c in Type 2 diabetics in New Providence, Bahamas

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Objective: To assess adherence to oral anti-hyperglycaemic medications and its relationship with glycosylated haemoglobin (HbA1c) levels of Type 2 diabetics in New Providence, The Bahamas.

Design and Methods: A cross-sectional study using a Modified Morisky’s questionnaire was undertaken among Type 2 diabetics aged 18 years and older. The Morisky eight-item scale provides a score of 3 or greater, 1 to 2 or 0 which represents an outcome of poor, moderate or good adherence, respectively. The relationship between good glucose control (HbA1c) and Morisky score was evaluated.

Results: Of the total 117 patients, 20.5% were identified as good, 22.2% as moderate and 57.3% as poor adherence to oral anti-hyperglycaemics. The mean HbA1c was found to be 8.5%. There was a significant predictor relationship between HbA1c and adherence (p = 0.04).

Conclusion: Adherence to medication in Type 2 diabetics was poor. Patients with good adherence had a lower associated HbA1c level. Better medication knowledge may improve adherence.
O − 14
An exploratory investigation into the effectiveness of, and satisfaction with, the Diabetes Association of Barbados’ counselling service

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Objective: To investigate the effectiveness of the counselling service offered by the Diabetes Association of Barbados (DAB) on advice received on diabetes care and on diabetes self-care activities.

Design and Methods: The study population was men and women with diabetes aged 18–95 years who joined DAB from 2008 to 2011 inclusive. The sampling frame was the membership database. ‘Cases’ consisted of a random sample of those who had attended three or more counselling sessions and controls were age and gender matched members who had attended no sessions. Interviews were conducted over the telephone using the revised Summary of Diabetes Self-Care Activities (SDSCA) questionnaire.

Results: Interviews were completed on 93 cases and 86 controls, response rates of 82 and 70%, respectively. Cases were more likely than controls (p < 0.05) to report having received advice on several aspects of diet and physical activity. However, the differences in self-care activities were much less marked, limited to a higher proportion of female cases (27.9%) reporting three or more episodes of specific exercise per week compared to 12.3% of controls, p = 0.04, and paradoxically controls reporting more frequent daily blood glucose testing (34.9% vs 13%), p = 0.002. There was much room for improvement of self-care activities in both groups.

Conclusions: In this retrospective study, attending the counselling service was associated with more advice received on diet and physical activity, but there was little evidence that this difference in received advice translated into difference in self-care activities.

O − 15
Nutritional knowledge, attitude, and practice of diabetic clients attending an outpatient clinic in Trinidad and Tobago

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Objective: To evaluate the knowledge, attitude and practice (KAP) of diabetic clients attending an outpatient clinic in Trinidad in relation to their disease.

Design and Methods: A purposive sample of 122 diabetic persons aged 30 years or older was interviewed using a structured KAP questionnaire. The questionnaire contained 27 questions (eight nutrition knowledge, five attitude, four practice, seven demographic and three counselling). Correct answers were given a score of “1” and incorrect answers were given a score of “0.” Maximum scores for knowledge, attitude and practice questions were eight, 25 and four, respectively. Data were analysed using SPSS, version 21. The level of statistical significance was set at p < 0.05.

Results: The means ± SD for knowledge, attitude, and practice before and after counselling were 5.93 ± 0.99, 5.52 ± 1.43, and 12.06 ± 2.49 and 14.53 ± 1.72, respectively. A significant difference was observed between gender and total knowledge percentage (p = 0.002). A significant correlation existed between knowledge and those individuals who received counselling (p = 0.009). The majority of the respondents had a positive attitude towards diabetes management with over 90% responding in the affirmative. A significant correlation resulted between attitude and those individuals who received counselling (p = 0.001). There was a significant correlation between respondents practice before and after nutrition counselling (p = 0.0001).

Conclusion: In conclusion, the overall KAP scores of the participants were good. In addition, improvement of the knowledge score, attitude, and dietary practice was associated with frequency of nutrition counselling.

O − 16
The burden of sight-threatening diabetic retinopathy

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Objective: To determine the frequency of diabetic retinopathy, its visual impairment and risk factors in diabetic patients attending the Eye Clinic at the University Hospital of the West Indies.

Design and Methods: Prospective cohort study of diabetic outpatients. Data were collected on age, gender, diabetes mellitus Type (DM I/II), diabetic retinopathy, visual acuity, blood glucose and blood pressure.

Results: One hundred and four patients (208 eyes) were recruited. There were 58.6% (61/104) females (mean age 53.6 ± 11.9 years) and 41.4% (43/104) males (mean age 61.7 ± 12.1 years). Type 2 DM (68.3%) was more common than Type I DM (31.7%). The blood glucose ranged from 4.9–27.6 mmol/L (mean 12.7 ± 5.9) in Type I DM and 3.4–23.6 mmol/L (mean 10.7 ± 4.9) in Type 2 DM.
Blood pressure > 130/80 mmHg was present in 82.7% of patients. The mean visual acuity was 20/160 (logMAR 0.95 ± 1.1). Diabetic retinopathy was present in 78%, of which 29.5% had background retinopathy. Proliferative diabetic retinopathy (PDR), which can cause significant visual loss, was present in 50.5% of eyes. The odds ratio of developing PDR was 1.88 (95% CI: 1.02, 3.3) for Type I DM compared to 0.74 (95% CI: 0.55, 0.99) for Type 2 DM. Proliferative diabetic retinopathy was more prevalent in females (p = 0.009) in both Type I and II DM.

**Conclusions:** Jamaica has a high incidence of sight-threatening diabetic retinopathy. This is more common in Type I diabetics and females and is associated with poor glucose and blood pressure control. Early diabetic eye screening and treatment can reduce this morbidity.


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**Objective:** To determine the prevalence of sleep disorders and sleeping habits in patients with Type 2 diabetes in Trinidad and their associated factors.

**Design and Methods:** This is a cross-sectional multicentre study in the South health region of Trinidad. We present the results of 115 patients with Type 2 diabetes, seen in four outpatient diabetic clinics over two months (July 9 to August 22, 2013). Sleep habits were assessed by Epworth Sleepiness Scale (ESS) and National Health and Nutrition Examination Survey (NHANES) 2007 sleep disorder questionnaire. Sleep apnoea was defined as ESS score > 10. Short sleep was defined as sleeping < 7 hours of sleep per day. Demographic, anthropometric and biochemical data were also collected.

**Results:** The sample had a mean age of 58.4 years, 67% were female and 76.5% patients had poor glycaemic control. The mean body mass index (BMI) was 29.1 kg/m². The prevalence of sleep apnoea was 14.8%. The percentage of patients with short sleep (< 7 hours) was 60.9%. Body mass index was found to have a statistically significant association with sleep apnoea (OR 1.12, CI 1.02, 1.23). However, there were no other statistically significant association with sleep apnoea or short sleep.

**Conclusion:** In a random sample of patients with Type 2 diabetes, we found a high prevalence of sleep conditions. There needs to be an increased awareness of sleep conditions by health personnel. Prospective studies are needed to fully understand the mechanisms underlying, and outcomes associated with, sleep apnoea and other sleep conditions in Type 2 diabetes.

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**O − 17**

**Prevalence of sleep disorders in patients with Type 2 diabetes in Trinidad**

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Knowledge and awareness about sickle cell disease in mothers with positive prenatal sickle cell haemoglobinopathy screening test at the Princess Margaret Hospital and prevalence of sickle cell trait in this group

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Objective: To determine the knowledge and awareness about sickle cell disease and implications for their offspring in mothers whose prenatal haemoglobinopathy screen tested positive for sickle cell disease.

Design and Methods: A descriptive study design was used to determine the incidence of sickle cell trait in mothers presenting for prenatal care. From April to October 2012, 183 mothers tested positive for sickle cell haemoglobinopathy of 2056 antenatal records reviewed. Each mother was surveyed using a self-administered questionnaire to assess her understanding about sickle cell disease.

Results: One hundred and eighty-three (8.9%) mothers tested positive for the sickle cell trait. Of these, 89 (56.9%) mothers were unaware of their positive sickle cell status. One hundred and twenty-three (82%) mothers had no idea of their partner’s sickle cell status and 77 (50.9%) were unaware of the impact it could have on their infant if results were positive.

Conclusion: Despite routine prenatal screening for sickle cell disease, mothers are still unaware of their sickle cell status and risks to their offspring. Education is essential to allow adequate genetic counselling and early screening, thus permitting identification of infants at risk. This would result in earlier interventions and reduce mortality and morbidity.

Universal newborn screening for haemoglobinopathies in Guadeloupe (French West Indies): Basis of a collaboration in the Caribbean area

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Objectives: To assess the prevalence of the most frequent haemoglobinopathies in Guadeloupe and to report how this experience was successfully used to develop a close linkage in another Caribbean island, Tobago.

Design and Methods: In Guadeloupe, blood samples, coming from all the birth delivery places, were screened in a single reference diagnosis laboratory for the haemoglobinopathies using the reference methods. In Tobago, neonatal screening was performed at the Scarborough Regional Hospital and the specimens were analysed in Guadeloupe in the same laboratory. Abnormal results were sent back to Tobago. The results of the Guadeloupe neonatal screening from 1984 to 2010 and those of Tobago from 2008 to 2011 are presented.

Results: Between 1984 and 2010, 178 428 newborns were screened at birth for sickle cell disease in Guadeloupe. From the confirmed samples, 0.33% of the infants (585 infants) have been diagnosed with major sickle cell syndromes. The overall incidence of major sickle cell syndromes was one out of 304 newborns. In Tobago, from 2008 to 2011, 2617 specimens were obtained. The overall incidence of major sickle cell syndromes was one out of 238 newborns. As expected, HbS and HbC were the most frequently encountered abnormal haemoglobins in both islands with a difference in allele frequency. Haemoglobins and HbC frequencies were 0.098 and 0.036, respectively in Tobago and 0.042 and 0.013, respectively in Guadeloupe.

Conclusion: This experience has been successfully used to evaluate the prevalence of the most frequent haemoglobinopathies and to develop a close linkage in two Caribbean islands, Guadeloupe and Tobago.
O – 20
Attitudes toward receiving blood transfusions among clinic attendees in Trinidad

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Objective: To determine the level of knowledge about receiving blood transfusions in Trinidad and to ascertain the factors that influence attitudes toward receiving blood transfusions in Trinidad.

Design and Methods: A cross-sectional study of adult clinic attendees was conducted using convenience sampling. Four hundred participants were interviewed at health centres throughout Trinidad using a standardized pre-tested questionnaire and data analysed by data, descriptive and inferential techniques.

Results: Among the 400 respondents (M 169, F 231), mean knowledge score out of 16 was 8.1 ± 0.1 and was predicted by education level (p < 0.001) and occupation (p = 0.003). Eighty-four per cent of participants would agree to a transfusion in Trinidad if necessary but expressed fear of needles (36.4%), medical staff (42.1%), acquiring infections (57.9%) and post-transfusion complications (47.2%). Persons with greater confidence in the donation process expressed less fears, and mean confidence score was higher in those who would agree to a transfusion compared to those who would not (p < 0.001). There was a negative correlation between confidence in the donation process and number of fears a participant had about receiving blood (p < 0.001). The mean confidence score was lower in persons who identified fear of infections than in persons who did not have that fear and 98.5% were in favour of blood transfusion education programmes.

Conclusion: Low knowledge levels coupled with fear of receiving blood justifies consideration of a new approach to public education about blood transfusions in Trinidad which can ultimately promote increased voluntary blood donation.

O – 21
Attitudes toward blood donation: A 10-year follow-up study of residents of Trinidad and Tobago

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Objectives: To assess current attitudes of residents of Central Trinidad toward blood donation and to compare results to a previous study of the same population conducted 10 years earlier.

Design and Methods: A cross-sectional study was used to survey 896 residents of Central Trinidad, aged 18–65 years. Variables measured included sociodemographic characteristics, knowledge and attitude toward blood donation. Data analysis was conducted using SPSS, version 17, and included Chi-squared tests of association and binary logistic regression.

Results: Data from 816 usable questionnaires showed that respondents were very knowledgeable about blood donation policy and practices; donors were more knowledgeable than non-donors about donor criteria, use of donated blood and donation locations in both studies. Donor respondents were predominantly female, aged ‘26–50’ years, Indo-Trinidadian, Christian and university graduates, while in 2003 they were mainly male, aged ‘51–65’ years, Afro-Trinidadian, Muslim and University graduates. Similar to 2003, the majority of respondents (76.6%) listed family and/or friend as their major reason for donation and non-donors (43.4%) claimed they ‘never saw a reason to donate’. In both studies, need of friend/family, increased advertising and more mobile units were highlighted as possible factors that could influence future donation by non-donors; gender, age, religion and education were identified as useful predictors of these factors.

Conclusion: Even in the midst of a severe national blood shortage, the population has maintained its unenthused mindset regarding blood donation. Greater emphasis should be placed on public education to alleviate fears and misunderstandings of the blood donation process, thereby increasing both donor retention and recruitment.

O – 22
The health of at-home and abroad Caribbeans

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Objectives: To examine the health status of Caribbeans across three geographic locations, and the contribution of social and environment factors to health disposition.

Design and Methods: Three representative samples collected in the United States of America (USA), Jamaica, and Guyana were used. Face-to-face interviewing and questionnaires were methods of data collection. The samples included 1216 Jamaican, 2068 Guayanese and 1621 Caribbean descendants residing in the USA. The samples used a modified version of the World Health Organization Composite International Diagnostic Interview (WHO CIDI) defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) to assess lifetime mental disorders. We also examined physical
health conditions such as perceived general and dental health, hypertension and diabetes. Descriptive and multivariate analytic techniques were used to examine rates and contributors of health.

**Results:** The findings indicated that mental and physical health conditions varied by national context, with higher rates among Caribbeans living in the USA than in Guyana and Jamaica. This was evident for disorders such as alcohol abuse (9.2% vs 3.6% vs 2.2%), drug abuse (5.9% vs 1.4% vs 1.3%), substance abuse (9.6% vs 4.7% vs 2.7%) and depression (14.3% vs 4.1% vs 7.4%). Caribbean’s living in the USA also had poorer physical health than Guyanese and Jamaicans particularly in relation to hypertension (27.8% vs 14.6% vs 14.1%), diabetes (8.2% vs 7.5% vs 6.6%) and arthritis (14.1% vs 7.5% vs 6.6%).

**Conclusions:** The study suggests social context, environmental factors and processes of migration play an important role in the health disposition of individuals with Caribbean roots.

**Objective:** To demonstrate the impact of regular physical activity on cognition and functional capacity in the study population.

**Design and Methods:** This study was a clinical trial with mixed factorial design where 47 participants were randomly assigned to exercise (EG, n = 28) and no-exercise (NEG, n = 19) groups. Volunteers were assessed on physical and cognitive functions, and functional ability parameters at baseline and repeated intervals.

**Results:** The mean mini-mental state examination (MMSE) scores in the EG varied from 26.04 at week one to 26.43 at week twelve. For the NEG, mean MMSE scores decreased 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 wide dispersion around a median of 7.0 over time, \( p = 0.593 \). Pearson’s correlation for the EG of instrumental activities of daily living (IADL) and MMSE at baseline was \( r = 0.450, p = 0.014 \) and after 12 weeks of exercise \( r = 0.456, p = 0.013 \); for the NEG the relationship of IADL and MMSE at baseline was \( r = 0.520, p = 0.016 \) but by twelve weeks was \( r = 0.357, p = 0.134 \).

**Conclusions:** Regular exercise had positive influences on cognitive function and functional capacity over time. Cognition maintained a strong positive relationship with functional capacity in both study groups over time.

**O – 23**

**The impact of exercise on cognitive function in the elderly attending gerontology clinics, New Providence, Bahamas**

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**Session 4a**

**Chronic Non-communicable Diseases 3**

Chairpersons: A Samuels, G Hutchinson

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**O –24**

Diagnosis of non-traumatic chest pain presentations to the Accident and Emergency Department at the San Fernando General Hospital, Trinidad and Tobago

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**Objective:** To determine the accuracy of diagnosis of non-traumatic chest pain (NTCP) in an Accident and Emergency (A&E) Department.

**Design and Methods:** This was a retrospective study enrolling consecutive patients, ≥ 18 years, presenting with NTCP to the A&E at the San Fernando General Hospital (SFGH).

**Results:** A total of 400 different patients (13.1% of admissions) who presented to A&E with NTCP were investigated. Of all the patients admitted to the ward, the diagnosis was consistent with the A&E diagnosis for 63.9%, giving them a Kappa value of 0.33 (CI 95% 0.21, 0.42). One-third (32.5%) were non-cardiac cases, 42.5% of the cases were cardiac in origin and of these, 35% were diagnosed as acute coronary syndrome. Ninety-six (24.0%) patients were without a final diagnosis. Men comprised 54.1% and women 52.3% among cardiac and non-cardiac cases, respectively. Twenty-eight per cent (112/400) were admitted having the following diagnosis: cardiovascular (58.9%), musculoskeletal (8.0%), digestive (9.8%), respiratory (4.5%), psychogenic (1.8%), miscellaneous (4.5%) and without diagnosis (12.5%). In A&E, 80.5% and 52.8% had electrocardiograms (ECGs) and chest radiographs done, respectively. Of those admitted, the following were done: 111 (99.1%) ECGs, 109 (97.3%) complete blood counts and 65 (58.0%) chest X-rays.

**Conclusions:** Non-traumatic chest pain is a common presentation to A&E at SFGH with a higher occurrence rate than in other studies. The rate of agreement of 0.33 reflected fairly accurate diagnoses but was lower than other studies. There were more cardiac cases than non-cardiac related cases. There was a higher occurrence of non-cardiac chest pain among women whereas more men presented with cardiac chest pain.

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**O –25**

Comparison of asthma control using the Caribbean guidelines and patient perception of control

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**Objectives:** Caribbean asthma management guidelines for optimum disease control were revised and disseminated in 2009. This study comparatively assessed guideline-based control and that reported by patients.

**Design and Methods:** In a cross-sectional study, adult asthmatics (329) attending three Chest clinics in Trinidad were examined for guideline-based and perceived control and peak expiratory flow (PEF). Patients’ asthma control evaluation was based on the Caribbean Health Research Council (CHRC) guidelines. Concordance between guideline-based and perceived disease control was determined by the kappa statistic.

**Results:** As per guidelines 25.5%, 29.2% and 45.3% of patients were completely, partially controlled or uncontrolled, respectively; corresponding respective perceived levels of control were 39.6%, 41.4% and 19%. The kappa statistic indicated poor concordance between the two evaluations. Very few (9.7%) patients knew how to monitor their lung function or kept an asthma diary (6.8%) and 65.1% believed they had to live with their symptoms. Peak expiratory flow was < 60% of predicted value in 27.2% of patients. Obesity (body mass index [BMI] ≥ 30 kg/m²) was negatively correlated with control ($p = 0.022$) and co-morbidity with ≥ 1 disease condition was significantly correlated with uncontrolled asthma (Spearman correlation $p = 0.03$). The most common guideline criteria defining inadequate control were exacerbations in the last week (77.8%) and emergency department visits in the last year (66.7%). The most frequent symptoms were cough (75%), dyspnoea (85%) and wheezing (81%).

**Conclusion:** Asthma control remains sub-optimal in Trinidad, despite revised and disseminated Caribbean guidelines. Patient education on disease control should be an integral part of asthma management.
When a cough is not a cold: Healthcare seeking behaviours of asthmatic children’s caretakers in St Kitts and Nevis

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Objectives: This pilot study sought to assess the health-seeking behaviours of parents of children with asthma in St Kitts and Nevis.

Design and Methods: Interviews and surveys conducted with clinicians (63) and parents (13) using an adapted version of the Chicago Asthma Consortium and the International Study of Asthma and Allergies in Childhood (ISAAC) questionnaires to assess what parents of children with asthma know about disease signs and management and what clinicians believe parents know about childhood asthma. Surveys and interviews were held in clinics and hospitals supported by the Federation of St Kitts and Nevis.

Results: Both parents and clinicians were aware of the severity of asthma. Both parents and clinicians believed one-on-one asthma education offered in the hospitals and clinics would be most beneficial. While parents and clinicians saw challenges to parents being educated on health topics like asthma, these challenges were not aligned.

Conclusions: Education materials need to be more readily available and tailored first by age group, followed by patient-specific information and interventions strategies (i.e. common triggers, symptoms experienced, prevention measures, prescribed medications with dosages and frequencies, and protocol for Emergency Room visit). Providing home-based action plans would aid parents in translating knowledge obtained from clinicians into an effective asthma management system.
O – 28
Spatial distribution of epidemiological cases of dengue fever in Suriname, 2001–2011

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Objective: To integrate dengue fever epidemiological data into spatial visualization platform to detect dengue risk areas in Suriname.

Design and Methods: We characterized the frequency and incidence of probable and confirmed cases of dengue fever (DF) and dengue haemorrhagic fever (DHF) stratified by demographic factors for the entire country from 2001 to 2011. Using geographic information systems (GIS) platform, we analysed the spatial distribution of probable and confirmed cases of dengue. Spatial analysis tools were employed to identify epidemiological clusters of dengue disease in Suriname’s most populous districts: Paramaribo and Wanica. Furthermore, high and low dengue risk areas were divided into neighbourhoods and individual dengue cases were mapped to the street level.

Results: In Suriname, cases of dengue emerge in cyclical patterns (three to five years) with seasonal peaks following the short and the long rainy seasons. Chi-squared analysis indicated a statistically significant (p < 0.05) difference between age group, ethnicity and district and the frequency of DHF. Ripley’s K function indicated spatial autocorrelation of cases of dengue in Suriname. Furthermore, we detected three high rate clusters and one low rate cluster of cases of dengue in Paramaribo and Wanica. The cases of dengue within the identified clusters were mapped by neighbourhood and street.

Conclusion: Three clusters of dengue cases were identified in Paramaribo and Wanica. Integrating epidemiological data into a geographic information system (GIS) platform is useful during dengue epidemics in guiding how resources can be more effectively allocated or ultimately where preventive action may be directed.

O – 30
An assessment of mercury exposure for two vulnerable communities in Suriname, South America

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Objective: To determine public health implications associated with exposure to mercury (Hg) through the diet in at-risk populations in rural Suriname.

Design and Methods: To investigate the impact of long-term Hg exposures and subsequent public health risks, subsets of those most susceptible to mercury exposures (women and children) in at-risk populations from two villages were recruited to participate in a detailed six-day dietary survey. Biomarkers of Hg exposure were obtained through an analysis of hair samples from each participant.

Results: A total of 22 families participated in the dietary survey and 59 hair samples were collected (22 adult, 37 children). The mean hair mercury concentration for the adults was 4.6 µg/g with a range of 1.1−9.1 µg/g. The mean mercury concentration for the children was 5.3 µg/g with a range of 1.0−14.1 µg/g. All samples were at or above the Environmental Protection Agency (EPA) reference dose for hair mercury concentration set at 1.0 µg/g.

Conclusion: All hairsamplestestedwereabovebaseline levelsthatareconsiderednormalforhumanhealth. These elevated levelswerebelow the benchmark dose of Hg that potentially can present health problems. The data show that the indigenous and Maroon communities are likely to be chronically exposed to mercury. It is recommended that these at-risk populations should decrease their exposure to mercury to reduce potential future health disparities by limiting their intake of predatory fish as well as eliminating any potential environmental or occupational exposures.
Review of potential health outcomes from exposure to contaminants of emerging concern in the Caribbean

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**Objectives:** To review potential health outcomes of exposures to contaminants of emerging concern (CEC) in the Caribbean.

**Design and Methods:** Three classes of CECs – pyrethroids, polybrominated diphenyl ethers (PBDEs), and bisphenol A (BPA) – were measured and analysed from maternal blood and urine samples in 10 Caribbean countries. Data obtained from the participating countries were compared with those from the United States of America (USA) and Canada.

**Results:** A total of 442 samples were analysed from the 10 countries. Evidence of exposure to pyrethroids, PBDEs and BPA was established. Caribbean pyrethroid concentrations were generally much higher than those recorded for North American women. Bisphenol A was detected in 100% of all 10 Caribbean country samples with each Caribbean country having geometric mean concentrations that were higher than those measured in Canadian women. The fetuses of almost all the pregnant women studied were exposed to multiple chemicals at the same time.

**Conclusion:** This first systematic bio-monitoring study on the concentrations of CEC toxicants in maternal samples taken from ten Caribbean countries clearly reinforces the need for Caribbean primary care physicians and other public health officials to encourage their patients, and in particular pregnant women, to reduce their exposures to these contaminants as much as it is feasible to do so.

Antiproliferative effects of Surinamese medicinal plants against warts in a human malignant melanoma cell line

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**Objective:** To evaluate eight Surinamese plants that are traditionally used for treating common warts for their in vitro growth-inhibitory effect. The plants were *Asclepias curassavica* L, *Anacardium occidentale* L, *Plumeria rubra* L, *Cymbopogon citratus* (DC) Stapf, *Commelina diffusa* Burm fil, *Carica papaya* L, *Mangifera indica* L and *Senna alata* L.

**Design and Methods:** The aerial parts, leaves, or the fruit juice of the plants were collected and extracted for 24 hours with distilled water at 27 °C or 100 °C, after which the extracts were dried and evaluated at serial dilutions for their ability to inhibit the growth of cultured A-375 human malignant melanoma cells. Cellular responses after a three-day exposure period were assessed with the sulforodamine B assay, and expressed as IC$_{50}$ values, i.e. extract concentrations producing 50% cell growth inhibition when compared with untreated controls.

**Results:** The extracts from *A curassavica* and *A occidentale* inhibited the growth of the cells at the relatively low IC$_{50}$ values of 18.2 ± 0.8 and 118.4 ± 18.9 µg/mL, respectively. On the other hand, those from the other six plants produced IC$_{50}$ values around or above 1000 µg/mL.

**Conclusions:** The preparations from *A curassavica* and *A occidentale* may be useful for treating benign hyperproliferations such as warts. Future studies should explore the bioactive compounds responsible for the observed growth inhibitory effects, their mechanisms of action, as well as their potential activity against malignancies.
O – 33
Novel non-invasive procedures for early detection of diabetes mellitus in community-based samples

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Objective: To standardize non-invasive methods for detection of diabetes mellitus, and to assess these for feasibility, acceptability and concordance with traditional laboratory measures, with the ultimate goal of validating these non-invasive methods as markers of health status for widespread, community use.

Design and Methods: One hundred and twenty-six adult patients with diagnosed Type2 diabetes (DM) from the Penal Health Centre and 40 family members without previously diagnosed diabetes (NDM) completed a study visit at a centralized community location in Penal, Trinidad. Data collection included: interview-administered questionnaire, blood pressure, weight, height, waist circumference, urine and blood samples. Non-invasive markers used were: photos of skin pigmentation for Acanthosis nigricans and finger joint angles for limited joint mobility.

Results: Participants were 56 ± 14 years of age, 65.5% female and 74.7% East Indian. Body mass index (BMI) was 29.7 ± 6.7 for the DM group and 31.1 ± 9.1 for the NDM group. Urinary glucose correlated with elevated HbA1c for the DM group. Skin hyperpigmentation increased 9.97% – 23.6% and 17.5 – 29.4% for NDM and DM groups, respectively, with rising HbA1c values from < 6.5% to > 9%. Limited joint mobility was found in 22.9% of the sample. Compared with the DM group, the NDM group was less comfortable with the traditional invasive procedures; blood draws rated least comfortable. Overall, 75% of DM and NDM were very comfortable with non-invasive methods.

Conclusion: These non-invasive methods are more acceptable than blood draws to persons with DM and those at risk across the lifespan. Preliminary results show promising correlations between skin hyperpigmentation and HbA1c.

O – 34
Cross-sectional evaluation of the Finnish Diabetes Risk Score as a screening tool for undetected Type 2 diabetes and dysglycaemia in Aruba

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Objective: To evaluate the performance of the Finnish Diabetes Risk Score (FINDRISC) questionnaire as a screening tool for undiagnosed Type 2 diabetes (T2D) and dysglycaemia in Aruba.

Design and Methods: We used data from the World Health Organization (WHO) STEPwise Approach to Surveillance of chronic disease and their risk factors (STEPS) conducted in Aruba in 2006. Among the total study population (n = 1565), fasting plasma glucose (FPG) test results were available for 646 (41.3%) participants from which FINDRISC questionnaire could be completed. Finnish Diabetes Risk Score performance was cross-sectionally evaluated using the area under the receiver operating characteristic (AUROC) curve method.

Results: Fasting plasma glucose revealed the presence of unknown T2D in 12 (1.9%), impaired fasting glucose (IFG) in 31 (4.8%) and dysglycaemia (T2D + IFG) in 43 (6.7%) participants. The mean risk-score was 9.5 ± 4.0 with a significant higher score (p = 0.013) for women (9.8 ± 3.9) versus men (9.0 ± 4.0). Women had significantly higher mean risk-scores than men (p < 0.002) for normal glycaemia (9.6 ± 3.9), dysglycaemia (12.8 ± 2.8), and T2D (13.1 ± 2.9). The AUROC curve for detecting unknown diabetes was 0.732 (95% CI: 0.587, 0.876). For any dysglycaemia, the AUROC curve was 0.686 (0.603, 0.770). The optimal cut-off values for detecting unknown T2D and any dysglycaemia were a FINDRISC greater or equal to 14 (50.5% sensitivity and 86.8% specificity) and 13 (53.5% sensitivity and 75.1% specificity), respectively. Of 1434 non-diabetic and age-adjusted participants, 8.8% will develop T2D within 10 years.
**Conclusions:** The FINDRISC questionnaire performed well as a screening tool for the cross-sectional detection of unknown T2D in the Aruban population.

**O – 35**

**The association and diagnostic importance of NT-proBNP and hsCRP in Type 2 diabetics in Trinidad**

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**Objectives:** To investigate the association and diagnostic importance of N-terminal pro-brain natriuretic peptide (NT-proBNP) and high sensitivity C-reactive protein (hsCRP) among Type 2 diabetic patients in Trinidad.  
**Design and Methods:** This was a cross-sectional study that included 160 participants of which 67 were diabetic patients, selected from various clinics in Trinidad. Blood samples collected were analysed for NT-proBNP, hsCRP, fasting blood glucose, total serum cholesterol, triglyceride, high-density lipoproteins (HDL) cholesterol, low-density lipoprotein (LDL) cholesterol and insulin.  
**Results:** N-terminal pro-brain natriuretic peptide was found to be significantly different in the diabetic sample (128 ± 20.32) when compared to non-diabetics (70.13 ± 6.57; \( p < 0.043 \)). In diabetic patients, both diastolic and systolic blood pressure significantly correlated with NT-proBNP (\( p = 0.497 \) and 0.287, respectively). Both systolic and diastolic blood pressures were found to be higher in diabetics and significantly correlated with hsCRP. Glucose was significantly correlated with hsCRP in diabetic patients (\( R = 0.264 \)). Insulin was found to be significantly different in persons with high-levels of hsCRP.  
**Conclusion:** Elevated NT-proBNP and hsCRP levels correlate with traditional risk factors for cardiovascular diseases among Type 2 diabetic patients and may be a useful diagnostic tool for those at risk for cardiovascular diseases.

**O – 36**

**Minimal improvement in management of diabetes in primary care in Jamaica, over two decades: A clinical audit**

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**Objectives:** To compare the quality of care received by patients with diabetes in public primary care clinics in Jamaica in 2012 to the care reported in 1995.  
**Design and Methods:** An audit of patient records was conducted over six weeks in 2012 at six Type III Health Centres randomly selected from 22 eligible clinics in the South East Region of Jamaica.  
**Results:** A total of 242 patient records were audited in 2012 compared with 185 in 1995. In 2012, 88% of patients were weighed within the last year compared with 43% in 1995. Documentation of advice given on physical activity increased from 1% to 60% and on dietary practices from 6% to 79%. No patient had done the HBA1c test in 1995 compared to 38% of patients in 2012. In 1995, 66% had their blood glucose measured at a laboratory in the last year while in 2012, 60% had a laboratory test and 90% were tested at the clinic by glucometer. In 1995, sulphonylureas were used more often (88%) while in 2012 the metformin was more common. Blood pressure was well monitored in both time periods and control increased from 19% in 1995 to 41% in 2012. Poor glucose control was recorded among 61% of patients in 1995 compared to 68% in 2012.  
**Conclusions:** Compared to the 1995 audit, there was no improvement in diabetes control among patients in public primary care clinics despite the dissemination of disease specific guidelines, the availability of newer medications and better monitoring.

**O – 37**

**The association of age, gender, ethnicity, family history, obesity and hypertension with Type 2 diabetes mellitus in Trinidad**

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**Objective:** To assess the impact of risk factors such as age, gender, ethnicity, family history, body mass index (BMI), waist circumference and hypertension, on the development of Type 2 diabetes mellitus (T2DM) in the Trinidadian population.  
**Methods:** A cross-sectional case control study involving 146 non-diabetics and 147 Type 2 diabetics ≥ 18 years of age, from the North Central, South West and Eastern regions of Trinidad was done. All measurements were made using standardized procedures.  
**Results:** Cross tabulations revealed a significant difference between T2DM and age (\( p < 0.01 \)), and between T2DM and family history, ethnicity, waist circumference
and hypertension \(p < 0.05\). Logistic regression showed age to be the most influential risk factor. \(\text{Via} t\)-test, systolic blood pressure was statistically significantly different \(p < 0.05\), with non-diabetics and Type 2 diabetics having mean values of 130.6 ± 2.1 and 141.4 ± 2.3 mmHg, respectively. No significant difference was observed between T2DM and gender and BMI.

**Conclusions:** Age was the most significant risk factor for Type 2 diabetes. Additionally, family history, ethnicity, waist circumference and hypertension, but not BMI and gender, are significant risk factors for T2DM in the Trinidadian population.
**Communicable Diseases**

**Chairpersons: RC Landis, M Litchveld**

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**O – 38**
The distribution of respiratory viruses among severe cases of respiratory illness and their association with severe acute respiratory illnesses related deaths in Barbados

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**Objective:** To examine the distribution of respiratory viruses among severe cases of respiratory illness and their association with severe acute respiratory illnesses (SARI) related deaths.

**Design and Methods:** Laboratory analysis (immuno-fluorescence and/or real-time reverse transcription-polymerase chain reaction (RT-PCR)) for influenza A, B, parainfluenza viruses, adenovirus and respiratory syncytial virus was conducted on 333 nasopharyngeal specimens received from January to September (EW 1–40) 2013. Test results, admissions data and records of death were collated and analysed. Demographical data and quality indicators were also included in the analysis.

**Results:** Twenty-three per cent (75) of specimens received were SARI cases. Thirty per cent (75) of total SARI hospital admissions (252) had specimens collected. Overall, analysis revealed that greater than half of the total number of SARI specimens was collected from < 15-year age category (68%) with 49% positivity. Rhinovirus (41%), parainfluenza (19%) and human metapneumovirus [hMPV] (14%) were the predominant viruses isolated. Rhinovirus was found to be the virus most frequently isolated in the 1−4-year and 5−14-year age categories. Influenza A H3N2 was detected in 3% (1) of cases while influenza A H1N1 was detected in 5% (2). Specimen quality assessment showed that greater than half (65%) were collected within seven days of onset of illness. There were 25% (5) SARI related deaths where specimens had been collected. Severe acute respiratory illnesses related deaths represented 8% (20) of total SARI hospital admissions.

**Conclusion:** An increase in SARI specimen collection is required for a greater understanding of the respiratory viruses responsible for severe illness and to determine the association between those respiratory viruses and SARI related deaths.

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**O – 39**
Prevalence and aetiological agents of urinary tract infections in long-term care facilities in Georgetown, Guyana

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**Objective:** To assess the prevalence and aetiological agents of urinary tract infections (UTIs) in persons over 50 years residing in long-term care facilities (LTCFs) in Georgetown.

**Design and Methods:** A cross-sectional study including 137 adults ≥ 50 years in long-term care facilities in Georgetown was conducted. Factors analysed included whether infections were symptomatic or asymptomatic as well as possible risk factors: gender, duration of catheterization, underlying co-morbidity, previous UTI diagnosis, and prior antibiotic treatment.

**Results:** During the three-month period, 137 patients were sampled with a total number of 80 organisms isolated. The overall prevalence of UTIs was 51.8% with that of females (58.6%) being greater than that of males (43.5%). Multivariate logistic regression showed that stroke (odds ratio [OR] 2.99; 95% confidence interval [CI] 1.19, 7.54; *p* = 0.02) and participant’s gender (OR 2.05; 95% CI 1.10, 3.81; *p* = 0.02) were independent predictors for UTI. The most frequently isolated pathogens were *Staphylococcus aureus* and *Enterobacter* sp (22.5% each), followed by *Esherichia coli* (18.8%).

**Conclusion:** Urinary tract infection is of important clinical significance in LTCFs. Understanding the nature of the infection process, including the organisms involved, is essential for clinicians to determine the “best practices” to ensure proper patient care.
Acinetobacter sp: Emerging as an increasing threat at a tertiary care hospital in Guyana

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Objective: To investigate the prevalence of multidrug resistant (MDR) Acinetobacter sp and its resistance patterns among inpatients at the Georgetown Public Hospital Corporation, the main tertiary care hospital in Guyana.

Design and Methods: A retrospective, descriptive study was carried out by scrutinizing data from specimen culture reports, in the Microbiology Department, for inpatients from January 2008 to December 2011. Data were collected on the antimicrobial susceptibility testing results. Gentamicin (10 µg), ciprofloxacin (5 µg), ceftriaxone (30 µg), piperacillin (100 µg) and ceftazidime (30 µg) were the first line antibiotics used and septrin (1.25/23.75 µg), cefotaxime (30 µg), amikacin (30 µg) and imipenem (10 µg) were the second line drugs tested. The number of isolates from each ward and the specimen type were also documented.

Results: Out of 199 isolates, resistance to cefotaxime (94%) and ceftriaxone (88%) were the most common and resistance to imipenem (18%) was the least. Resistance to three or more antibiotic classes or MDR was seen in 140 (70%) isolates and 19 (10%) isolates were resistant to all nine antibiotics. The most predominant phenotype was concurrent resistance to ciprofloxacin, ceftriaxone and piperacillin which was found in 60% of the isolates. Of note, most of the MDR isolates were found in patients from the surgical wards (47%) and wound swabs yielded the majority (60%) of MDR isolates.

Conclusions: There is an urgent need for stricter infection control measures to be implemented and maintained and surveillance mechanisms to be introduced. Also, risk factors, especially in the surgical wards and wound swabs should be investigated.

An investigation into the carriage of methicillin-resistant Staphylococci on fomites at The University of the West Indies, Cave Hill Campus

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Objective: To determine the rate of carriage of methicillin-resistant Staphylococcus aureus (MRSA) on fomites on a University campus and to investigate the susceptibility of isolates to a panel of antibiotics frequently used to treat infections with Staphylococcus aureus (S aureus) and MRSA.

Design and Methods: Samples were collected from 140 frequently touched surfaces in different areas of the University campus, enriched and subcultured onto mannitol salt agar containing oxacillin. Confirmed Staphylococcus isolates were screened for methicillin-resistance by cefsulodin disc diffusion assay and using the MRSA-Screen latex agglutination test. The susceptibility of isolates to a panel of 13 antibiotics was determined by disc diffusion assay according to Clinical and Laboratory Standards Institute (CLSI) guidelines.

Results: There was a 32.9% isolation frequency of coagulase-negative Staphylococci from surfaces, with 52% exhibiting methicillin-resistance. Staphylococcus aureus was not isolated. Few isolates were resistant to doxycycline, trimethoprim-sulfamethoxazole and tetracycline. Resistance to erythromycin was more frequent (31.9%) and inducible clindamycin resistance was observed in 8.7% of isolates.

Conclusions: Staphylococcus aureus was not recovered from fomites on the University campus; however, coagulase-negative Staphylococci, including methicillin-resistant strains, were frequently isolated. The presence of these isolates is significant as they are potential opportunistic pathogens and harbour resistance genes that can be transferred horizontally to the more pathogenic S aureus strains.
**O – 42**

**Head and neck cancer trends in Trinidad and Tobago**

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**Objective:** To investigate trends of head and neck cancer (HNSCC) incidence and survival in Trinidad and Tobago (TT) and compare incidence trends with that of the United States of America (USA).

**Design and Methods:** National cancer registry data from TT were obtained for 742 HNSCC cases diagnosed between 1995 and 2007. Squamous cell cancers of the oral cavity, pharynx, and larynx were analysed. Data from the US Surveillance, Epidemiology and End Results (SEER) database were obtained for age-adjusted incidence comparison.

**Results:** The majority (323, 43.5%) of TT patients had larynx or laryngeal cancer, were of African ancestry (296, 39.9%), with East Indians representing a significant minority (230, 31.0%). The male:female cancer ratio was 4.5:1. Female patients were more likely to have oral cancer (OR 3.7, CI 2.5, 5.4), and less likely laryngeal cancers (OR 0.3, CI 0.2, 0.5). Age-adjusted incidence trends in TT and the US SEER database showed a decrease in laryngeal cancers until 2001 when a rise in TT larynx cancers was identified. While a rise in oropharyngeal prevalence was seen in the SEER data from 1995–2006, oropharynx cancer remained on the steady decline in TT. Survival in this series was poor with 16.9% five-year localized disease specific survival (DSS), and 6.3% and 8.7% regional and distant metastasis five-year DSS. No survival advantage was seen in TT oropharynx cases versus non-oropharynx cases.

**Conclusions:** Most HNSCC in TT were diagnosed in males of African ancestry with laryngeal cancer. Indian patients and females were more likely to have oral cancer. Head and neck cancer survival is uniformly poor.

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**O – 43**

**Human papillomavirus genotype distribution in cervical samples among vaccine naïve Barbados women**

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**Objectives:** To provide baseline human papillomavirus (HPV) genotype distribution among women in Barbados before HPV immunization is introduced. This information can then be used in post-vaccine surveillance and is expected to aid in understanding the effect of vaccination on cervical disease in Barbados.

**Design and Methods:** Liquid-based cytology specimens were collected from 413 women (age range 18-65 years) attending three clinics, in a cross-sectional, pre-vaccination, randomized study. After consent was obtained, sexual behaviour and sociodemographic information were acquired from self-administered questionnaires. Human papillomavirus types were detected using a Luminex-based HPV polymerase chain reaction (PCR) genotyping method.

**Results:** Human papillomavirus was detected in 33% (135/413) of the women overall (95% CI 32.7, 33.37), of which 70% (95/135) were high-risk types. Thirty-five different types were detected in this population. Single and multiple high-risk HPV types were detected in 13/95 (14%) and 29/95 (31%) women, respectively. The most
common high-risk HPV types detected were 45 (n = 22, 23%), 16 (n = 17, 18%), 52 (n = 16, 17%) and 58 (n = 10, 11%). Ninety-one out of 413 persons (22%) had a normal cytology result. There was also a low prevalence of genital warts (15%). Associated risk factors were education (p = 0.003), household income (p = <0.005), number of births (p = < 0.005), history of sexually transmitted infections [STIs] (p = 0.041), age at first sexual encounter (p = 0.001), marital status (p = < 0.05) and age range (p = < 0.005).

Conclusions: A high prevalence of HPV type 45 (23%) was found in the screening population of women in Barbados. The results of cytological examinations and HPV positivity suggest that both tests should be used for more reliable diagnosis.

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Factors of knowledge, attitudes and spirituality as predictors of breast cancer screening practices in Bahamian women

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Objective: To investigate factors such as age, income, breast cancer knowledge, attitude, and spirituality to determine their influence on breast screening practices among Bahamian women.

Design and Methods: A convenient sample of 780 Bahamian women ages 18–70 years completed a self-administered 105-item questionnaire containing a researcher designed demographic and three questionnaire instruments: the Champion Health Belief Model Scale, Breast Cancer Knowledge Instrument Test, Spiritual Involvement and Belief Scale-Revised.

A cross-sectional, correlational design examined the relationship among the variables using descriptive, correlation and multiple regression analyses.

Results: Data on 646 participants were used for analysis. Age ranged from 18 to 70 years (M = 38.33, SD = 10.19). The participants scored low on knowledge (M = 7.13, SD = 2.23); attitude 7 to 35 (M = 20.96, SD = 5.46), and breast cancer screening practices 97 to 181 (M = 143.29, SD = 14.51) scales. Knowledge, attitude and spirituality F (5, 461) = 40.31, p < 0.001 were found to significantly predict the breast cancer screening practice of Bahamian women (p < 0.001).

Conclusion: This study has identified reasons for the lack of breast cancer screening practices among Bahamian women. The awareness that knowledge, attitude and spirituality have great influence as to whether Bahamian women would engage in breast cancer screening practices is very significant in planning and implementing programmes.

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The impact of prostate cancer on the health system in Trinidad

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Objective: The aim of this study was to determine the clinical profile of prostate cancer as it impacts on the public healthcare system in north Trinidad.

Design and Methods: A retrospective cohort design was used; data were collected from a review of medical records of patients meeting the entry criteria. Clinical and demographic data were extracted.

Results: Three hundred and ninety-six patients were entered into the study. Age ≥ 55 years, African origin and unemployed married men had the highest proportion of cases. Adenocarcinoma and a Gleason score ≥ 7 were the main pathological features. Diagnosis was mainly by prostate biopsy and the range of management options was extensive and sophisticated.

Conclusion: Prostate cancer prevalence continues to be high in Trinidad. We provide evidence of the extent and degree of sophistication utilized to care for patients with prostate cancer by a health system in a small developing country.

O – 46
The epidemiology of an emerging epidemic of cancer in Nevis, St Kitts and Nevis

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Objective: To determine the extent and nature of cancer in Nevis since 2002 and describe how this small island is coping with the problem.

Design and Methods: An analysis was made of health records on cancer in Nevis. This included deaths, admissions, treatment options, use of screening and prevention activity.

Results: Cancer was the second most common cause of death in Nevis. The most prevalent cancers are prostate in men and breast in women. The setting up of a cancer registry in 2010 has shown that women presented 20 years younger than men with cancer. The main screening activities were for cervix and prostate. Both have seen an increase in uptake within the last five years. Some treatment is carried out locally but many patients needed referral abroad. Outreach services from the Virgin Islands
and Antigua were helping some patients remain at home. The efforts of health staff, the media and charitable agencies were raising awareness and opening up opportunities for earlier presentation and better outcomes. **Conclusions:** Cancer is a major health problem in Nevis. Many patients go abroad for treatment. The introduction of outreach services is easing that burden. Rising awareness and removal of fear has improved uptake of screening, earlier detection and possibilities for better outcomes.

**O – 47**

Oncology training needs assessment for clinical healthcare workers in Trinidad and Tobago

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**Objective:** To determine training gaps amongst clinical healthcare workers (HCW) who provide oncology services in Trinidad and Tobago.

**Design and Methods:** Clinical HCWs from seven institutions providing oncology services were invited to complete a questionnaire targeting their knowledge and competencies in performing tasks related to diagnosis, treatment, care and support of patients with cancer. Univariate and bivariate analysis were used to assess the results.

**Results:** Seventy-two per cent (105/145) of HCWs participated. Of these, 38% were formally trained in oncology. Knowledge scores were higher than competency scores in the three assessed areas of diagnosis, treatment, care and support. The lowest competency ratings were in diagnosis and care and support. The highest knowledge and competency scores were in the treatment category. Priority areas identified by respondents for training were counselling (56%), care and support systems for patients (53%) and risks factors to enable cancer reduction (44%).

**Conclusion:** Training in management of patients with cancer, especially in diagnosis and care and support, should be made available to clinical HCWs at all institutions providing oncology services in Trinidad and Tobago. Staff shortages and deficiencies in infrastructure and equipment need to be urgently addressed.
Anosognosia in HIV/AIDS at Tobago Health Promotion Clinic, 2003–2012

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Objectives: To determine the domains of denial and anosognosia in HIV disease and to evaluate the frequency, associated criteria and contributions of these conditions to negative outcomes in HIV/AIDS prevention, care and treatment at Tobago Health Promotion Clinic (THPC).

Design and Methods: Patients with HIV disease attending THPC, their charts, caregivers and significant others were assessed using clinical and psychosocial evaluation tools related to denial and anosognosia.

Results: Five hundred and seventy-one HIV-positive patients were identified. One hundred and five patients were considered as initially being in denial; of these, 69 were diagnosed with anosognosia. Of those with anosognosia, 27 had associated severe mental illness (SMI); 19 had HIV-associated dementia; 11 had central nervous system (CNS) toxoplasmosis and 12 had no associated conditions. Ninety-seven per cent of regular, 75% of the denial group, and 20% of those with anosognosia were treated with antiretroviral therapy (ART). The median time of retention was 102 months, 22 months and 11 months for the regular, denial and anosognosia groups, respectively. Late presentation and CD4 < 90 occurred in 96% of the anosognosia, 72% denial, and 42% in the regular group, respectively. There were 82 deaths: 46 (56%) in the regular, 16 (20%) in the denial and 20 (24%) in the anosognosia group.

Conclusions: Anosognosia may present as an isolated symptom or associated with SMI, dementia and CNS toxoplasmosis. It contributes to poor outcomes in HIV prevention, care and treatment. If anosognosia is recognized and properly addressed, outcomes can be improved.

Understanding attitudes, barriers, and challenges in Barbados to partner notification for HIV and other sexually transmitted infections

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Objectives: To understand the attitudes, barriers, and challenges to partner notification (PN) for HIV and other sexually transmitted infections.

Design and Methods: Six key informants identified 29 people from diverse backgrounds to be interviewed using an open-ended interview guide. Patient, provider and contract referral were discussed and compared.

Results: Participants (16 males, 13 females, mean age 51 years) included physicians, nurses, and representatives from governmental, youth, HIV, men’s, women’s, church, and private sector organizations. The findings were that contract referral and provider referral were the most and least acceptable methods, respectively. Good counselling was required and physicians may have neither the skill nor time. Patient referral requires breaking the news face-to-face and procrastination may occur. Provider referral requires legislation sanctioning it, time and effort. Patients may see it as breach of confidentiality and may not give the names of contacts. Providers may breach confidentiality and neighbours may guess the reason if a home visit is used as the contact method. Contract referral had the advantage of giving infected persons the first opportunity of informing partners but people tended not to honour verbal contracts, and may neither inform contacts nor say that they did not.

Conclusions: Denial, shame, adverse partner reaction, stigma and discrimination in a small judgmental society where it is difficult to maintain confidentiality may make PN unacceptable to infected people and deter testing.
Discrete contract referral may be the most acceptable and effective PN method. Partner notification legislation, public education, adequate resources and patient counselling are needed.

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Attitudes of Public Hospitals Authority physicians in New Providence, Bahamas, toward persons living with HIV/AIDS

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Objective: To explore attitudes, including stigma, toward persons living with HIV/AIDS (PLHA) among Bahamas-based Public Hospitals Authority (PHA) physicians in New Providence island.

Design and Methods: A random sample of 174 physicians completed a structured self-administered questionnaire assessing demographics, HIV/AIDS knowledge, fear of occupational exposure, statements about HIV/AIDS, and observations of discrimination. Responses were analysed using descriptive and inferential statistics.

Results: One hundred and thirty-four physicians completed the survey (M 63, F 71). Their mean age was 39.1 years, 67.9% were Bahamian, 88.8% Christian and there were varying levels of educational and professional attainments. Regarding HIV/AIDS knowledge, 53.7% claimed they were very knowledgeable and at least 92% demonstrated "good" HIV/AIDS knowledge. HIV/AIDS-related training was received by 61.2%; 95.5% reported being directly involved in the care of PLHAs, 66.4% were very comfortable providing such care, and 59.8% were willing to do so for ≥ 6 months. Also, 84.3% were not likely fearful of HIV contagion. All were either possibly likely (53%) or likely (47%) to stigmatize against PLHAs. Gender and level of fear of HIV contagion were predictors of this.

Conclusions: This study revealed that PHA physicians could potentially stigmatize against persons living with HIV/AIDS. Addressing HIV stigma in The Bahamas will require multifaceted approaches inclusive of HIV/AIDS related education and training.

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Assessment of training to reduce stigma and discrimination among healthcare providers in Trinidad and Tobago

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Objective: To assess the knowledge, attitudes and behaviours (KAB) relating to HIV-infection of healthcare providers (HCPs) who received training in stigma and discrimination toward persons living with HIV (PLHA).

Design and Methods: Healthcare providers were administered a structured telephone interview if they were trained in stigma and discrimination by the Trinidad and Tobago Health Training Centre in 2010–2011 and provided direct patient care in public health facilities. A stratified random sampling technique was used to select participants. Data were analysed quantitatively using SPSS version 18.

Results: Two hundred and fifty-one HCPs were interviewed; 75% responded correctly to all knowledge questions on HIV transmission, treatment and risk; 52% of HCPs scored >75% on attitudes and 78% of HCPs >75% on behaviours. Specific attitudes and behaviours with poor results (< 70% correct) were those related to false need for extra protection when dealing with HIV-infected patients, beliefs that every HCP had the right to know patients’ status, that immoral behaviour was the main reason for infection, that infected women should not have children, and HCP willingness to disclose patient status to a close relative. Scores for attitude and behaviour were more favourable for those receiving multiple trainings. More than 85% reported that training influenced the way they felt, thought about or reacted to PLHA, and used information from training both in and outside of the workplace.

Conclusion: Training, especially repeated, contributes positively to attitudes and behaviours among HCPs. Future training should emphasise universal precautions and dispel misconceptions about mother-to-child transmission of HIV.
Objective: To analyse levels of viral load (VL), CD4 counts and outcome in HIV-infected pregnant women in Barbados.

Design and Methods: In this retrospective descriptive study, the CD4 and VL counts and outcome for HIV-infected pregnant women who were followed at the Ladymeade Reference Unit and delivered between January 1, 2003 and December 31, 2012 were analysed.

Results: Two hundred and thirty-three pregnancies were recorded in the cohort of infected women. Fifty-five women were on antiretrovirals (ARVs) prior to pregnancy, 92 commenced highly active antiretroviral therapy (HAART) for prevention of mother-to-child transmission (PMTCT) after becoming pregnant and 142 were on HAART during pregnancy. For each pregnancy, visit analysis revealed that 72 (41.9%) women had one VL, 64 (37.2%) had two VLs, and 36 (20.9%) had >2 VLs. CD4 count analysis revealed that 74 (43.5%) of the women had one CD4, 63 (37.1%) had two and 33 (19.4%) had three or more CD4s. Viral suppression was present at delivery in 69 (40.1%) [< 200 copies/mL]. Spearman’s r was r = -0.03, p = 0.65. Four women died. Between 2003 and 2011, 69 women delivered babies and 18 had a CD4 < 200. After 2011, 23 women delivered, one had a CD4 of < 350. The median log viral load among pregnant women decreased from 9.9 (19 930 cells/mL) in 2003 to 6.0 (403 cells/mL) in 2012. The proportion of women with VL suppression in pregnancy increased from 10.0% to 47.6%.

Conclusions: Findings revealed a significant suppression in VLs in pregnant women over the past decade and a good outcome.
Health Systems

O – 54
Medication adherence and health insurance/health benefit in adult diabetics in Kingston, Jamaica

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Objectives: To determine the association between health insurance/health benefit and medication adherence amongst adult patients with diabetes in Kingston, Jamaica.

Design and Methods: This was a cross-sectional study. Target population was patients with diabetes who attended the diabetic outpatient clinics at two selectively chosen health centres in Kingston. All patients with diabetes attending the diabetic clinics and over the age of 18 years were conveniently sampled. The sample size was 260. An interviewer-administered questionnaire was utilized which assessed health insurance/health benefit. Adherence was measured by patients’ self-reports of medication usage in the previous week. The Chi-squared test was used to determine significance of associations.

Results: The sample population was 76% female and 24% male. Type 2 diabetics comprised 93.8%. More than 95% of patients were over the age of 40 years. Approximately 32% of participants were employed. Approximately 75% of patients had health insurance/health benefit. Of the adherent patients, 79.6% had health insurance/health benefit, compared with 64.6% of the non-adherent patients. This difference was statistically significant (χ² = 6.553, p = 0.01). Prevalence of medication non-adherence was 33%.

Conclusion: In Kingston, patients with diabetes who are adherent are more likely to have health insurance/health benefit.

O – 55
Exploring the attitudes that influence the non-urgent patient utilization of the Accident and Emergency Department in St Vincent and the Grenadines: A qualitative interview study

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Objective: To explore the attitudes that influence the non-urgent patient utilization of the Accident and Emergency Department (AED) of the Milton Cato Memorial Hospital (MCMH) in Kingstown, St Vincent and the Grenadines (SVG).

Design and Methods: A qualitative study was conducted between May and August 2013 in the AED of the MCMH in SVG. Semi-structured interviews of twelve non-urgent AED patients were conducted to elicit a deeper understanding of how and why persons with non-urgent medical complaints decide to seek emergency care. Verbatim transcribed transcripts were analysed with a grounded theory approach. This data-driven, iterative approach led to reconsideration of common rational choice behavioural theories used in this area toward those of habit formation.

Results: The study found, first, that Vincentians automatically choose to visit the AED because it is a custom. Second, the healthcare system in SVG operates in a manner that reinforces this habitual non-urgent use of the AED, for example, by routinely referring to the AED and failing to triage patients appropriately as non-urgent. Third, there was also some deliberate use, as patients took convenience and the systematic encouragement into account to determine that the AED was the most appropriate choice for health care.

Conclusion: The attitudes and perceptions of the Vincentian non-urgent patient are major determinants of the AED utilization in SVG, and are intricately linked to local habit and custom. Measures to reduce the non-urgent use of the AED must include consideration of the Vincentian habit of ‘going casualty’.
O – 56
User satisfaction survey in the Accident and Emergency Department at a major hospital in Trinidad

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Objectives: To assess patients’ experiences in an Accident and Emergency (A&E) department using quality criteria.

Design and Methods: A cross-sectional study was carried out to assess the A&E service using Maxwell’s quality criteria (acceptability, accessibility and efficiency). Previously validated questionnaires were modified, pilot tested and used. Data were collected on 200 patients on all days of the week during the study period and throughout the three daily shifts. Waiting times were related to triage categories.

Results: Eighty-four per cent of patients (n = 166) reported being at least adequately attended by the receptionist, while 20% (n = 39) spent more than three hours waiting to be seen. Patients in the blue/asthma triage category spent on average approximately three minutes waiting to be seen by a doctor; the red category – 36 minutes; the yellow category - 84 minutes and green – 67 minutes. Sixty-four patients were able to state how long they waited for a bed; of these 53% (34 patients) waited more than three hours. Ninety-six per cent (n = 189) rated the overall nursing care between fair and excellent; 94% (n = 182) rated the overall care at the A&E Department between fair and excellent; with at least 96% (n = 192) stating that the doctors treated them with professionalism and respect.

Conclusion: Most (79%) patients reported being satisfied with the healthcare provided. Dissatisfaction expressed was due to the state of restrooms, cleanliness and seating arrangements in the waiting area. The three-hour wait for a bed for more than 50% of patients requires review.

O – 57
A needs assessment of disabled people living in Nevis

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Objective: What are the needs of disabled people in Nevis and how can they best be addressed?

Design and Methods: A cross-sectional study was conducted to determine the needs of persons with a disability (PWD) in Nevis. Structured interviews were conducted with 40 PWD and 30 persons without a disability. These interviews consisted of questions from the United Nations (UN) Washington group questionnaire, the World Health Organization (WHO) Disability Schedule 2.0, the Participation scale and the Craig Hospital Inventory of Environmental Factors (CHIEF) short form. Focus groups were organized with blind and visually impaired persons, healthcare providers and policy-makers.

Results: Disability on Nevis was caused primarily due to chronic health conditions (40.0%). Persons with a disability had functional limitations and participation restrictions. There was a lack of accommodating transportation services, there were inaccessible building structures, negative social attitudes, difficulty in finding employment, a lack of policies directed to the needs of PWD and a lack of services available for PWD. The current rehabilitation services and specialists cannot meet the needs of all PWD on the island; therefore, a rehabilitation centre combined with community based rehabilitation is necessary.

Conclusions: Persons with a disability in Nevis are underserved. There is need for more services and adaptation of policies to meet the needs of PWD. These changes must be done to ensure the independence and full participation of PWD in society.

O – 58
The proper use of pharmaceuticals amongst elderly persons suffering from Metabolic Syndrome X

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Objective: To determine the proper use of pharmaceuticals amongst elderly persons (65 years and older) suffering from Metabolic Syndrome X.

Design and Methods: Three hundred persons suffering from Metabolic Syndrome X, ages 65 years and over were selected via purposeful sampling at two hospitals in Trinidad: Eric Williams Medical Sciences Complex and San Fernando General Hospital. Interviewer administered questionnaires were used to collect data and determine the knowledge of patients concerning their condition, current medication and barriers to proper use of medications.

Results: Data from 283 patients was analysed. Highest level of education was primary school for 51% and 12% had no education. For 49.7%, religious and cultural beliefs restricted use of some medications and 64.7% accessed medication free through the Chronic Disease Assistance Programme. For those purchasing medication, 51% had
financial difficulties and 14% lacked transportation. Overall, 34.7% were unaware of the function of their medication and 72.3% were unaware of possible side effects; 25% felt they were taking too many medications; 17% were less inclined to comply due to large quantity; 13.7% said their mood affected compliance, while 13.7% said their medication disrupted their daily activities. **Conclusion:** Culture, education, knowledge, finance and transportation were identified as key determinants of compliance. Programmes fostering education and accessibility of pharmaceuticals should be implemented to assist elderly patients suffering from Metabolic Syndrome X.

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**O – 59**

A Geographic Information System-based analysis of syphilis in Trinidad: Applying new technologies to an old disease

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**Objective:** To describe the current epidemiological features of syphilis and congenital syphilis in Trinidad, 2003–2012.

**Design and Methods:** All laboratory confirmed syphilis cases diagnosed at the Queen’s Park Counselling Centre (QPCC) between January 1, 2009 and December 31, 2012 were identified. All relevant data were collected including addresses which were geocoded and mapped using ArcMap 10.0 Geographic Information System. Both spatial techniques and standardized incidence rates were used to access hot spots.

**Results:** The annual cumulative incidence rate for syphilis remains high, varying from 39 per 100 000 population in 2009, to 29 per 100 000 in 2012. We identified three “hot spots”: Port-of-Spain, San Juan and Arima. Young men and particularly young women of childbearing age 15–35 years living in urban high density populations were commonly infected.

**Conclusion:** The incidence of syphilis continues to be very high in Trinidad. New initiatives will have to be formulated in order to achieve the global initiative to eradicate syphilis by 2015.

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**O – 60**

A review of health information systems at selected health institutions in Trinidad and Tobago

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**Objectives:** To evaluate the health information systems (HIS) at selected health institutions in Trinidad and Tobago to determine their effectiveness.

**Design and Methods:** An evaluation using Donabedian’s structure, process and outcome parameters was undertaken. Information was collected (March to June 2013) from two hospitals and two randomly selected health centres. Admission Discharge Transfer (ADT) forms, birth and death records, Accident & Emergency Department (A&E) register etc were reviewed. Semi-structured face-to-face or telephone interviews were conducted with medical records staff to ascertain information on data flows and their views about the current HIS.

**Results:** Fifteen thousand two hundred and eighty forms were reviewed. Three institutions employ a manual HIS; the fourth, a partial electronic system. International Classification of Diseases (ICD-10) coding occurs in hospitals, but not at health centres; at Hospital 1, medical ward ADT forms revealed 91.5% completion for ‘diagnosis’ field and a 0.8% ‘coding’ field completion. At Hospital 2, the coders look through the notes to find the ‘diagnosis’ which was reflected in a 73.2% completion for ‘diagnosis’ and a 92.3% completion for ‘coding.’ Interviews revealed a three-year backlog for entering codes in hospital 1 and highlighted that some staff have coding duties added to their roles and responsibilities. In the health centres, the completion rates for chronic disease clinic forms were no more than 55.7%.

**Conclusions:** Health information systems need strengthening, starting at the frontline. Issues regarding staffing and delays in completing forms need addressing to ensure effective surveillance for health service planning, monitoring, evaluation and early detection of acute public health events.

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**O – 61**


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**Objective:** To review the quality of national cause-of-death data reported by the English- and Dutch-speaking Caribbean for the period 2000–2010.

**Design and Methods:** Data were extracted from the Caribbean Public Health Agency (CARPHA) regional cause-of-death database and analysed using the four types of “garbage codes” developed by Naghavi in 2010. An analysis of the total proportion of garbage codes reported annually was conducted and compared to a review of CARPHA initiatives to improve quality of cause-of-death
data. Additionally, the four types of garbage codes were analysed by country, year and age group.

Results: The proportion of deaths attributed to garbage codes varied widely by country, age and over time. Notably, there was a general reduction in the proportion of deaths attributed to garbage codes over the period; this reduction coincided with CARPHA training initiatives beginning in 2005. Among all deaths attributed to garbage codes, the reporting of intermediate causes of death were most frequent for 18 of the 21 countries. For three of the garbage code types, higher proportions of garbage codes were found for persons under 14 years and older than 70 years.

Conclusions: The proportion of garbage codes varied substantially over time, between countries and by age. There is evidence to suggest that training initiatives have led to an improvement in the quality of cause-of-death data.
O – 62
Misalignment of perceived weight with actual body mass index in The Bahamas
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Objectives: To assess the correspondence of weight perception versus actual body mass index (BMI) category.

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

Results: Of 674 patients, 64.5% were female. Overall, the mean age was 54.1 (± 14.7) years; 8.7% claimed “obesity”, 45.2% “overweight”, 1.1% “big boned”, 43.3% “normal” and 1.7% “underweight”. Mean BMI was 30.4 (± 6.8) kg/m² and was unrelated to gender or age; 40.6% of the variance in participants’ actual BMI was explained by self-perceived BMI (r² = 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 seven underweight, 14.3% claimed obesity, 71.4% claimed normal weight and 14.3% underweight. Mean waist circumference for males was 40.1 (± 0.4) inches and 37.1 (± 0.3) inches for females (p < 0.001).

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


O – 63
Acanthosis nigricans is associated with higher waist circumference and body mass index in adolescent children in Trinidad
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Objective: To examine the association between acanthosis nigricans (AN), body mass index (BMI) and waist circumference in adolescent children in Trinidad.

Design and Methods: In a cross-sectional study, adolescent children (n = 296) aged 11–16 years, from five secondary schools in North-east Trinidad were examined for the presence of AN on the neck. Waist circumference and BMI as indices of obesity were measured. Adolescents were classified by gender for BMI for age according to the World Health Organization (WHO) 2007 criteria. Waist circumference was categorized into tertiles defined by the following thresholds: low ≤ 66.2 cm, middle ≥ 66.3 cm and £ 75.1 cm and high ≥ 75.4 cm.

Results: Acanthosis nigricans was present in 24.2% of adolescent children and 41.6% were either overweight or obese. Body mass index for age and waist circumference in tertiles were both significantly associated with AN (p < 0.001). Acanthosis nigricans significantly correlated with BMI for age (p < 0.001) and waist circumference in tertiles (p < 0.001). The majority of adolescents with AN were also overweight or obese for age (88.9%) and this finding occurred in the highest tertile for waist circumference (72.9%).

Conclusion: Acanthosis nigricans is associated with increased waist circumference, being overweight and/or obese and age in adolescents in Trinidad. With early detection of these indicators, focussed weight management can lower the risk of obesity and pre-diabetes.
O – 64

Healthy eating practices: Perceptions, facilitators and barriers among caregivers of primary school children in North East Trinidad

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Objective: To explore perceptions, facilitators and barriers of healthy eating behaviours among caregivers of primary school aged children.

Design and Methods: A purposive sampling design was used to select primary school children caregivers/parents from four different communities in North East Trinidad. They were recruited via the school system with letters containing the research purpose and background. Four focus groups were conducted between May and June 2012. Each focus group had an average of five participants and lasted for approximately 60 minutes. The participants were asked to define healthy eating, identify healthy foods and describe their concerns regarding healthy eating. The interview questions were developed and validated by the research team members. The data were transcribed and analysed for themes.

Results: Twenty-three caregivers (78% female) participated in the study. The participants’ defined healthy foods as vegetables, starchy foods, porridge, tea, fibre, foods low in fat. They also acknowledged that food cost and availability, parent’s inability to influence children to consume fruits and vegetables, cultural practices related to meat and legumes, and social barriers such as the use of punishment are some major challenges impeding healthy eating.

Conclusion: Our study demonstrated that several barriers exist to healthy eating among primary school children in Trinidad. Community health professionals, nutritionists and school teachers need to play a more prominent role in teaching children and parents about the benefits of healthy eating. Future studies need to address the barriers to healthy eating. This might help to reduce the growing obesity prevalence in Trinidad.

O – 65

Nutrition and physical activity among youth aged 12–19 years in Aruba – Findings from the Youth Health Survey 2012

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Objective: To assess risk and protective factors related to the youth 12–19 years.

Design and Methods: A random representative sample of all public secondary school-going youth was surveyed. Questions concerned nutrition, physical activity and sedentary lifestyle.

Results: Data on 4765 respondents were used for analysis (F 2464, M 2301). Their mean age was 15.2 years. Of the respondents, 72.3% consumed fruits, (F 70.8%, M 74.0%) and 82.1% consumed vegetables (F 81.1%, M 83.1%) one or more times per day during the previous week. Most (77.7%) consumed at least one can of soda daily while 73.3% ate fast food at least once during the past seven days. While 78.5% (F 73.2%, M 84.4%) of the youth reported that they were engaged in some form of physical activity, only 10.5% complied with the national guidelines (60 minutes per day). In addition, almost all (97%) of the youth spent at least one hour on sedentary activities per day. Of the youth, 19.7% were overweight and 19.7% were obese.

Conclusions: Although more than half of the Aruban adolescents ate fruits and vegetables and a high percentage have stated that they engaged in physical activity, still only one in 10 adolescents complied with the national guidelines for physical activity. The percentage of soda and fast food intake was high. This may explain the high rate of overweight and obesity.

O – 66


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Objective: To measure cardiovascular disease (CVD) risk factors trends among Turks and Caicos Islands (TCI) school-aged children.

Design and Methods: A cross-sectional survey collected sociodemographic, health and nutritional status data from 1977 (996 male and 981 female) 10–15-year old high school (2008–2013) entrants. Cardiovascular disease risk factor trends for physical, lifestyle and biochemical indicators were assessed using SPSS (version 20). Comparisons of continuous (eg body mass index (BMI), blood pressure [BP] and cholesterol) and categorical variables (eg gender, nationality, obesity and cholesterol status) were conducted using one-way ANOVA and Chi-squared analyses, respectively.

Results: Overall, participants’ mean age was 12.37 ± 0.70 years (boys 12.45 ± 0.69 years vs girls 12.29 ± 0.07; p <
0.001); 800 (40.4%) were overweight (17.2%) or obese (23.2%). Physically active participants (n = 1396) had lower mean, BMI ($p = 0.001$) and consumed more water ($5.00 \pm 2.56$ vs $4.43 \pm 2.42$ servings per day; $p < 0.001$).

Overall, 6% had elevated BP, which included more overweight/obese than normal/underweight (10% vs 4%; $p = 0.001$); 22% and 18% consumed ≥ 1 serving of fruits or vegetables daily, respectively; fewer overweight/obese (46.5% vs 53.5%; $p = 0.020$) consumed ≥ 1 serving of fruit daily. Approximately 13% (of subsample of 475) had cholesterol levels > 200 mg/dL. Indicators did not differ significantly among cohort years.

**Conclusion:** Obesity, physical inactivity, unhealthy diets and dyslipidaemia are public health concerns among TCI youths. Continued monitoring and healthy lifestyle promotion and school-based interventions are imperative to reduce future chronic disease burden and healthcare costs.

**O – 67**

**Improving trend in anaemia status of Turks and Caicos elementary school children across the decades**

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**Objective:** To examine anaemia trends among Turks and Caicos Island (TCI) youth over four decades (1974–2013).

**Design and Methods:** A cross-sectional survey compared anaemia status (haemoglobin < 12.0 g/dL) among three cohorts (2008, 2009 and 2013) of 788 (girls = 399 and boys = 389) high schools entrants, aged 9.5–15 years. Statistical analyses were performed using SPSS (version 20). Inter-cohort, nationality and gender comparisons were conducted. Comparisons were also made with TCI children similarly assessed in 1974.

**Results:** Most (59.6%) were born in TCI and resided there ≥ 5 years (84.8%). Mean age was 12.45 ± 0.71 years. Mean haemoglobin (Hb) was 13.00 ± 0.98 g/dL with boys (13.16 ± 0.05 g/dL) significantly higher ($p < 0.001$) than girls (12.84 ± 0.50 g/dL). Among the cohorts there was a significant ($p < 0.05$) increasing trend of mean Hb, ranging from 12.70 ± 0.98 g/dL (2008) to 13.37 g/dL (2013) with concomitant, significant ($p < 0.05$) decrease in mild anaemic (Hb 10.00–12.00 g/dL) cases (20.2% in 2008 to 6.8% in 2013). Slightly more girls (14.9% vs 11.0%) were mildly anaemic and included significantly more Haitian (22.8%) than TCI (10.9%) girls ($p = 0.006$); no moderate or severe anaemia (Hb 7–10.0 g/dL) cases were found in the current period, compared to 16% in 1974.

**Conclusion:** Absence of moderate and severe anaemia (Hb < 10.0 g/dL) coupled with increasing trend in mean Hb demonstrate significant improvement. Finding of significant gender difference in mean Hb and more mild anaemia among Haitian girls, highlight the need for ongoing targeted intervention and monitoring.
Poster Presentations

P – 1
The epidemiology of cancers in Trinidad and Tobago

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Objectives: To explore the epidemiology of cancers in Trinidad and Tobago (T&T).
Design and Methods: This was a descriptive cross-sectional study. A convenient sample of 1064 patients attending the National Radiotherapy Centre (NRC) in St James (a specialized clinic for cancer patients) was surveyed.
Results: The majority (68.8%) of those surveyed were over 40 years while 17.0% were under the age of 40 years (data were not available for 14.2% of the sample). Females made up the majority of the sample (61.0%). In terms of ethnicity, Afro-Trinidadians accounted for 32.6%, Indo-Trinidadians 25.5% and 21.0% were mixed. Employment status of those surveyed was as follows: 32.4% unemployed, 27.7% employed and 23.3% retired. The most common cancer type was breast (36.7%), followed by uterine and colon (10.7% and 9.3%, respectively). About 39% of those surveyed had relatives with cancer. Combination treatment was the most common treatment type for most cancers, followed by surgery for breast and colon, chemotherapy for breast, uterine and prostate. Time since diagnosis: 39.8% were diagnosed one year or less, 28.9% diagnosed 2–4 years and 7.6% diagnosed 5–7 years.
Conclusion: The most common cancer was breast cancer. Combination treatment is the most common form of treatment.

P – 2
Barbadian women’s attitudes toward and knowledge of cervical cancer screening: An interview study

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Objectives: To investigate the attitudes of Barbadian women toward routine cervical cancer screening as well as their knowledge of Pap tests.
Design and Methods: The qualitative method of semi-structured individual interviews was used to collect in-depth information from female patients between the ages of 20 and 60 years who attended a selected polyclinic in Barbados. Fourteen interviews lasting 20 to 30 minutes were carried out with a diverse range of female patients. Interviews were audio-recorded with participants’ consent. The interviews were then transcribed, and using content analysis indexed and coded inductively for emerging similar themes.
Results: Several themes emerged. 1) There was poor knowledge of the purpose of Pap tests. It was found that the most common misconception held by women was that the test was for the detection of sexually transmitted infections. 2) The women displayed limited cervical cancer awareness. 3) Health professionals were identified by the women as the main driving force behind screening uptake. 4) There were several social drivers of screening uptake, particularly family influence. 5) The screening procedure was perceived as uncomfortable or painful but women’s overriding attitude was that screening is necessary.
Conclusion: Barbadian women would benefit from focussed health education efforts surrounding cervical cancer screening to eradicate the misconception that the purpose of the Pap test is the detection of sexually transmitted diseases.

P – 3
Knowledge, attitudes and beliefs toward Papanicolaou smear testing among women attending the outpatient clinics in Nassau, The Bahamas

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Objectives: To assess knowledge, attitudes and beliefs toward Papanicolaou smear testing among women attending outpatient clinics in Nassau, Bahamas.
Methods: A cross-sectional study assessed knowledge, attitudes and practices concerning Papanicolaou smear testing. Two hundred and fifty-five women aged 18–65 years, of different sociodemographic backgrounds, were interviewed using a self-administered validated questionnaire. Participants were selected via convenience sampling. Descriptive and inferential statistics were done.

Results: Several participants were single (49.4%), Bahamian (92.8%), between 18 and 29 years (23.2%) and had a college level or higher education (75.8%). The majority (91.6%) had a Pap smear done while 87.1% had a screening within the last five years. More than a third (38.1%) correctly answered the knowledge-based questions. More than half (59.4%) thought that cervical cancer was curable, and 73.5% found Pap smears to be uncomfortable. Participants thought the following persons were at risk: married with children (44.8%), virgin (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%).

Conclusion: In The Bahamas, significant disparities exist in knowledge regarding cervical cancer screening, including Pap smears. A challenge for this country’s healthcare providers is to ascertain ways in which to educate women about cervical cancer prevention.

P – 6
The relationship between health beliefs and beliefs about breast self-examination among Grenadian women

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Objective: To determine the relationship between health beliefs and beliefs about breast self-examination in a sample of Grenadian women.

Design and Methods: A descriptive cross-sectional design was used for this study. A convenience sample of 110 Grenadian women between the ages of 20 and 65 and with no previous diagnosis of breast cancer was obtained. The Champion Health Belief Model Questionnaire was used to measure their health beliefs and their health practices related to their breasts such as perceived susceptibility of
breast cancer, seriousness of breast cancer, benefits of breast self-examination (BSE) and barriers to BSE.

**Results:** Among the women surveyed, 63% disagreed that they are susceptible to breast cancer; 49% agreed that breast cancer is serious; 90% agreed that there are benefits to BSE and 96% disagreed that there are barriers to performing BSE. Correlations were computed to assess the relationship among variables. Overall, there was strong positive correlation between confidence and motivation to participate in health-promoting behaviours, \( r = 0.388, p < 0.001 \) and a positive correlation between confidence and benefits of performing BSE, \( r = 0.356, p < 0.001 \).

**Conclusion:** This study suggested a strong relationship between women’s confidence and their motivation to engage in health-promoting behaviours. In light of this, community-based health promotion and health education efforts may be helpful in improving the awareness of women and their understanding of the importance of breast screening. As a result, these efforts may lead to early detection of breast abnormalities.

**P − 7**

**Smoking and alcohol use as a risk factor for breast cancer incidence among patients at the National Radiotherapy Centre, St James, Trinidad and Tobago**

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**Objective:** To assess the association between a history of alcohol use and smoking, and breast cancer incidence in Trinidad and Tobago.

**Design and Methods:** The study was retrospective and involved the review of case notes for 233 patients being treated at the National Radiotherapy Centre (NRC). During the data collection process, information was collected on history of alcohol use, history of smoking, family history of cancer, diagnostic tests and treatments undertaken.

**Results:** Most patients were diagnosed with stage II cancer, however, there were large amounts of missing data. Most patients underwent a biopsy (alone) as a diagnostic test for cancer (51.9%). When looking at treatment options, the most commonly administered medical plan involved a mastectomy (34.3%). Most patients in this sample did not have a history of smoking (79.0%) or alcohol use (63.0%); 5.6% of the sample admitted to a history of both smoking and alcohol use; 33.0% of the study sample had co-morbidities. The most common relative with cancer was a sister (20 patients).

**Conclusion:** Patients appeared not to be diagnosed with late stage cancer, with the most commonly noted stage being stage II. Patients seemed to have generally good health with most patients not having co-morbidities. When looking at the factors that are associated with cancer incidence, the majority of patients did not report the risk factors under study *i.e.* a history of alcohol use and smoking.

**P − 8**

**Prostate-specific antigen based screening in the Afro-Caribbean male: A survey of urologists**

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**Objectives:** To examine the attitudes, beliefs and practices of regional urologists regarding Prostate-specific antigen (PSA) based screening in the Caribbean where there is high burden of prostate cancer and mortality is high.

**Design and Methods:** An internet based cross-sectional, descriptive survey using a standardized questionnaire designed to capture information on respondents’ attitudes and practices towards PSA-based screening was conducted using the online survey tool Survey Monkey among known urologists in the Caribbean based on the mailing list of the Caribbean Urological Association.

**Results:** Thirty of the total population of 40 urologists (75%) from nine countries in the Caribbean completed the survey. Twelve (40%) were from Jamaica and eight (26.7%) were from Trinidad. Most urologists (20/66.7%) believed that PSA-based screening has positively impacted survival in their population and 23 (76.7%) supported PSA-based screening in the Afro-Caribbean male. Most (77.8%) believed that international guidelines were not applicable to the Caribbean and 63% believed that a regional body should publish guidelines. Most were in support of yearly screening with PSA and digital rectal examination (DRE) beginning at age 40 years for Afro-Caribbean men but opinion varied regarding PSA-based screening of Indo-Caribbean men. Respondents were unanimous in their belief that there should be an upper age limit for screening, 70 years old being the most commonly reported.

**Conclusion:** Most Caribbean urologists were in favour of PSA-based screening in Afro-Caribbean men and believe that Caribbean-specific guidelines need to be drafted.
P − 9

The prevalence of use of natural products among prostate cancer patients in Jamaica: A cross-sectional study

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Objective: To determine the prevalence and types of natural products used among prostate cancer patients and whether use predated diagnosis (prophylactic use) or started after a diagnosis of prostate cancer was made (therapeutic use).

Design and Methods: This was a cross-sectional study using a questionnaire for data collection. Men with prostate cancer attending the urology clinics of the University Hospital of the West Indies were recruited and information collected on demographic data and disease stage as well as the timing and type of natural products used. The data were analysed to determine if there were associations between demographic variables as well as stage of disease and natural product use.

Results: Two hundred patients with prostate cancer were recruited, 56.3% (112/199, 95% confidence interval (95%CI), 49.4%, 63.2%) of whom were currently taking natural products whilst 61.6% (53/86, 95% CI, 51.3%, 71.9%) of those not taking natural products were willing to try them as treatment. Seventy-one per cent (81/114) of the patients taking natural products started doing so after their diagnosis. Guinea hen weed (botanical) was the most commonly used natural product accounting for 89.5% (94/105) of the responses. No statistically significant association between the age of the patients and their willingness to try natural products was found (p = 0.096), nor was there any association between the stage of the disease and natural product use (p = 0.545).

Conclusion: The majority of Jamaican patients with prostate cancer are currently taking natural products or are willing to take them if they are not already doing so.

P − 10

Waiting times along the lung cancer management pathway

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Objectives: To audit the waiting times along the lung cancer management pathway in Trinidad and Tobago.

Design and Methods: An audit was carried out using the UK National Cancer Plan 2000 standard: 14 days from general practitioner (GP) referral to first outpatient assessment and 62 days from GP referral to first treatment. The sample included patients aged 45 to 75 years of age who were diagnosed with lung cancer between 2009 and 2011. Case notes were accessed at four clinics where patients with lung cancer were treated.

Results: The sample population consisted of 190 case notes. One hundred and twenty-five [66%] files contained the information that was being sought; however, not all provided information on each wait time under review. From GP referral to first outpatient appointment, of 32 patients in whom it was possible to calculate this wait time, 26 (81%) were within the 14-day limit; from the time from GP/health centre referral to first treatment, of 53 patients, 23% were within the 62-day limit. Further analyses revealed that delays were observed from time of symptom onset to referral by a GP/health centre (33% referred in <32 days, n = 18) and from confirmed diagnosis to first treatment (75% < 59 days, n = 97).

Conclusion: The study highlighted the need for improved record keeping to facilitate monitoring, enhanced public awareness of lung cancer symptoms/signs and appropriate action, and further research into delays along the pathway, specifically delays between confirmed diagnosis and start of treatment to ascertain whether staff, equipment or patient factors contributed.

P − 11

Pilot STEPS non-communicable disease risk factor survey among secondary school teachers in urban St Vincent and the Grenadines

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Objective: To conduct a STEPwise approach to surveillance (STEPS) non-communicable disease (NCD) risk factor pilot survey in St Vincent and the Grenadines.

Design and Methods: A cross-sectional study was done utilizing core questions from The Pan American Health Organization/World Health Organization (PAHO/WHO) STEPS non-communicable disease risk factor survey. The study population was urban secondary school teachers in Kingstown, St Vincent, who were asked to complete a self-administered questionnaire and have their blood pressure, height and weight measured. Data collection took place in the schools between May and July 2013.

Results: The coverage rate was 53.2% (135/257). The study comprised 29% males and 71% females, with a mean
age of 31.9 years (SD 8.4), age range 19–65 years. The prevalence of raised blood pressure was 8.7%: 7.5% females and 12.1% males. Obesity rates were 31.9% among females and 27.8% among males. Low levels of physical activity were reported among 36.9% and 35.9% of females and males, respectively, 77.1% and 75.8% females and males respectively consumed < 5 servings of fruit and vegetables per day. Three or more risk factors for NCDs diseases were present in 23.6% females and 37.5% males. 

Conclusions: The study demonstrated the feasibility of conducting a STEPS NCD risk factor pilot survey in St Vincent and the Grenadines. The results highlighted a high prevalence of common modifiable risk factors for NCDs diseases, pointing out areas for policy development and interventions.

P − 12
Using gender analysis of alcohol use to reduce chronic diseases among Amerindians in Guyana

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Objectives: To assess how gender and geographic location affect alcohol abuse, and non-communicable disease (NCD) risks among Amerindians in Guyana.

Design and Methods: The study involved: a review of previous research, gender analysis of statistical health data to determine differential risk factors for prevalence of accidents, injuries due to alcohol abuse and NCDs in Region 8. Focus groups with a non-random sample of 25 Amerindians from Region 8 identified causes and solutions to alcohol abuse and NCD risks.

Results: Ministry of Health’s NCD data showed that cardiovascular disease is the leading cause of death for Amerindian males; the primary cause of morbidity among males are accidents and injuries which are often linked to alcohol consumption (75% of non-fatal accidents). Triangulating data from the various sources suggests that risks are linked to: gender norms and behaviours, limited access to jobs, resources, health facilities, potable water, recreation and entertainment, cultural practices that encourage alcohol use from childhood and more alcohol abuse by males.

Conclusions: To reduce alcohol abuse and cardiovascular diseases, the Ministry should integrate gender into public health policies and programmes, partner with Amerindian and other stakeholders to enhance health education and services to reduce morbidity and mortality due to NCDs in Region 8.

P − 13
Improving chronic patient compliance with medication using monthly blister packing

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Objective: To improve geriatric patient compliance to medication adherence by using a prepackaged monthly blister pack.

Design and Methods: Patients with a high index of suspicion/confirmed non-compliance had their medications dispensed in the blister packing. Patients were required to bring in their previous blister pack before the next one would be dispensed.

Results: There were 27 patients in the study. After the first visit there was 56% compliance, by the last visit compliance increased to 82%. In hypertensive patients, there was an average reduction of 28 mmHg in the systolic pressure and 13.5 mmHg in the diastolic pressure.

Conclusion: The use of monthly blister packing helped improve patients’ compliance, overall health and was economically feasible. The results of the study show that all three aspects of the study improved with the use of blister packing.

P − 14
Cultural factors and dietary adherence in haemodialysis patients in Antigua and Barbuda

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Objective: To understand how cultural factors impact the adherence to the renal diet among haemodialysis patients in Antigua and Barbuda.

Design and Methods: This descriptive cross-sectional, hospital based study was conducted on the entire sample of 61 haemodialysis adult patients. A semi-structured interview guide focussing on demographics, knowledge, attitude, behaviour, social support and culture was implemented. Qualitative content analysis was used to identify themes and subthemes relevant to areas mentioned. Close-ended responses were analysed via descriptive statistics in Epi Info7.

Results: More males (56.25%) than females (43.75%) were on haemodialysis. The average age was 51.9 years (SD = 15 years). Culturally, many dishes were named. A strong sense of closeness to local dishes was identified. Several techniques were used to incorporate these dishes as meals.
Conclusion: This study provides a framework for understanding how cultural factors affect compliance of the renal diet in the case of Antiguan and Barbudan haemodialysis patients. A collaborative approach is required to reduce the number of patients undergoing haemodialysis.

P – 15
The influence of knowledge and self-efficacy on Bahamian women’s adherence to a hypertensive medication regime

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Objective: To examine the relationships between knowledge and self-efficacy in adherence to hypertensive treatment regimen in Bahamian women 25–65 years.

Design and Methods: A quantitative cross-sectional design with a convenient sample (n = 322) was utilized. Data were collected over a four-week period from various community malls and businesses. The General Hypertension Knowledge Tool, the Medication Adherence Self-Efficacy Scale (MASES), and a researcher self-developed demographic questionnaire were used. Descriptive statistics were employed to describe the sample, and hypotheses testing with Pearson product correlation and multiple regression to examine knowledge and adherence.

Results: Women in this study displayed high confidence in adhering to a medication regime in hypertension. The age of the participants, educational achievement, the number of years diagnosed (10 years or more), and a family history of hypertension significantly impacted women’s ability to adhere to a medication regime. The MASES scores of the Bahamian women in this study ranged from 0 to 49 (M = 30.3, SD = 9.18). The majority (n = 108, 81.8%) had high confidence with adhering to a hypertensive medication regime; however, of these, only 48 (44.4%) had high knowledge of hypertension.

Conclusion: The research can be used to develop a preventative model for health geared at reducing the incidence of hypertension and mortality.

P – 16
Pharmacologic adherence to the Joint National Committee VII Guidelines amongst family physicians at a family medicine clinic, Nassau, Bahamas

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Objective: To assess pharmacologic adherence to the Joint National Committee VII (JNC 7) hypertension guidelines, among family physicians at the Agape Clinic, Nassau, Bahamas.

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

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

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

P – 17
Lifestyle assessment of patients with Type 2 diabetes in Georgetown, Guyana and in South India, May–August, 2012

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Objectives: To assess lifestyle practices of Type 2 diabetic patients in Georgetown, Guyana and in South India during the period May–August, 2012.
**Design and Methods:** A convenient sample of 100 persons aged 30 years and over, diagnosed with Type 2 diabetes from Georgetown, Guyana and South India was used. Lifestyle practices, general health status and healthcare utilization were measured using a structured questionnaire.

**Results:** The average age (SD) of the participants was 61 (11) years. Most (88%) of the participants were of Indian ethnicity. At the time of the study, 16% of participants smoked cigarettes and consumed alcohol. Among participants, 63% engaged in physical activity for less than three hours per week. Mean value for respondent’s confidence in choosing appropriate foods to eat was 5.37 (SD ± 2.19). Majority of the participants were also suffering from high blood pressure, high cholesterol, heart diseases, stroke and arthritis. Respectively, 53% and 9% of the participants never had their feet and eyes examined by a healthcare professional. The majority of patients answered that their health had significantly interfered with their personal and social lives.

**Conclusion:** Quality healthcare services are required at primary healthcare levels to enhance self-care management, prevent complications and reduce healthcare costs in populations with Type 2 diabetes.

**P – 18**  
**Lifestyle, quality of sleep and cardiovascular risk of Type 2 diabetic subjects**

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**Objective:** To assess the effect of lifestyle and quality of sleep in Type 2 diabetes and the prevalence of cardiovascular risk.

**Design and Methods:** Personal interviews were conducted with 150 patients with diabetes at San Fernando General Hospital, Area Hospital Point Fortin, Point Fortin Health Centre, Sangre Grande General Hospital and Eric Williams Medical Sciences Complex. We assessed lifestyle, quality of sleep and cardiovascular risk using: the Modified American Heart Association diet and lifestyle recommendations (AHA DLR) adherence index, Pittsburgh quality of sleep index and Framingham 10-year risk for cardiovascular disease (CVD) index. Blood pressure, weight, haemoglobin (Hb) A1C values and fasting lipid profile were collected.

**Results:** Approximately 50% of males had an intermediate risk (10–20%) for CVD within 10 years. When Framingham values were compared with lifestyle, a significant relationship was seen between the 1st and 2nd ranges for females. Approximately 75% of women had a low percentage chance of developing CVD. There is a link between sleep scores and systolic blood pressure. Thus as sleep scores increased, systolic blood pressures decreased. Haemoglobin A1C values 5.7 and up were significantly related to age.

**Conclusions:** Overall, it was seen that persons having high-risk of CVD had a lower average AHA score, thus deducing that the lower the lifestyle scores the higher the 10-year risk for CVD. Persons with lower sleep scores had higher systolic blood pressures than those with higher sleep scores, revealing a link between sleep habits and CVD in patients with diabetes.

**P – 19**  
**The occurrence of pre-diabetes among patients in a primary care setting in Trinidad**

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**Objectives:** To determine the occurrence of pre-diabetes in patients in a primary care setting in Trinidad and to identify the risk factors associated with its development.

**Design and Methods:** Using a prospective cross-sectional study, 44 patients who met the eligibility criteria where randomly selected to enter the study. After a 12-hour fast, HbA1C, fasting plasma glucose, high-density lipoprotein (HDL) and low-density lipoprotein (LDL) cholesterol were measured as well as body mass index (BMI), and waist circumference.

**Results:** Of the 44 sampled participants, 77.3% (n = 34) were females and 22.7% (n = 10) were males. Twenty-three of the sampled females were over the normal weight for their height and of the eight pre-diabetic females, 75% had a waist circumference of > 102 cm, signifying abdominal obesity. A higher mean value was obtained for the lipid profile (excluding the HDL values) and HbA1C, in the pre-diabetic population.

**Conclusion:** The proportion of patients with pre-diabetes was 25%. Body mass index, triglycerides and LDL were found to have a significant association to pre-diabetes (p = 0.014, p = 0.004, respectively). There needs to be a higher index of suspicion for concomitant cardiovascular disease in pre-diabetics. Future interventions for monitoring this high-risk group should include assessment of cardiometabolic risk factors.
Objective: To determine the prevalence and predictors of depression among patients with Type 2 diabetes in St Maarten.

Design and Methods: A cross-sectional prevalence study was conducted on 190/367 eligible patients with Type 2 diabetes, from three large private physicians' clinics. Data were collected via a self-administered Beck's depression questionnaire, a predictor's questionnaire and interrogation of the electronic medical records.

Results: The study included 73 males (38.4%) and 117 females (61.6%), with a mean age of 56.5 years. There was no systematic screening for depression among patients with Type 2 diabetes. Forty-two participants (22%) screened positive for depression. Only 42.9% of depressed participants had both financial and emotional support compared to 58.1% in the non-depressed group, \((p\text{-value} = 0.08)\). The dominant educational achievement among the depressed group was primary school level (45.2%), compared to the secondary level (37.8%) among the non-depressed group, indicating higher educational achievement among the non-depressed \((p\text{-value} = 0.04)\). Lower systolic blood pressure was the only clinical risk factors associated with depression \((p\text{-value} = 0.05)\). There was near-universal testing for cholesterol and HbA1c, but 42.7% had sub-optimally controlled cholesterol. There was only sporadic measurement of blood pressure associated with 13.2% controlled to target and 30.5% with blood pressure \(\geq 160/100\) mmHg.

Conclusions: The strongest predictor of depression in this study was lower educational achievement. Lack of social support (financial and emotional support) also predicted depression. Routine screening for depressive symptoms among patients with diabetes is necessary. Blood pressure screening was in...
Results: The mean weight of oncology paediatric patients was: 6.7 kg for 1–3 year olds, 12 kg for 4–8 years, 23.3 kg for 9–13 years and 39.8 kg for 14–18 years. These values were below the normal weight of healthy children of comparable ages. The intakes of all macro and micronutrients were lower than the recommended values, except for fat and vitamin C. Generally, the diet consumed by most patients was poor and none used dietary supplements.

Conclusion: Low intakes of macro and micronutrients were found in the paediatric oncology patients; they may benefit from nutrition intervention. It is recommended that promoting knowledge of healthy-eating guidelines in these patients may include educational sessions for parents, which may be conducted at the clinic on specific days.

P – 23
Infant feeding patterns, body mass index and missing data: A mixed methodological assessment in the public health clinics in Nassau, Bahamas

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Objective: To assess the risk of childhood obesity by infant feeding and to explore the issues surrounding missing medical data in public child health clinics.

Design and Methods: This was a mixed-methods study on childhood body mass index (BMI), infant feeding and missing medical data in public clinics in New Providence, The Bahamas. Infant feeding at two, four, six and 12 months, and growth parameters at four years were reviewed and analysed in 396 charts. Key-informant semi-structured interviews, a focus group discussion, and direct observation explored issues surrounding the uncovered missing data.

Results: Four-year old children had a mean BMI of 15.90 (+ 2.85) kg/m² with overweight and obesity accounting for 22.0%. At four months, 60.3% were breastfed. The normal weight children fed only formula at four months had a BMI 1.308 (+ 0.531) kg/m² lower than those breastfed only (p = 0.014). No definite increased risk of childhood obesity was observed for those breastfed versus formula fed at four months [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 forms used were described as tedious, ambiguous, repetitive and time-consuming to complete and contributed to the quantity of missing data.

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

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Comparisons of body shape perceptions with measures of body mass among adolescents in Trinidad

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Objective: To compare body shape perceptions with body mass indices in adolescents in Trinidad.

Design and Method: Cross-sectional study among 293 adolescents (167 males and 126 females) aged 11 to 16 years, from form one in five selected secondary schools in Trinidad. Measured weight and height were used to calculate body mass index (BMI). Classifications were made using BMI for age according to World Health Organization (WHO) 2007 criteria as: underweight, normal and overweight and obese. Adolescents reported self-perceived body shape and perception of healthy male and female body morphology using standard silhouettes. Comparisons of BMI for age and body shape perceptions were done using Chi-squared tests.

Results: Body mass index for age indicated that 5.4% were underweight, 53.0% were normal, 22% were overweight and 19.4% were obese. Self-perceived body shape and BMI for age were significantly associated, p < 0.001. More boys (65.9%) accurately self-perceived body shape comparative to their actual BMI than girls (46.8%). Girls overestimated their body shape (47.6%) by selecting silhouettes categorized as bigger than their actual BMI. The majority of adolescents identified healthy morphology in the same and opposite gender as BMI > 20 kg/m² and < 25 kg/m². Boys showed a bias toward thinness in girls.

Conclusion: The prevalence of adolescent overweight and obesity is high. Self-perception of body shape in boys was more accurate than in girls. Adolescents are knowledgeable of healthy normal body morphology for the same gender and opposite gender. Body shape perceptions may have important implications in healthy weight management and associated risk of obesity co-morbidities.
Acute toxicity of non-ionic surfactant vesicles (niosomes) in a Sprague Dawley rat model

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Objective: To determine the acute toxicity of non-ionic surfactant vesicles in a Sprague Dawley rat model and to investigate effect of single or multiple dosing via the intraperitoneal (IP) route.

Design and Methods: Niosomes were prepared by the thin-film rehydration method and were subjected to ultracentrifugation to yield a final concentration of 30 mg of span 60/mL niosome suspension. Acute toxicity study was performed using fo-1 OECD test guideline 423 with modifications. Animals for phase 1 study were injected with 600 mg/kg as a single bolus dose, whilst phase 2 animals were administered 120 mg/kg/day for five days. Weights, food intake, water intake, fecal mass and urine output were measured daily. All mortalities, clinical signs, time of onset, duration and reversibility of toxicity were recorded. Gross necroscopies were performed on all animals terminated at 14 days post injection. Student t-test was performed for independent samples and p < 0.05 was considered statistically significant.

Results: The trials had no treatment related deaths and no toxic signs. There was an initial decrease in weight and food intake with IP niosome injection, although it mimicked the pattern of weight loss in placebo. All other parameters measured showed no statistical significance between the niosome treated group and placebo. Necropsy showed no signs of local reaction and there was no observed effect on major organ systems.

Conclusions: Niosomes appear to be non-toxic in the tested doses and experimental conditions. It is therefore postulated that the IP route is a feasible and safe mode of delivery for drug loaded niosomes.

Mood, pain intensity and pain relief in sickle cell disease

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Objectives: Pain evaluation is thwarted by the impact of confounders like mood and personal expectations. Factors which determine mood and pain perception can differ based on the setting. Here, we assessed the association between mood, pain intensity and pain relief in hospital versus home management.

Design and Methods: Participants were persons with homozygous sickle cell disease who experienced a painful crisis in the last year. They were asked to consider the last painful crisis and rate the pain intensity and mood when the pain was most intense, and the degree of relief following the first analgesic dose. Measurements were on a visual analogue scale of 1–10 with 10 being the worst pain, the best mood and the most pain relief experienced.

Results: Thirty-one persons participated, 32% of whom managed their last crisis at home. Overall, there was significant negative correlation between mood and pain intensity [-0.42 (95%CI -0.67, -0.07; p = 0.02]. The correlation between the groups did not differ when stratified by treatment place. The mean pain intensity was significantly greater in those in hospital care: mean (SD) home score 4.9 (1.9) vs 7.0 (2.2), p = 0.02. Neither the mean mood nor pain relief scores differed when stratified by treatment place.

Conclusion: There is a negative correlation between improved mood and pain intensity; however, when stratified by treatment place the difference between the two was not significant. Hence treatment place is not a confounder between mood and pain intensity during the management of a crisis.

Sunscreen use among patients in two private dermatology practices in North Trinidad

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Objectives: To determine the knowledge of and patterns of sunscreen use among patients attending two private dermatology practices in North Trinidad.
Design and Methods: New patients attending two private dermatology practices in North Trinidad were invited to participate in a sunscreen study. With informed consent, a self-administered 16-item questionnaire was completed. Data were analysed using SPSS 20.

Results: Two hundred and seventy-seven respondents completed the questionnaire, 75.5% were females. Age range 18–83 years; mean (± SD) 39.4 (± 13.5) years; 39.0% were of African origin, Indian 15.9%, Mixed 37.2%, Caucasian 6.9%, Chinese 0.7% and other 0.4%. Two-thirds (66.3%) reported having had sunburn, 3% had a personal or family history of skin cancer and 66.4% reported sunscreen use. While 39.4% knew that sunscreens prevent sun damage, only 7.6% mentioned skin cancer risk. Of the 93 non-sunscreen users, 54.8% believed they did not need it. Fewer men than women used sunscreen 54.4% vs 70.3% (p = 0.016); 62.3% of sunscreen users did so only for outdoor activities. There was no significant difference in sunscreen use between the lighter and darker skin types (p = 0.09). The majority (73.6%) of those with previous sunburn used sunscreen vs 48.1% of people without a history of sunburn (p < 0.001).

Conclusion: Persons of all skin types experience sunburn and while sunscreen use is recognized to prevent skin damage from sunlight, skin cancer risk is considered less important. Programmes that increase public awareness about the risks of exposure to ultra violet (UV) light and sun protection options available are essential, independent of skin phototype.

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The knowledge, attitudes and practices of women who have attempted to terminate their pregnancies

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Objective: To determine the reasons why women terminate their pregnancies and their knowledge, attitudes and practices regarding contraception.

Design and Methods: A prospective study conducted at Port-of-Spain General Hospital on the patients at the Obstetrics and Gynaecological ward using convenience sampling.

The participants were divided into two groups: The patients who 1) attempted abortions and 2) did not attempt abortions. Their knowledge, views and practices regarding both contraception and abortion was determined through interviewer-administered questionnaires. Binary logistic regression was used to determine the significance of the demographical data with regard to abortion status.

Results: Of the 168 women interviewed, 114 never attempted abortions and 54 attempted abortions and both groups showed great preference for condom use; 81.5% and 68.4%, respectively. Most women who attempted abortions (38.9%) felt that they were “not ready to be a parent” and 59.2% used misoprostol (Cytotec) to induce their pregnancies.

Conclusion: The level of knowledge of contraceptive methods of women who attempted abortions and those who did not was similar, however, their practices differed. More reliable, non-user dependent contraceptive methods should be promoted at the already operational family planning centres are proposed along with the heightened education about proper and continual use of more popular user dependent methods.

P − 29
Obstetric characteristics and outcomes of pregnancies in a selected hospital in South Trinidad for the period 2008–2012

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Objectives: To identify risk factors, maternal characteristics, outcomes and neonatal outcomes in teenagers 13–19 and older adults 25–35 years.

Design and Methods: A retrospective study conducted in a public general hospital in South Trinidad for the period 2008–2012. Data were collected from clerical and maternal registers. A total population of 14 791 was obtained; of these 2965 were teenagers and 11 826 older women. A sample size of 340 participants was identified by simple random sampling, 270 non-teenage mothers, and 70 teenage mothers. Data were collected using a pre-developed data coding sheet. Data were analysed by SPSS version 12.0.

Results: Among teenagers, there was a significantly higher rate of anaemia (p < 0.001) and episiotomy (p < 0.001). Teenagers also had increased rates in vaginal infections, lower segment Caesarean section, forceps deliveries, preterm deliveries, low birthweight and Apgar score in infant and less neonatal unit admissions. Among adults, there was a significantly increased rate in pregnancy-induced hypertension (p = 0.041), and increased rates in gestational diabetes, human immunodeficiency virus, syphilis, vaginal lacerations, postdates and post term deliveries.

Conclusion: Taking these areas into consideration, teenage pregnancy could have even better outcome by means of improved quality maternal care.
**P – 30**

**The epidemiology of fetal macrosomia and outcomes in a major teaching hospital in Trinidad**

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**Objectives:** The purpose of this study was to estimate the incidence of fetal macrosomia in a large teaching hospital located in the capital city of Port-of-Spain.

**Design and Methods:** All babies born at the Port-of-Spain General Hospital in 2010 and 2011 that were ≥ 4000 g were eligible for entry into the study. All indices associated with prenatal care and obstetric outcomes were measured.

**Results:** The incidence of fetal macrosomia was 5.4% in 2010 and 3.9% in 2011. The Caesarean section rate was 27%. Macrosomia occurred more commonly in African mothers compared to East Indian mothers.

**Conclusion:** Macrosomia is an emerging common complication of pregnancy, in a population with high rates of obesity; its prediction is imperfect, and there are no reliable interventions to improve outcome in uncomplicated pregnancies. Elective Caesarean section is seldom a suitable alternative, and elective induction of labour appears to increase rather than decrease the Caesarean section rate.

**P – 31**

**Knowledge, attitudes and practice related to depression management among physicians employed at the Public Hospitals Authority, Nassau, Bahamas**

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**Objective:** Depression is a very common but debilitating mental health issue that is often under diagnosed, and under treated. This study aimed to determine the knowledge, attitudes and practices of physicians employed by the Public Hospitals Authority, Nassau, Bahamas as it relates to depression management.

**Design and 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, surgery and anaesthesiology. A 33-item questionnaire was utilized, and the data analysed using the Statistical Package for Social Sciences (SPSS). Specialty-based and other variations were examined.

**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 toward 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.

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

**P – 32**

**Religiousness and suicide in an adolescent sample from Trinidad and Tobago**

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**Objective:** To examine the associations of religiousness with suicide in adolescents residing in Trinidad and Tobago.

**Design and Methods:** Data are from Trend Research Empowering National Development (TREND) on adolescents in Trinidad and Tobago study. This is a school-based student survey that employed a two-stage cluster sample design to produce a representative sample of 4448 high school students from the 2008 student population for the highest grades in Trinidad and Tobago. Key measures included: suicide ideation, plans, attempts and treatment; religious affiliation, self-rated religiosity, attendance at religious services, reading, watching, or listening to religious content, and prayer; and race, age, gender, form level and parents’ education.

**Results:** Connections were observed between religiousness and suicide. Catholic and Adventist affiliation reduced the odds of planning suicide, while Hindu and members of “other” religious group showed greater odds of being treated for a suicide attempt. Self-perceived religiousness, attendance at religious services, and prayer were all related to lower odds of suicide ideation. Self-perceived religiousness and prayer were related to lower odds of planning suicide. The only variable to impact on reported suicide attempts was attendance at religious services as fewer attempts were associated with increased attendance at religious services.

**Conclusions:** Religiousness shows important associations with multiple measures of suicide. The nature of the relationship relies on both type and extent of religiousness and suicidal ideation and behaviour. An important role of religiousness in suicide prevention may exist and there are
implications for religious institutions, clergy, suicide crisis responders and health providers.

**P – 33**

**Developing a psychosocial curriculum for the Caribbean**

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**Objective:** To build capacity of healthcare workers to provide support to people living with HIV (PLHIV).

**Design and Methods:** Needs assessment was carried out using qualitative and quantitative data collection in eleven Caribbean countries, with a sample size of 162 persons. The qualitative methods (mini-survey, focus group discussions and semi-structured in-depth interviews) were used to gather data on the issues related to the psychosocial needs of clients. The quantitative method (online survey-questionnaire) sought to identify the limitations of psychosocial care and support and to prioritize information generated for instructional design. The curriculum was designed and developed utilizing the Analysis, Design, Development, Implementation and Evaluation (ADDIE) model as well as feedback from the technical working team and the pilot training.

**Results:** A content document and curriculum package (curriculum overview, participant and facilitator manual) and other training materials were developed. A workshop to pilot the curriculum was conducted. Twenty-four healthcare workers participated in the workshop. Prior to the workshop, a one day orientation session was held for facilitators.

**Conclusion:** A psychosocial curriculum was developed for healthcare workers guided by the results of a needs assessment. A cadre of healthcare workers in the Caribbean were trained so that they would be equipped to provide psychosocial support to PLHIV using healthcare facilities.

**P – 34**

**An outcome evaluation of training for nursing faculty to integrate HIV themes into the nursing curriculum**

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**Objectives:** To investigate whether Jamaican nursing educators who were trained in HIV teaching strategies were utilizing knowledge and skills they acquired during the training; and to determine whether they were more comfortable in teaching HIV-related topic areas.

**Design and Methods:** An outcome evaluation was conducted two years after the initial training using purposive sampling. Changes in attitudes, behaviour and knowledge were investigated through interviews, desk-reviews and review of secondary data (reports). Twenty of 30 targeted nursing educators were reached and interviewed. Data were entered into a constant comparative analytical matrix. Common themes and categories were identified. Major themes and corresponding codes were sorted and visualized using the NVIVO and X-Mind qualitative software.

**Results:** Of the 20 respondents interviewed, 18 (90%) had started implementation of knowledge and skills learned. Several topics learned during their training were being taught. Twelve educators indicated a greater level of comfort to teach HIV-related topics. Three stated they were still uneasy or reluctant to teach these topics. Challenges to implementation of lessons included competing priorities, lack of time and/or resources, staff shortages, and no motivation to create opportunities.

**Conclusion:** Training pre-service nurse educators in HIV care is an effective way of addressing the shortage of healthcare workers with the capacity to offer care to persons living with HIV. An understanding of the challenges faced by individual institutions will help in tailoring workshops to meet specific needs to help ensure success in implementation. Despite training, a few graduates may remain uncomfortable to teach subjects involving human sexuality and HIV.

**P – 35**

**Knowledge and attitudes of Trinidadian dental students toward HIV/AIDS patients**

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**Objective:** To describe dental students’ and dental surgery assistants’ (DSAs) views toward patients with HIV/AIDS in Trinidad.

**Design and Methods:** All students, interns and DSAs attending The University of the West Indies, School of Dentistry were invited to complete a self-administered thirty-item questionnaire. Questions covered knowledge of transmission, pathogenesis, diagnosis, cross infection and oral manifestations of HIV and AIDS and perceptions of the severity of the disease.

**Results:** There was a response rate of 98.9% (180/182). Most participants (83.3% and 85.6%) were able to expand upon the acronym HIV and AIDS, respectively. Perception of seriousness of the disease in the Caribbean was
The knowledge of the participants on the pathogenesis of HIV/AIDS was very good (86.7%) and 80% were aware of the cause of the disease. However, only 62.2% were aware of the available treatment for the disease. The major concern when treating patients with HIV/AIDS was that of infection (25%). Overall, the general knowledge of the dental interns was the highest (44.9%) compared to the other groups with the DSAs having the lowest overall knowledge about HIV/AIDS (19.3).

**Conclusion:** The study investigated attitudes, knowledge and beliefs of dental students and assistants at the Dental School. Further research may involve qualitative analyses of the opinions of students and DSAs to obtain a better understanding of these views and to generalize these findings within the dental profession.

**P – 36**

An exploration of the perspectives and experiences of general practitioners in Barbados in relation to lesbian, gay, bisexual and transgendered patients

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**Objective:** To explore the perspectives and experiences of Barbadian general practitioners (GPs) in relation to their lesbian, gay, bisexual and transgendered (LGBT) patients.

**Design and Methods:** A qualitative study whereby 10 GPs in the private and public sector were interviewed using a semi-structured topic guide shaped by literature review. Interviews were audio-taped, transcribed verbatim and thematically analysed.

**Results:** Themes identified concerned physician communication, LGBT invisibility, disclosure and sexual minorities as ‘abnormal’. General practitioners avoided routinely discussing sexual orientation or gender identity, and when encountered, discussions and screening recommendations focussed mainly on safe gender and sexually transmitted infections. All GPs reported training deficits in LGBT health issues, except for those currently, or recently graduated from post-graduate Family Medicine. Training recommendations, like initiating medical school LGBT training, and GP lectures or workshops tied to accreditation points were identified, along with societal, professional and methodological challenges to training implementation.

**Conclusion:** Our involve communication and knowledge training, along with improved confidentiality procedures.

**P – 37**

Perceptions of care among HIV-positive patients attending a clinic in South Trinidad

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**Objective:** To assess how HIV-positive patients perceived the quality of services being delivered at a clinic in South Trinidad and determine patient expectations of service quality from healthcare providers (HCPs) and healthcare facilities.

**Design and Methods:** A questionnaire with structured and semi-structured questions was administered to patients in face-to-face interviews. Every patient 18 years and older who presented at the clinic during the three-month period was invited to participate. Participation was voluntary and anonymous. Data were analysed using SPSS version 18. Responses were analysed quantitatively and qualitatively.

**Results:** Four hundred and nine patients were interviewed. Seventy per cent of patients reported that the reasons they attended this particular facility was because they liked and trusted their HCPs, 69% because they received good service and 68% because they got confidential service. Forty-six per cent defined good service as friendly, polite and courteous staff that treated the patient “like a family member”. Among all patients who reported a high-level of satisfaction with HIV services, these were primarily linked to friendly staff, a welcoming and comfortable atmosphere, effectiveness and efficiency of service and staff willingness to offer advice. When asked for suggestions for improvement, 28% said that they were happy with the way things were, 23% wanted shorter wait times and a more flexible schedule.

**Conclusion:** Patient provider interaction plays the most significant role in patient satisfaction and perception of quality care. Training for HCPs must emphasise the significance of this aspect of patient treatment and care.

**P – 38**

The renal function test profile of HIV-positive patients before and after initiation of highly active antiretroviral therapy in St Paulo’s General Hospital

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Objective: Antiretroviral treatment (ART) related effects, including proteinuria, renal tubular damage and overall declines in glomerular filtration rates have been noticed in HIV patients. This study was aimed at assessing the renal profile of HIV-positive patients before and after initiation of treatment.

Design and Method: A retrospective cohort study was conducted among HIV-infected individuals who take highly active antiretroviral therapy (HAART) and visit St Paulo’s generalized hospital laboratory for renal function testing.

Results: A total of 2026 HIV-positive patients started HAART during the study period. Among them, 380 HIV patients, with two and three visits for CD4+ and renal function test (creatinine and urea), were recruited to the study; 240 (63.2%) were female. The mean age of the participants was 36.84 years (range 19−68 years). The presence of association between renal profiles abnormality and drug type was analysed by using linear regression. For almost all drugs there was no significant association ($p > 0.05$). The number of patients with abnormal creatinine and urea increased from before they started HAART to when they were measured in subsequent visits.

Conclusion: Highly active antiretroviral therapy resulted in improved immunostatus of HIV patients, with remarkable increase in CD4 T lymphocyte count but at the same time there was an increase in azotemia after the introduction [part of] HAART which suggests the impact of drug in renal function.

P − 39
Efficacy in a community-based approach to gender-based violence and HIV/AIDS intervention

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Objectives: Theory and assessment mechanisms are embedded in collective community action directed at limiting the spread of gender based violence (GBV) and HIV/AIDS infection among vulnerable populations. We evaluated how these attributes can be used to make the link between the two.

Design and Methods: The study is based on systematic analysis of a civil society intervention project designed to mobilize community action against gender-based violence and HIV/ADS in Grenada, and two national programmes on prevention of GBV and HIV/AIDS. Qualitative data coding and cross-referencing techniques were used to identify characteristics and associations between GBV and HIV/AIDS on socio-economic demographics, health and support services, and stakeholder influences.

Results: Whereas the civil society approach reflects that relationship between the two public health problems are mutually reinforcing and comprehensively conditioned by geo-social demographics, the national approach maintains a tenuous link generally anchored in discourse on the scale of incidences. Moreover, despite its capacity to systematize a unifying response to GBV and HIV/AIDS, national programme plans indicated conflicting coordination mechanisms in addressing the two issues with the result that essential information on scale and conditions of the target populations seemed suppressed.

Conclusions: Differences between the two approaches can be conceptualized in the extent to which community is used as a tool to dissect and diffuse access and service response to the populations. By diversifying the number of community groups implementing the intervention, the spread of service points to the target population is assured and the nature of interactions naturally controlled to unearth differentiated data for decision making.

P − 40
Understanding attitudes, barriers and challenges in Barbados to disease notification for HIV and other sexually transmitted infections: A qualitative study

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Objectives: To understand the attitudes, barriers and challenges in Barbados to disease notification (DN) for HIV and other sexually transmitted infections (STIs).

Design and Methods: Six key informants identified individuals to be interviewed from diverse backgrounds. Twenty-nine people were interviewed using an open-ended interview guide.

Results: Interviewees (16 males, 13 females) had a mean age of 59 years (range 30 to 68 years). Few were familiar with current STI DN practices, but HIV DN was described as an informal process that was “quite good” and without a negative public reaction. Acceptability by the public of mandatory HIV DN had a median rating of 3 on a scale of 1 (unacceptable) to 5 (very acceptable) due to the information being personal, concerns about confidentiality and the associated stigma. Acceptability of DN for other STIs would be the same or slightly better because there was less stigma. Challenges included maintaining confidentiality in a small island where people were secretive about their own health but liked to gossip, public perception that confidentiality was not well maintained, HIV infection is
associated with fear and stigma, concern that it would deter testing, reporting may not occur, passing legislation would be difficult and that some opinion leaders might oppose it. Strategies to overcome barriers included improving trust and reducing fear through public education, educating practitioners and introducing penalties for breaking confidentiality.

**Conclusions:** There was both concern that mandatory DN would deter testing because of concerns about confidentiality and stigma, and recognition of the benefits of its introduction.

**P − 41**

*Loss of appetite and strength in the geriatric population – Diagnostic symptoms for dengue*

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**Objective:** To demonstrate the prevalence of anorexia and asthenia, with a lack of fever, being diagnostic symptoms for dengue in the elderly in an endemic region.

**Design and Methods:** Ten patients who were IgM positive for dengue were reviewed. Data collected were examined for the correlation between symptoms and diagnosis. Rapid Dengue Test kits were used to test venous samples. Only symptomatic patients were tested.

**Results:** Of the ten patients, 80% presented with loss of appetite and 90% with weakness, whereas only 10% had a chief complaint of fever. All the patients who were tested were IgM positive.

**Conclusion:** Based on the data, it was determined that physicians should test for dengue if geriatric patients, in an endemic region, present with anorexia, asthenia and no fever.

**P − 42**

*Microbial contamination and a disinfection intervention at the University of Guyana*

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**Objective:** To investigate and compare the level of microbial contamination in the washrooms of the University of Guyana and to evaluate a disinfection intervention.

**Design and Methods:** A total of 65 washrooms were selected and the areas within them were swabbed including the sink, sink tap, recess under the rim, toilet seat/rim, toilet handle and urinal. Samples were also collected using Nutrient Agar settle plates to determine the level of contamination in the air around the toilets. Eight disinfectants were evaluated against *Salmonella sp* and *Bacillus sp* to determine their efficacy, and the four that were the most effective and economical were used in an intervention to clean 15 washrooms.

**Results:** Overall, 14 of 65 (22%) washrooms had > 100 colony-forming units (CFUs) and female washrooms were significantly more contaminated than males (*p* < 0.05). The moist surfaces, such as the sink and recess under the rim, had the most microbial growth. Of the non-bleach based disinfectants, Pine Sol® was the only one that had an effect against *Bacillus sp*, however, bleach was effective against both bacteria. Marvex bleach®, Clorox Clean Up®, Pine Sol® and Clorox Toilet Bowl Cleaner® were selected and a reduction in growth was noted immediately after the intervention.

**Conclusions:** Some of the washrooms were heavily contaminated but the disinfection intervention was scientifically proven to have worked well and has been recommended to the University Administration. The results indicated the priority areas for immediate disinfection and highlighted the need for urgent rehabilitation and proper maintenance of the washroom facilities.

**P − 43**

*Urine microscopy: Meeting the gold/beating the gold*

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**Objective:** To compare phase contrast microscopy examination of urine and urine cultures with videoclips used as an independent traceable referee.

**Design and Methods:** Urine samples sent to the microbiology laboratory were examined using phase contrast microscopy. Samples were videotaped simultaneously. The microscopic examinations were coded as positive, negative or indeterminate based on the recognition of bacteria in the specimens. Urine culture results for these samples were obtained. A comparison was performed between the interpretation made by phase contrast microscopy and those of urine cultures. Statistical analysis was performed. Video recordings were then examined and classified as positive or negative based on the presence or absence of microorganisms. Concordance-discordance testing was performed comparing video images now used as the traceable gold standard separately against phase contrast interpretations and urine cultures for each sample. Statistical analysis was then repeated and the results compared.
Results: Phase contrast examination attained high standards of sensitivity, specificity, positive and negative predictive values when compared to urine cultures. When videoclips were used as a traceable referee method, microscopy interpretations were able to attain higher sensitivity and negative predictive values than the cultures while having lower specificity and positive predictive values.

Conclusions: Phase contrast microscopy has high validity when compared with urine cultures. Using a traceable videoclip as the standard, microscopy meets the gold and beats the gold.

P − 44
Effectiveness of the leukocyte esterase and nitrite urine dipstick screening tests for detection of bacterium in patients with suspected uncomplicated urinary tract infections at Georgetown Public Hospital Corporation

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Objectives: To compare reagent strip testing (nitrite and leukocyte esterase) with microscopy and culture in identifying significant bacteria and to assess the most frequent pathogens responsible for urinary tract infections (UTIs) in patients at Georgetown Public Hospital Corporation (GPHC).

Design and Methods: A prospective study was conducted on 40 urine samples: 20 with high microbial count (3+ or 4+) and 20 with low microbial count (1+ or 2+). Samples were further grouped into urinary nitrite/leukocyte esterase (NIT/LE) negative and NIT/LE positive. These urine specimens were then inoculated on cysterine lactose electrolyte deficient (CLED), MacConkey and Blood agar plates and incubated for 24 to 48 hours aerobically. Where significant bacteria growth was observed, biochemical tests were used to identify the organisms.

Results: The majority (18/20) of the positive dipstick tests had significant bacterial growth while 2/20 of the negative dipstick tests had a high bacterial growth when cultured. Among 18 positive cultures, nitrite was only present in three specimens (16.6%), leukocyte esterase in 15 (83.3%), pyuria in eight (44.4%) and significant bacteria in 13 (72.2%). E. coli was the most common organism isolated (n = 5, 26%). The leukocyte esterase (LE) test had a total of three false negatives and five false positives, while the nitrite test had 15 false negatives with no false positives. The dipstick nitrite and LE test had a sensitivity of 16.7% and 83.3%, respectively, and specificity of 100% and 73.3%, respectively.

Conclusion: Although urine dipstick analysis can be helpful, false positives and false negatives can affect urine testing; it is recommended that UTI be confirmed with a urine culture.

P − 45
An epidemiological study of ventilator-associated pneumonia in a tertiary hospital in Trinidad and Tobago

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Objective: To determine the prevalence, risk factors and preventive measures for ventilator-associated pneumonia (VAP) at the Eric Williams Medical Sciences Complex (EWMSC), a tertiary hospital in Trinidad and Tobago.

Design and Methods: This was a prospective observational study carried out in the Adult and Paediatric Intensive Care Units (ICU) of the EWMSC for a 60-day period from May to June 2013. Thirty patients were enrolled and monitored for development of VAP until their discharge, transfer, or death. Standardized questionnaires were used to identify preventive strategies to determine the VAP knowledge base of the ICU nurses. Clinical pulmonary infection scoring system (CPIS) was used to establish VAP diagnosis. Data entry and analysis were done using Microsoft Excel 2011.

Results: There was zero incidence and prevalence of VAP at the EWMSC; hence no risk factors could be independently identified. Intensive care units nurses were observed to stringently implement VAP preventative strategies in spite of their limited knowledge of VAP.

Conclusion: Ventilator associated pneumonia does not appear to be much of a clinical complication in the ICUs at the EWMSC in Trinidad and Tobago, which may signify that the healthcare practices, including infection control, in these ICUs are adequate.

P − 46
Haemodialysis catheter infection in Kingston, Jamaica

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Objective: To determine the prevalence and common causative agents of haemodialysis catheter infection (HDCI) in Kingston, Jamaica.
Design and Methods: A retrospective cross-sectional study examined the medical records of catheter-dependent patients in Kingston (August 2008 to August 2010). A checklist was used to collect data on demographics, catheter type, site and infections for patients in one hospital (public) unit and three non-hospital (satellite) units. Data analyses allowed computation of frequency and demonstration of the relationship between duration of catheter usage or sites and infection.

Results: Data were extracted from 125 records (F = 53.6%; 68.8% > 44 years old). Most (76.6%) patients had been on haemodialysis for < 3 years, and 32% < 6 months. The majority (98.4%) initiated haemodialysis using a catheter (tunnelled 50.8%, subclavian 41.8%, internal jugular 41.6%). Almost half (46.4%) of the patients developed at least one episode of HDCI; hospital admission rate 44%. The commonest causative agents of HDCIs were *Staphylococcus aureus* (16.3%), coagulase negative *staphylococcus* (14.6%) and dipheriod (11.2%).

Conclusion: This study indicated that HDCI is a major concern among end stage renal disease patients in Kingston, Jamaica. The two commonest causative agents were similar to international studies, while the third agent was dissimilar. This study did not reveal association between HDCIs and catheter duration or site. These findings can guide further research and the development of best practices in the management of haemodialysis catheter-dependent patients.

P − 47
Postoperative cognitive decline in elderly patients undergoing surgery with general anaesthesia

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Objectives: Postoperative cognitive decline (POCD) refers to a decline in mental processes, weeks or months subsequent to surgery. The purpose of this research was to identify instances and risk factors of POCD in surgical patients, over the age of 60 years, after undergoing general anaesthesia (GA).

Design and Methods: Elderly patients undergoing GA were enrolled. Initially, each participant was assessed within 24 hours prior to surgery using a standardized mini mental status exam (SMMSE) and the Montreal cognitive assessment (MoCA) tools. These examinations were repeated postoperatively at one day and one week to detect mild, moderate or severe cognitive declines. Anaesthetic drugs, duration, surgery and demographic data were recorded.

Results: Twenty-five patients were studied. Although only two cases (8%) showed a slight POCD up to 10–14 days, there was a high correlation between baseline MMSE and MoCA scores with those of immediate and 24-hour postoperative scores (p < 0.001). The paired sample t-test analyses also did not show any major differences between the baseline and postoperative scores. Factors such as number of anaesthetic drugs used and duration of anaesthesia did not influence cognitive dysfunction (p > 0.05).

Conclusion: Modern anaesthesia drugs and techniques do not seem to cause any cognitive dysfunction in the elderly. The probable reason may be due to the more beneficial pharmacokinetic and dynamic properties of the drugs. The guidelines for elderly undergoing ambulatory anaesthesia should be revisited.

P − 48
Implementing the World Health Organization safety checklist in public operating theatres in Trinidad and Tobago

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Objectives: To evaluate the issues of compliance and to identify barriers to implementation of the World Health Organization (WHO) surgical safety checklist in Trinidad and Tobago.

Design and Methods: An eight-item questionnaire survey, created de novo was distributed among the operating theatre staff of five public hospitals using convenience sampling.

Results: The response rate was 95% (159/168). Seventy-nine per cent of the respondents were aware of the existence of the checklist, and 75% knew the checklist was implemented in their hospital. However, there was significant difference between hospitals (p < 0.001). Of these respondents, only 47.5% “always” used the checklist; < 5% of respondents affirmed to have never used the checklist. The respondents agreed that the implementation of the checklist would improve surgical outcomes (78%) and prevent surgical errors (82%). Ninety-one per cent wished that the personnel in the operating rooms used the checklist if they underwent surgery. Perceived compliance increased with age and was higher among nurses. The main barriers that affected usage were getting the entire team together prior to patient induction (53%), perceptions of increased time added to surgery (37%) and the attitudes of the surgeon toward team discussions (28%).
benefits of the checklist were different among anaesthesiologists, surgeons and physicians and was statistically significant \( (p = 0.03) \); compliance was higher for females \( (p = 0.038) \).

**Conclusion:** Despite the perceived benefits of the surgical safety checklist, implementation and standardization issues exist in the hospitals studied. These issues must be addressed by developing teamwork, staff motivation, education and quality initiatives to ensure compliance to checklist usage.

**P − 49**

**Time audit: Accident and Emergency registration to admission on the paediatric ward at the Queen Elizabeth Hospital**

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**Objective:** To perform a time study to audit the lag time for emergency paediatric admissions.

**Design and Methods:** This descriptive prospective study was conducted to audit the period from registration in Accident and Emergency (A&E) to point admission time, in successive paediatric emergency room admissions aged < 16 years during three months. Data were collected from the A&E and inpatient records included registration time and times spent between triage to A&E physician, primary diagnosis, treatment received as well as specialty referral time, ward admission time and paediatric physician contact time.

**Results:** One hundred and forty-eight paediatric patients were registered and admitted from the A&E: 83 males (56%) and 65 females (44%) aged five days to 15 years, modal age being < 1 year. Eighty-nine per cent were triaged in < 1 hour. Triage to physician contact time ranged from three to six hours in 37% of patients; registration to specialty contact referral time was < 1 hour in 37% of patients; specialty response time was < 1 hour for 97% of referrals; acceptance by specialty to ward arrival ranged 1–3 hours for 74% of patients and to point paediatric physician contact was < 1 hour in 56% of cases.

**Conclusion:** Improvements in the lag time from registration to paediatric physician contact time are needed. Identified factors, need to be addressed to improve efficiency of patient care delivery.

**P − 50**

**Knowledge, attitudes and practices of healthcare professionals toward prognostic scoring systems in Trinidad**

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**Objectives:** Prognostic scoring systems (PSS) can aid in assessing the severity of illnesses to better predict the outcomes of diseases. There are little data to confirm that these are being applied by local healthcare professionals. This study aimed to determine the knowledge, attitudes and practices (KAP) of healthcare professionals regarding PSS, and the factors influencing them.

**Design and Methods:** In a hospital-based survey, 176 healthcare professionals in the public and private sector managing acutely ill patients, chosen by simple random sampling, responded regarding PSS to a questionnaire developed de novo in a Likert scale format.

**Results:** Sixty-one per cent of respondents were aware of PSS, 47% had a working knowledge, 40.9% thought that knowledge of PSS was very important but 47.7% said they never used PSS. Generally, doctors and nurses with greater seniority and private hospital employees had more knowledge of PSS, a more positive attitude toward them and applied them more frequently. Most respondents had a working knowledge of PSS but did not apply it regularly. Professionals with greater seniority had more work experience and greater knowledge of tools such as PSS. The public hospital employees responded more negatively to the use of and attitude toward PSS.

**Conclusions:** Information on PSS should be included in the medical and nursing school curriculum to increase awareness to improve the application of evidence-based clinical practice. This will assist in guiding major decisions in low resource settings.

**P − 51**

**In vitro comparison of seven metformin formulations**

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**Objectives:** The World Health Organization (WHO) desires to provide affordable and accessible essential medicines globally, which can be achieved with the use of generic drugs. However, to confirm equivalent quality and
performance to the innovator, the dissolution method can be employed. This study included the dissolution process to compare seven metformin 500 mg formulations.

**Design and Methods:** Comparison was made to two Glucophage® brands by weight, drug content and dissolution profile. The dissolution Apparatus 2 (paddle) was employed at 75 rpm in a pH 6.8 buffer at 37 ± 0.5 °C. One millilitre samples were removed at times 10, 15, 20, 30, 45 and 60 minutes without replacement, diluted then analysed with ultraviolet spectrophotometry. One-way analysis of variance (ANOVA) compared the weights and DD Solver software, an add-in to Excel® 2007, was used to calculate the similarity ($f_2$) and difference ($f_1$) factors, dissolution efficiency (DE), mean dissolution time (MDT) and area under the release curve (AUC). However, $f_2$ was calculated only if the drug release was less than 85% within 15 minutes.

**Results:** The weights were significantly different ($p \leq 0.05$) and each of the products demonstrated drug content within 95−105%. All seven formulations except Drug 2 acquired ≥ 85% drug release in 15 minutes and the latter drug showed an $f_2$ value that was less than 50.

**Conclusions:** The metformin formulations proved pharmaceutically equivalent to the innovators; nevertheless, Drug 2 illustrated a different dissolution profile to the other products in phosphate buffer of pH 6.8 and hence, deviated from WHO recommendations.

**P − 52**

**Mobile track reporting on replenishment of depleted artemisinin-based combination therapy stocks at health facilities in Uganda. A retrospective review**

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**Objective:** To assess utilization of mobile tracking (mTrac) in stock management of artemisinin-based combination therapy (ACT) at health facilities in Uganda.

**Design and Methods:** Ministry of Health, Uganda, rolled out mTrac to health facilities (HFs) in the 112 districts in four phases. Using personal mobile phones, health workers sent weekly surveillance reports to a toll-free short code about notifiable diseases, malaria case management and stock quantities of ACTs. A retrospective review of ACT reports submitted weekly using mTrac was conducted. The reporting period was weeks 12−52 between March 12 and December 31, 2012 for phase 1 and 2. Data for 19 950 reports were analysed using SPSS version 17 based on three indicators: timeliness in reporting, stock-out and approved reports.

**Results:** Of the 19 950 cumulative ACT reports submitted, 11 570 (58%) were received on time. Timely reports came from health centre (HC) IIs 7499 (64.8%) then HC IIIs 3307 (28.6%), HC IVs 513 (4.4%) and general hospitals (GH) 251 (2.2%). Seven thousand five hundred and eighty-one (38%) reported stock-out in all ACT pack sizes while 983 (8.5%) reported stock levels at zero. In total, 13 550 (67.9%) reports were approved by the district health teams (DHTs).

**Conclusion:** Health centres II and III have shown utilization of mTrac to submit their weekly ACT reports on time. Hence, fewer HFs reported ACT stock-out. Most reports were approved by DHTs, a proxy indicator for the system uptake. However, follow-up is required for GHs and HC IVs in order to improve timeliness in reporting.

**P − 53**

**An assessment of the barriers and facilitators for a national public health observatory in Trinidad and Tobago**

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**Objectives:** To assess facilitators and barriers for creating a national public health observatory (PHO) in Trinidad and Tobago (T&T), which could serve as a model for other Caribbean countries.

**Design and Methods:** A qualitative study with 15 one-on-one key informant interviews (April to September 2013) was conducted. Key informants worked within the healthcare sector in T&T. A semi-structured interview guide explored knowledge, attitudes and beliefs about creating a PHO, enablers and barriers to creating and sustaining a PHO, legal considerations and requirements for human resources and information technology.

**Results:** The majority of participants supported the development of a national PHO, recognizing its value in informing their work. They indicated that a national PHO could provide information to support evidence informed decision-making for health policy and strategic planning; facilitate data management by establishing data policies, procedures and standards; increase the utilization of data through synthesizing and disseminating information; and provide data for benchmarking. Informants identified several current barriers including the perception that data collection is not important; timely availability of data; limited synthesis, dissemination and utilization of data to inform decision-making; and challenges related to the allocation of human resources and existing information technology.
Conclusion: There is support for the development of a national PHO in Trinidad and Tobago but a number of barriers need to be addressed. The solution lies in adopting a complex system perspective that addresses the challenges at all levels with a sense of shared ownership but with clear roles and responsibilities.

P − 54
Investigating the relationship between socio-economic status and equity in the allocation of healthcare services: The case of St Vincent and the Grenadines

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Objectives: To investigate the relationship between socio-economic status and equity in the allocation of public healthcare services by the primary healthcare delivery system in St Vincent and the Grenadines.

Design and Methods: The sample frame consisted of the persons seeking treatment for diabetes between 2006 and 2010 at the nine public community healthcare districts, and which were managed by the Community Nursing Programme of the Ministry of Health. The annual utilization of these services was used to measure healthcare need. The country’s census divisions were re-classified into nine communities to correspond with the nine health districts, and ranked by poverty gap to measure socio-economic status. A calculated healthcare expenditure measured the allocation of the districts’ resources. A decrease in healthcare expenditure with an increase in healthcare need in the poorest health district compared with the reverse in the wealthiest district suggested the presence of inequity. Time series cross-section analysis with fixed effects was used to evaluate the existence of inequity within the health districts.

Results: At a critical value of 4%, the poorest health district of Georgetown had an equity index of -0.08 while the richest, the Northern Grenadines, an index of -0.36.

Conclusion: Socio-economic status was not a significant factor influencing the allocation of healthcare services as inequity was greater in the wealthiest health district.

P − 55
Is there a demand for national health insurance in St Vincent and the Grenadines?

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Objective: To assess if there is a demand for national health insurance (NHI) in St Vincent and the Grenadines (SVG) and to examine if socio-economic status (SES) and geographic differences matter in the demand for such service.

Design and Methods: Samples were selected by simple random sampling, including strata on rural, semi-urban and urban communities to ensure representativeness. A pre-tested interviewer-administered questionnaire was used to collect the data from a total of 400 respondents. Data were examined for correlation between SES and geographic locations with the demand for NHI.

Results: More than half (69.5%; n = 278) of the respondents indicated their demand for NHI. Chi-squared analysis showed that age ($p < 0.001$), education ($p < 0.001$), monthly income ($p < 0.001$), employment ($p < 0.001$), health status ($p < 0.001$), health insurance ownership ($p < 0.001$), and level of satisfaction with the public healthcare system ($p < 0.001$) all matter in the demand for NHI. The results also showed that there was a greater demand among urban communities.

Conclusion: There is a demand for a resource and risk pooling mechanism such as NHI in SVG. Socio-economic status and place of residence do matter in people’s demand for NHI. As Caribbean governments seek alternative ways of financing the health sector, establishing NHI may serve as a viable option.

P − 56
A national investment reaps national dividends: 65 years later – The Bahamian graduates of The University of the West Indies, Faculty of Medical Sciences

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Objective: To determine the yield in national investment in The University of the West Indies (UWI) undergraduate medical degree programme for The Bahamas.
**Design and Methods:** A review of the following databases was undertaken from 1948 to July 2013: human resource files – Princess Margaret Hospital; registration files – Bahamas Medical Council; and UWI student database. For verification, physicians were contacted directly in person via telephone or e-mail as required.

**Results:** Four hundred Bahamians graduated as medical doctors. During 1957–1980, 1981–2000 and 2001–2013 there were 44, 120 and 236 graduates, respectively, with a female enrolment shift from 14% to 46% to 68%. Of 372 UWI trained fully registered physicians, 97% were employed by The Bahamas government for at least one year beyond internship, with over 50% employed in the public sector over the span of their medical careers. Thirty-three doctors have migrated with only eight not providing service at all in The Bahamas after internship. Two hundred and forty-four (62%) embarked on postgraduate training, with 154 being credentialed with diplomas or specialist degrees. Thirty have gone on to subspecialty training with four still in training. For persons currently in specialty training, 52 of the 72 are in programmes in Bahamas.

**Conclusion:** The national investment in the UWI undergraduate medical degree programme has yielded great dividends in human resource development and retention.

**P – 57**

Environment and health: Non-communicable disease mortality trends as early indicators of environmental health threats

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**Objective:** To characterize and identify trends in disease burden in Suriname by analysing a subset of mortality data from 2004 to 2011. The ultimate objective was to be able to estimate disease burden associated with relevant environmental risk factors.

**Design and Methods:** Crude and adjusted mortality rate ratios were estimated for the urban districts of Paramaribo, Wanica and Nickerie, ethnic subpopulations (Creoles, Hindustani, Javanese and Maroons) and four leading causes of death: cardiovascular diseases, cancer, deaths due to external injuries and diabetes mellitus.

**Results:** After adjusting for gender and cause of death, the risk of death from either one of the causes in Paramaribo was four times (RR 4.4, CI 3.1, 6.3) and in Wanica almost two times higher (R 1.8, CI 1.23, 2.55) than in Nickerie. After adjusting for gender and geographical location, the risk of cardiovascular death was four times higher (RR 4.4, CI 4.3, 4.9) compared to diabetes. Cancer (RR 1.9, CI 1.7, 2.0) and deaths due to external injuries (RR 1.8, CI 1.7, 1.9) both showed an almost two-fold higher risk compared to diabetes. After adjusting for age and gender, the risk of death due to all causes was significantly different among the ethnic groups. Compared to the Maroon population, the rate ratios for the Creole, Hindustani and Javanese population were, respectively 1.5 (CI 1.3, 1.7), 1.4 (CI 1.3, 1.6) and 1.2 (CI 1.1, 1.3).

**Conclusions:** The analysis with basic statistical modelling techniques, effectively controlling for demographic changes across populations over time, revealed statistically significant differences among subpopulations in Suriname.

**P – 58**

Environmental characterization of pesticide contaminated produce of Suriname

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**Objective:** To propose a research method for characterizing pesticide contamination in vegetables, fruits, medicinal plants and nutraceuticals in Suriname. The hypothesis is that the level of pesticide residues in these products potentially causes adverse health effect.

**Design and Methods:** The study entails the residue analysis of relevant pesticides in popularly consumed items. The sampling of the items will be conducted randomly at three fresh markets in the districts of Paramaribo and Wanica. It is proposed to conduct the laboratory analysis with gas chromatography mass spectrometry. Statistical analysis will be performed with a suitable software package (*eg* Statistical Package for the Social Sciences). This study is the first phase of a comprehensive community-based environmental health investigation. Phase 2 will consist of a human health assessment including a comprehensive dietary assessment. Based on the results of phases 1 and 2, a risk assessment will be conducted, followed up by biomarker tests to ascertain organ-system function impact in phase 3.

**Results:** Sixteen indicator items have been chosen: leavy vegetables (tannia, clarion, cabbage), fruit vegetables (eggplant, long yard beans, okra), fruits (bananas, oranges, mangoes), root vegetables/staple-food (cassava, sweet potato, xanthosoma, rice, plantains) and medicinal plants/nutraceuticals (Quassia amara, Saccharum officinarum, cocos nucifera). Eleven pesticides have been selected, belonging to the organophosphate, organochlorine, neonicotinoic acid, carbamate and pyrethrin classes.
Conclusions: The environmental characterization is a first step to test the hypothesis, but in order to ascertain the association with adverse health effects it should be followed up by the other phases of the environmental health investigation.

P − 59
An integrated approach to pesticide management in Eastern Nickerie District, Suriname: A public health intervention

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Objective: The objective of the integrated pesticide management intervention project (IPMIP) is to develop a community-based participatory, novel and safe pesticide storage, use and disposal intervention that can be sustained by the community. The national incidence of suicide in Suriname has increased from 7/100000 in 1960 to 25/100000 in the 2012.

Design and Methods: Phase I of the IPMIP consisted of a needs assessment to characterize community perceptions through focus groups and questionnaires. Key focus group themes were analysed using Atlas Ti. Based upon focus group data, a public health curriculum was developed consisting of modules including public health, pesticides management, mental health and mobile health technology. Community health workers (CHWs) were trained in Phase 2 as pesticide interventionists. Phase 3 examines the effectiveness of mobile health technology-enabled CHWs to promote safe pesticide use.

Results: More than half of the 67 participants (39) reported using pesticides at work and the majority (62) used pesticides at home. Twenty-six participants reported having someone in their family harmed by pesticides. Fourteen CHWs participated in the 10-week training programme and were introduced to mobile health technology as a health education intervention tool. Health messages were tested for content, literacy and ability to solicit participant response.

Conclusion: There was consensus about the overuse and misuse of pesticides. Perception exists that suicide stems from ignored psychosocial problems and limited community support. The unrestricted availability of pesticides is considered a key suicide contributor especially among young adults with family and/or relationship problems.

P − 60
Methods of decontamination and disposal of infectious waste at the National Public Health Reference Laboratory, Guyana

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Objectives: To assess the degree and priority of action taken to minimize the risk posed by potential hazards. The study was undertaken to find out the sterility of treated waste that was sent out into the environment from national public health reference laboratory (NPHRL).

Design and Methods: A prospective study was carried out at NPHRL which targeted waste emanating from the Microbiology and Tuberculosis Departments. A steam sterilizer was used to assess the sterility of waste before disposal and the conditions that may affect the sterility of waste were examined. Waste loads of 6.8 kg, 4.5 kg and 2.3 kg were processed on different days. Thermal and biological data were obtained using a chemical indicator (autoclave tape) and a biological indicator containing spores of Geobacillus stearothermophilus, respectively.

Results: Heat transfer was more efficient when waste was tested in stainless steel containers and single polypropylene autoclave bags rather than double. Growth of bacteria from residue was seen after exposure times of 10 and 15 minutes at 121 °C. Growth of Geobacillus stearothermophilus was observed in waste processed in autoclave bags even after a cycle of 121 °C for 45 minutes.

Conclusion: Decontamination of infectious waste by autoclaving at 121 °C for 10 minutes is insufficient because conditions such as composition of waste, volume of waste, type of container used, and orientation in the autoclave contribute a great deal to the effective heat transfer during the autoclaving process. It is recommended that waste be processed in smaller amounts in stainless steel containers and composition of waste load be standardized.

P − 61
Evaluation of Surinamese medicinal plants for their potential wound healing properties in embryos of the zebrafish danio rerio

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Objectives: Preparations from Momordica charantia L., Psidium guajava L., Lantana camara L., Aloe vera (L)
**Burm f, Cinnamomum cassia** (Nees s and T Nees) Farw and **Solanum melongena** L are popularly used in Suriname for treating wounds. In this study, aqueous extracts from these plants have been evaluated for their effects on the regeneration of the amputated caudal tail fin, as well as total sub-intestinal vessel and body length of zebrafish embryos.

**Design and Methods:** Embryos from amputated wildtype (AB) and Tg (fl1a:EGFP)y1/+ zebrafish were exposed to serial dilutions of the plant extracts. The effects of the extracts on the regeneration rate of the caudal fin were determined at 48 hours post-fertilization (hpf) by comparing the longitudinal distance of the fin growth with that of sham-operated embryos; those on their total sub-intestinal vessel and body length were assessed at 96 hpf by microscopic examination.

**Results:** Up to $10^{-4}$ g/mL, none of the plant extracts improved the regeneration rate of the amputated caudal fin or increased total sub-intestinal vessel or body length of the embryos. On the contrary, exposure to the **L camara** extract at $10^{-5}$ and $10^{-4}$ g/mL led to decrease of the total sub-intestinal vessel length of more than 50% and almost 100%, respectively.

**Conclusions:** None of the samples evaluated in this study displayed wound healing or pro-angiogenic properties under the experimental conditions applied. However, the **L camara** preparation may possess interesting anti-angiogenic characteristics. Cell culture studies to verify this suggestion using human umbilical vein endothelial cells are in preparation.

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**P – 62**

**The effectiveness of aloe vera against common pathogenic bacteria at the Georgetown Public Hospital Corporation**

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**Objectives:** To test aloe vera extract against common bacterial pathogens to determine its bacterio-static or bactericidal properties.

**Design and Methods:** Five organisms were investigated ie **Staphylococcus aureus**, **Streptococcus pyogenes**, **Escherichia coli**, **Pseudomonas sp** and **Salmonella sp** Samples were obtained from the Georgetown Public Hospital Corporation (GPHC). All were tested against aloe vera extract. The growth of each organism when subjected to the aloe vera extract was observed and recorded.

**Results:** The results showed that when the bacteria (**Staphylococcus aureus**, **Streptococcus pyogenes**, **Escherichia coli**, **Pseudomonas sp and Salmonella sp**) were subjected to the aloe vera extract, there was a 42% average reduction in the growth rate. The reduction rate obtained for each organism was as follows: **Staphylococcus aureus** was 30%, **Streptococcus pyogenes** was 43%, **Escherichia coli** was 62%, **Pseudomonas sp** was 43% and **Salmonella sp** was 34%. The gram-negative organisms showed an average reduction of 46%, whereas, the gram-positive bacteria showed an average of 36%, which clearly indicated that the gram-negative organisms were more susceptible to the aloe vera extract.

**Conclusion:** This research established a 42% growth reduction in the bacteria tested. This indicates that the bacteriostatic qualities of the aloe vera extract would be effective against minor bacterial infections for both gram-positive and gram-negative organisms. This organic approach can be used to lessen the economic cost of treating minor infections in developing countries as well as developed countries.
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Purpose of grants
One of the major purposes of the CARPHA research grants programme is to help investigators with small projects. These may later be expanded on the basis of the initial findings into larger studies for which support may be sought from funding agencies with larger budgets.

Proposals are expected to address areas identified as priority in the Caribbean Public Health Agency (see CARPHA website for the list of research priorities). Junior/Budding researchers are particularly encouraged to apply.

Eligibility
Any worker in the Caribbean who proposes to study a problem which is related to the health of the Caribbean people is eligible to apply for a project grant.

Format and timing for applications
Applications must be made on the forms supplied by the Secretariat (and posted on the website: www.carpha.org). They are reviewed at meetings of the Scientific and Management Committee of the CARPHA which are held in January, April and October of each year. DEADLINES for submission of proposals to be reviewed at these

- November 1st
- March 1st
- September 1st

Application of funds
Grants are not intended to replace existing resources or necessarily to meet the entire cost of research projects.

Note that the CARPHA will NOT provide:
- Administrative costs of research
- The cost of unspecified research
- Standard laboratory apparatus
- Long-term technical support

Equipment
Large items of equipment bought with CARPHA funds remain the property of the Agency. The Agency, at the termination of a project, may request that such equipment be returned, perhaps for use by other workers. However, if grantees wish to use the equipment for continuing studies, they may apply to the Agency for permission to do so.

Reports
It is one of the conditions of the awards that annual reports must be presented. Depending on the duration of the study, progress reports should be submitted every six months. The final report is not expected to exceed 12 pages and should comprise the following:
- Abstract/Executive Summary
- Standard research report sections (ie Introduction, Methods, Results, Discussion, References, Tables/Figures)
- Implications for practice (researcher should specify target audience)
- Implications for policy (researcher should specify target audience)
- Directions for future research
- Financial statement

Publications/Presentations
All publications arising from work done with funds from CARPHA should acknowledge that support. Note that grantees are expected to submit a manuscript for presentation at the Annual CARPHA Conference on completion of their research.

Levels of Award
The CARPHA do not normally make grants in excess of US$10 000. Funds should be spent within the period of the grant.