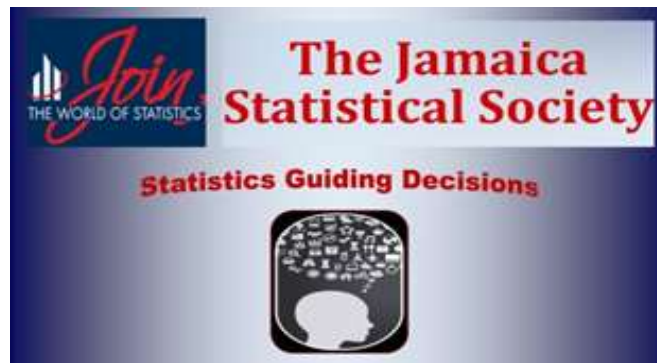


# **JASSYM 2019**



## **THE JAMAICA STATISTICAL SOCIETY**

### **PROGRAMME**

#### **4TH BIENNIAL JAMAICA STATISTICS SYMPOSIUM AND PRE-CONFERENCE WORKSHOP SERIES**

**“Data-Driven Solutions – The Answer to World Problems”**

**October 29 – 30, 2019**

**The Technology Innovation Centre**

**The University of Technology, Papine Campus**

**&**

**October 31 – November 1, 2019**

**Aleem Mohammed Meeting Room**

**University of the West Indies Regional Headquarters, Mona Campus**

**Kingston 7, Jamaica.**

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## The Jamaica Statistics Symposium

The Jamaica Statistics Symposium was conceived in 2011 at the Sixth Biennial meeting of the Central American and Caribbean Region of the International Biometric Society (IBS-RCAC), held in Kingston, Jamaica, where it was noted that there was a local need for additional exposure to training that would build competencies in use of data to make decisions based on evidence. Consequently, a formal professional body aimed at fulfilling this mandate, The Jamaica Statistical Society (JSS), was launched on Friday, November 1, 2013 during the closing ceremony for the first Biennial Jamaica Statistics Symposium. This society, whose membership comprises professionals and tertiary level students in a variety of fields, functions as the organisation committed to providing support for valid and reliable data analysis services to aid more informed decision-making in both industry and academia.

The Biennial Jamaica Statistics Symposium and Pre-Conference Workshop Series is the flagship event of the JSS. These activities provide an opportunity for persons concerned with data management and analysis to benefit from the shared experiences of colleagues in the field, through oral and poster presentations as well as short course presentations.

This year, the Fourth Biennial Jamaica Statistics Symposium and Pre-Conference Workshops Series (JASSYM 2019) organised by The Jamaica Statistical Society is set for the October 29 to November 1, 2019. Venues for the activities are The University of Technology (Jamaica), Papine Campus, and The University of the West Indies, Mona Campus, both in Kingston, Jamaica, and activities commence at 8:30 a.m. each day. The theme for the JASSYM 2019 is “**Data-Driven Solutions – The Answer to World Problems**”.

Our Pre-Conference Workshops on October 29 and 30 are entitled **Data Analysis Using R Programming Software, Multiple Linear Regression Using Stata, and Using SPSS Analysis Tools in Microsoft Excel**. They provide an excellent opportunity for participants to build competencies in data management and analysis leading to professional development and career advancement.

Our **Keynote speaker** for this year’s Symposium, set for October 31 and November 1, is **Dr Raphael Barrett**, expert advisor on National Health Financing and Health Management mechanisms, organisations and systems. We anticipate his presentation on approaches to the use of data in finding solutions to world problems. Other **feature presenters** are **Dr Godfrey St. Bernard** from the University of the West Indies who will address us on ageing indicators and population growth; **Dr Jonathan Mahnken** and **Dr John Keighley** from the University of Kansas Medical Center (KMC) who will lead our mini-sample size workshop which forms part of the symposium programme and is freely available to all registered participants.

We look forward to your support that can lead to the continued development and expansion of the offerings of the Symposium and Workshop Series

## MESSAGES



### The Jamaica Statistical Society

The Jamaica Statistical Society (JSS) is pleased to host the Fourth Biennial Jamaica Statistics Symposium along with a series of Pre-conference Workshops. At a time in which people and organizations within Jamaica, the Caribbean and Latin American Region and the world at large face an increasing variety of social, economic environmental problems there is also increase in technology and the drive to solve these complex problems. Organizations and agencies in various countries are waking up to the value of using data to drive their development and to solve problems that hinder such developments. There is a growing interest in the use of data that has its foundation statistical methods and high intensity computer technology. We present the theme “Data Driven Solutions – The Answer to World Problems.”

The JSS continues to provide continuing education, in the form of workshops, for institutions and the general public by teaching and demonstrating the use of various statistical software programs, and at this Symposium, the pre-conference workshops provide training in the use of the Stata, MS Excel, SPSS and R software packages for data analysis. The training offered will equip participants to extract information from data in order to make decisions and solve general, national and personal problems.

We appreciate the kind support of all our sponsors, the American Statistical Association (ASA), The University of Kansas Medical Center’s Department of Biostatistics and KOOL 97 FM. In addition, we wish to thank the Caribbean Institute for Health Research, formerly the Tropical Medicine Research Institute (TMRI) and, in particular, the Institute’s Epidemiology Research Unit (ERU) for their continued endorsement of and support for our activities.

We thank our conference presenters for their participation. The mini-workshop on Sample Size Determination is a major highlight considering that it is of major interest to researchers in various fields.

Your support for and participation in these activities provide evidence of the importance of this great work. Special thanks to all our sponsors whose very valuable contributions have led to the staging of these events. A special welcome and thanks to all participants - presenters, attendees, workshop leaders. It could not be a success without you.

Welcome to all and enjoy!!

David Finlay  
President  
The Jamaica Statistical Society



## **The American Statistical Association**

The world needs the clarity and insight that statisticians bring to asking and answering questions. At the American Statistical Association, our vision is “A world that relies on data and statistical thinking to drive discovery and inform decisions,” which fits very much into the conference theme. We wish you much success with this meeting!

Sincerely,  
Ronald Wasserstein  
Executive Director  
The American Statistical Association

## JASSYM 2019 Pre-Conference and In-Conference Workshops

### WORKSHOP FACILITATORS

Facilitators	Workshop Titles
<b>David Finlay M.Sc.(Applied Statistics)<sup>1</sup> Olusegun Ismail M.Sc.(Applied Statistics)<sup>1</sup></b>	Data Analysis Using R Programming Software
<b>Novie Younger-Coleman Ph.D. (Applied Statistics)<sup>2</sup></b>	Multiple Linear Regression Using Stata
<b>Natalie Guthrie-Dixon M.Sc. (Biostatistics)<sup>2</sup></b>	Using SPSS Analysis Tools in Microsoft Excel
<b>Jonathan Mahnken Ph.D. (Biostatistics)<sup>3</sup> John Keighley Ph.D. (Biostatistics)<sup>3</sup></b>	A Primer on Determining and Justifying Sample Sizes for Research

<sup>1</sup>School of Mathematics & Statistics, The University of Technology(Jamaica), Papine Campus, Jamaica

<sup>2</sup>Caribbean Institute for Health Research (CAIHR), The University of the West Indies, Mona Campus, Jamaica

<sup>3</sup>Department of Biostatistics, University Of Kansas Medical Center, Kansas City, USA

## WORKSHOP SUMMARIES

### Pre-Conference Workshop 1

#### *Data Analysis Using R Programming Software*

**Date:** October 29, 2019

**Venue:** The Technology Innovation Centre, The University of Technology(Jamaica), Papine Campus

**Duration:** 8:30am – 12 noon (3.5 hrs. - Half day)

#### **Target Audience:**

This course is suited for all persons who are interested in building competencies in Data Analysis using R Programming Software.

#### **Content Overview:**

This workshop will consist of a demonstration of basic methods of analysis for various sets of data. The content includes graphical and tabular displays of data. There will be demonstrations of calculations of basic sample summary measures; construction of confidence intervals; and hypothesis testing for means, proportions and their differences as well as variances. Demonstrations will also include performing multiple regression analysis as well as some steps in model fit diagnostics. Due to the limited time allotted for the workshop there will be no practice time for the participants.

### Pre-Conference Workshop 2

#### *Multiple Linear Regression Using Stata*

**Date:** October 29, 2019

**Venue:** The Technology Innovation Centre, The University of Technology(Jamaica), Papine Campus

**Duration:** 1:00pm – 4:30pm (3.5 hrs. - Half day)

#### **Target Audience:**

This course is geared towards all persons who have used Stata before and have reason for doing linear regression analysis.

#### **Content Overview:**

This half-day course is aimed at apprising participants of the tools and options available to them for selecting variables and assessing model adequacy in the development of linear regression models. The workshop will provide participants with a brief explanation and demonstration, using Stata, of confirmatory and exploratory approaches to variable selection for a linear regression model. There will also brief explanation and demonstration of methods of model adequacy assessment, using Stata software, for a linear regression model. The course participants will be provided with electronic versions of corresponding Stata software commands or functions that could be used to produce the Stata output shown in the demonstrations.

## **Pre-Conference Workshop 3**

### ***Using SPSS Analysis Tools in Microsoft Excel***

**Date: October 30, 2019**

**Venue: The Technology Innovation Centre, The University of Technology(Jamaica), Papine Campus**

**Duration: 8:30am – 4:30pm**

**Target Audience:** All person interested in building expertise in the use of MS Excel for statistical data analysis in the absence of SPSS software tools.

#### **Content Overview:**

MS Excel has very valuable data analysis tools similar to those found in SPSS software. Many persons requiring the statistical tools available in SPSS software do not have this software readily available to but many do have Microsoft Excel. As such, this workshop aims to increase awareness and competencies of attendees with respect to use of the data analysis tools available in MS Excel so that they need not feel disadvantaged by their lack of access to SPSS.

**This Training Workshop will enable participants to compare Microsoft Excel and SPSS with respect to the use of and interpretation of output from data analysis tools available in both packages and will equip participants to:**

- Produce and analyse graphical illustrations for continuous and categorical data.
- Perform basic data manipulation to generate the summative statistics.
- Interpret the output generated after conducting hypothesis tests of differences between two groups.
- Conduct simple linear regression analysis and compare the results with that generated by SPSS.
- Carry out and interpret the output generated after conducting one-way and two-way ANOVA.

Participants will be expected to perform the tasks by using the MS Excel data analysis tools during the workshop. The facilitator will also highlight the comparisons in the outputs generated if SPSS had been utilised and demonstrate how other functionalities in MS Excel can be utilised to perform some of the tasks.



## **In-Conference Mini-Workshop**

### ***A Primer on Determining and Justifying Sample Sizes for Research***

**Date: October 31 – November 1, 2019**

**Venue: The Aleem Mohammed Meeting Room, The University of the West Indies Regional Headquarters, UWI Mona Campus**

**Duration: 3 hours**

#### **Target Audience:**

This course is suited for all persons who will ever need to decide on the number of units they need to measure in order to answer a research question for any study or inquiry.

#### **Content Overview:**

Sample size justification is an important component for planning and designing studies. Often, though, the knowledge and skills to effectively determine an appropriate size or calculate a study's power is gained by experience rather than through training. In large part this is due to the uniqueness of each individual project. Through this workshop, we will provide a brief overview of the mathematics behind power and sample size calculations. We will also demonstrate, using various software applications, ways to calculate power and determine sample sizes needed to address the scientific or policy inquiry of interest. This workshop will integrate pragmatic decision processes that underly the choice of calculations, as well as provide examples of effectively communicating the sample size justification for various, more common study design scenarios.

## Pre-Conference Workshop Programmes

### THE JAMAICA STATISTICAL SOCIETY PRE-CONFERENCE WORKSHOP SERIES

DAY 1 – Data Analysis Using R Programming Software

**Tuesday, October 29, 8:30 a.m. – 12 noon**

**Facilitators: David Finlay M.Sc.(Applied Statistics) & Olusegun Ismail M.Sc.(Applied Statistics)  
School of Mathematics & Statistics, The University of Technology(Jamaica)**

<b>Time</b>	<b>Activity</b>
8:00 a.m.	Registration
8:30 a.m.	<b>Session 1</b> - Summary Statistics, Confidence Intervals and Data Presentation Using R
10:15 a.m.	Coffee Break
10:30 a.m.	<b>Session 2</b> - Bivariate and Multiple Regression Analysis Using R
12:00 noon	End of Workshop

DAY 1 – Multiple Linear Regression Using Stata

**Tuesday, October 29, 1:00 p.m. – 4:30 p.m.**

**Facilitator: Novie Younger-Coleman Ph.D. (Applied Statistics)**

**Caribbean Institute for Health Research (CAIHR), The University of the West Indies**

12:30 p.m.	Registration
1:00 p.m.	<b>Session 1</b> - Approaches to Variable Selection for Linear Regression Models
2:45 p.m.	Coffee Break
3:00 p.m.	<b>Session 2</b> - Linear Regression Model Adequacy Assessment
4:30 p.m.	End of Workshop

**THE JAMAICA STATISTICAL SOCIETY  
PRE-CONFERENCE WORKSHOP SERIES**

DAY 2 – Using SPSS Analysis Tools in Microsoft Excel

**Wednesday October 30, 8:30 a.m. – 4:30 p.m.**

**Facilitator: Natalie Guthrie-Dixon M.Sc. (Biostatistics)**

**Caribbean Institute for Health Research (CAIHR),**

**The University of the West Indies**

<b>Time</b>	<b>Activity</b>
8:30 a.m.	<b>Session 1</b> - Producing and interpreting Graphical Displays
10:30 a.m.	Coffee Break
10:45 a.m.	Practical Session 1
11:15 a.m.	<b>Session 2</b> - Determining summative measures using the function library and the Analysis Toolpak
12:30 p.m.	Lunch
1:30 p.m.	Practical Session 2
2:00 p.m.	<b>Session 3</b> - Bivariate data Analysis – two-sample hypothesis tests and simple linear regression Analysis
3:00 p.m.	Coffee Break
3:15 p.m.	Practical Session 3
3:40 p.m.	<b>Session 4</b> - One-way and multi-way Analysis of Variance (ANOVA)
4:10 p.m.	Practical Session 4
4:30 p.m.	End of Workshop
<b>End of Workshop Day 2</b>	

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## Keynote and Feature Presentation Speakers

### Keynote Speaker



**Raphael Barrett MBA**

**Raphael (Rae) Barrett** provides advisory services on National Health Financing and Health Management mechanisms, organisations and systems as well as private commercial businesses.

His education includes a BSc(special) in Physics (UWI), postgraduate diplomas in Satellite Communications (Oxford) and Management (UWI) and MBA (Western Ontario). He currently lectures at the Faculty of Engineering, UWIMONA, in Management, Decision Theory and Economics; at the School of Allied Health & Wellness at UTech (Jamaica) in Financial Management and National Health Financing, and chairs the Vector Technology Institute Board of Governors.

He has extensive experience in the manufacturing, service and trading industries of both the private and public sectors.

He also works primarily in the Caribbean and South America on assignments for the WHO/PAHO, European Aid agencies, Regional organisations and National governments as an expert on National Health Financing and Health Management Systems/Organisations.

He promotes a risk management approach to health policy management and has a special interest in health data security and confidentiality and the use of technology to enhance healthcare services.

## Feature Presentation Speakers



**John D. Keighley Ph.D.**

John Keighley Ph.D. is an Assistant Professor of Biostatistics & Data Science at the University of Kansas Medical Center (KUMC). He is also the Director of Data Management for the Kansas Cancer Registry. Dr. Keighley earned his doctorate in statistics from Kansas State University in 2005. His research has included applications of statistics, in particular, linear models, stroke, cancer registries, clinical trials, and smoking cessation studies. He has taught graduate courses in linear regression, multivariate analysis, data mining, and SAS programming, among others. Dr. Keighley is also developing a short course for the American Statistical Association for international students on linear regression and decision tree analyses.



**Johnathan D. Mahnken Ph.D.**

Jonathan Mahnken Ph.D. is a Professor of Biostatistics & Data Science for KUMC. He is also the Director of the Data Management and Statistics Core for the University of Kansas Alzheimer's Disease Center. Dr. Mahnken earned his doctorate from the University of Texas – Health Science Center in 2003. He has taught graduate courses including categorical data analysis, survival analysis, and generalized linear models. Dr. Mahnken's research has included power and sample size calculations, survival and censored data analysis, and collaborations in Alzheimer's disease, end-stage renal disease, cancer, stroke, and other areas.

Drs. Keighley and Mahnken have collectively designed hundreds of studies during their tenure as faculty at KUMC, and have reviewed and critiqued many hundreds more through their service to their university and other organizations such as the U.S. National Institutes of Health.

***Together, they will lead our mini-workshop on sample size calculation.***



**Godfrey St. Bernard Ph.D.**

Dr. Godfrey St. Bernard is a Senior Fellow in the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES), The University of the West Indies, St. Augustine, Trinidad and Tobago.

He obtained a B.A Mathematics and Economics (1980) from The University of the West Indies, St. Augustine and M.A Sociology (1989) and Ph.D. Social Demography (1993) from the University of Western Ontario. He was the recipient of two prestigious fellowships that permitted him to complete his post-graduate studies at the University of Western Ontario – a CIDA/CELADE Fellowship (1987-1991) and a Population Council Fellowship during 1991-1992. In 2018, he became inducted into the Trinity College Alumni Hall of Fame and also was a recipient of the 2018 Meritorious Service Award of the Trinidad and Tobago United Community Association, New York City.

His research interests, which include applied statistical analysis, research methodology, evaluation research and social policy, have led him to explore identification of solutions to problems concerned with population and development. Currently, the foci of his research are youth and development, Caribbean population policy and the measurement of social phenomena.

He has a wealth of experience in the use of data for the development and advancement of government policy having worked as Statistician in the Central Statistical Office, Trinidad and Tobago and functioned as member of Cabinet Appointed Committees and Technical Advisory Groups within the Government of Trinidad and Tobago. As an international speaker, Dr. St. Bernard has presented numerous scholarly papers at International Conferences and served as resource person for Regional and International Workshops.

## Presentation of Papers & Symposium Activity Schedule

Thursday, October 31, 2019

**Venue: Aleem Mohammed Meeting Room, UWI Regional Headquarters**

<b>Time</b>	<b>Activity</b>
<b>8:00-9:00am</b>	Registration
<b>9:00-10:30am</b>	<p><b>Opening Ceremony</b> Chair: Olusegun Afis Ismail, Second Vice President/Chair, JASSYM 2019 Planning Committee</p>
<b>9:00-10:30am</b>	<p><b>Welcome and Opening Remarks</b> Olusegun Afis Ismail, Second Vice President/Chair, JASSYM 2019 Planning Committee</p> <p><b>Greetings</b> Ministry of Science and Technology.....The Honourable Fayval Williams Ministry of Education, Youth and Information.... The Honourable Karl Samuda The University of the West Indies..... Professor Ian Boxill (Deputy Campus Principal) Northern Caribbean University..... Dr. Lincoln Edwards (President) The University of Technology ..... Dr. Kamilah Hamilton (The Dean, The Faculty of Science and Sport)</p>
<b>9:30-10:15am</b>	<p><b>Feature Lecture: Data-Driven Solutions – The Answer to World Problems</b> Raphael Barrett MBA, Consultant, National Health Financing and Health Management Mechanisms</p>
<b>10:30 am-11:15 am</b>	<p><b>Coffee Break and Poster Viewing Session A</b> <i>(Featuring Abstracts Number 11 and 16)</i></p> <p><b>Improving Neighbourhoods and our Society</b> Session Chair: Shelly McFarlane, CAIHR, UWI, Mona</p> <p><b>Aging indicators, population growth and implications for sub-national population projections in small areal units – Towards building a statistical model for Trinidad and Tobago</b> St. Bernard, Godfrey SALISES Cluster for Population and Sustainable Development, UWI, St. Augustine</p> <p><b>Influencing policy development through research: Examples from the UWI Faculty of Science and Technology</b> Marcia Ford M.Sc. Centre for Marine Sciences, Faculty of Science and Technology, UWI, Mona</p>



<b>Time</b>	<b>Activity</b>
<b>11:15 a.m. -12:00 noon</b>	<p><b>Oral Presentation Session 1: Statistical Methods Driving Solutions</b> Session Chair: David Finlay, School of Mathematics and Applied Statistics, UTech(Jamaica)</p> <p><b>Quantifying agreement among multiple measurements/readers</b> Amita Manatunga, Department of Biostatistics and Bioinformatics, Rollins School of Public Health, Emory University</p> <p><b>Interviewer Variability and Survey estimates - Quantifying Data Quality</b> Novie Younger-Coleman Ph.D., CAIHR, UWI, Mona</p>
<b>12:00-1:15pm</b>	<b>Lunch Break</b>
<b>1:15 p.m. - 2:00 p.m.</b>	<p><b>Session 2A: Feature Presentation</b> Session Chair: Marcia Ford, Centre for Marine Sciences, Faculty of Science and Technology, UWI, Mona</p> <p><b>Contributory factors impacting detection status for homicide cases in Trinidad and Tobago – Evidence from the Early 21<sup>st</sup> Century</b> Godfrey St. Bernard Ph.D., SALISES Cluster for Population and Sustainable Development, UWI, St. Augustine and Lead Researcher</p>
<b>2:00 -2:45 p.m.</b>	<p><b>Session 2B: Sample Size Calculation, (Part I)</b> Session Chair: Nicole Martin-Chen, Ministry of Health and Wellness, Jamaica</p> <p><b>A Primer on Determining and Justifying Sample Sizes for Research (Part I)</b> John D. Keighley, Ph.D. and Johnathan D. Mahnken, Professor of Biostatistics &amp; Data Science, Department of Biostatistics &amp; Data Science, University of Kansas Medical Center</p>
<b>2:45 p.m. - 3:30 p.m.</b>	<p><b>Coffee Break &amp; Poster Viewing Session B: (Featuring Abstract Number 18)</b></p> <p><b>Analysis and Interpretation of Health Outcome Data</b> Session Chair: Natalie Guthrie-Dixon, CAIHR, UWI, Mona</p> <p><b>Next Generation P2Y12 Inhibitors Improve Survival in ACS: An Analysis from the British Cardiovascular Intervention Society Database</b> Simon G. Anderson, Professor of Population Health Sciences, The George Alleyne Chronic Disease Research Centre, University of the West Indies, Barbados</p>

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<b>Time</b>	<b>Activity</b>
<b>3:30p.m.-4:30 p.m.</b>	<b>Session 3: Finding Human Safety Solutions</b> Chair: Julian P. Prescod, Research and Development Officer, National Insurance Board of Trinidad and Tobago  <b>Road fatalities in Jamaica 2017-2018. Are there improvements?</b> Eric Williams DM, Emergency Medicine Division, UWI, Mona  <b>Statistical Modelling of People's Perception of Threat and Decision Making under Probabilistic Tornado Hazard Information</b> Sujoy Datta, Department of Statistics, University of Akron  <b>The Impact of Road Traffic Fatalities on Economic Growth</b> Kenute Hare, Road Safety Unit, Ministry of Transport and Mining

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## PRESENTATION OF PAPERS

# JASSYM 2019

Friday, November 1, 2019

Venue: Aleem Mohammed Meeting Room, UWI Regional Headquarters

Time	Activity
8:00-9:00am	Registration
9:00-9:45am	<b>Session 4A: Solutions for the Economy</b> <b>Chair:</b> Andre Waugh, Ministry of Justice, Jamaica  <b>The Economics of Taxation</b> David Smalling, Taxation Administration Jamaica  <b>Computing the Multidimensional Poverty Index (MPI) for Jamaica</b> Fredrick Gordon, JamStats Unit, Planning Institute of Jamaica
9:45-10:30 am	<b>Session 4B: Sample Size Calculation, (Part II)</b> <b>Chair:</b> Gerlyn Gray, Faculty of Science and Sport, Utech(Jamaica)  <b>A Primer on Determining and Justifying Sample Sizes for Research (Part II)</b> John D. Keighley, Ph.D. and Johnathan D. Mahnken, Professor of Biostatistics & Data Science, Department of Biostatistics & Data Science, University of Kansas Medical Center
10:30 a.m. -11:15 a.m.	<b>Coffee Break &amp; Poster Viewing Session C:</b> <b>(Featuring Abstract Number 10)</b>  <b>Factors that Affect our Economy</b> Session Chair: Judith Delisser, School of Mathematics and Applied Statistics, UTech(Jamaica)  <b>Estimate of Contribution Income Lost to Non-Compliant Venezuelan Migrant Workers</b> Michael Raymond, Research Assistant, National Insurance Board of Trinidad and Tobago.

<b>Time</b>	<b>Activity</b>
<b>11:15-12:00pm</b>	<p><b>Session 5A: Finding Solutions for the Health Sector</b> Session Chair: Vanessa White-Barrow, School of Allied Health and Wellnes, UTech(Jamaica)</p> <p><b>Urban Settlement and its Implication for Zika: The Case of Trinidad</b> Julian Prescod, Insurance Board of Trinidad and Tobago, Trinidad and Tobago.</p>
<b>11:15-12:00pm</b>	<p><b>Session 5A: Finding Solutions for the Health Sector</b> Session Chair: Vanessa White-Barrow, School of Allied Health and Wellnes, UTech(Jamaica)</p> <p><b>Index of Multiple Deprivation and Percutaneous Intervention: An Analysis from the British Cardiovascular Intervention Society Database</b> Simon G. Anderson, Professor of Population Health Sciences, The George Alleyne Chronic Disease Research Centre, University of the West Indies, Barbados</p> <p><b>Asthma Triggers in Children with Doctor Diagnosed and Undiagnosed Asthma in Jamaica: Knowledge and Attitude</b> Kay Bailey DM, Department of Child and Adolescent Health, UWI, Mona</p> <p><b>Community Property Value and Healthy Diet: Findings from Urban</b> Joette McKenzie M.Sc., CAIHR, UWI, Mona.</p>
<b>12:00 p.m. – 1:00 p.m</b>	<p><b>Session 5B: Sample Size Calculation, (Part III)</b> Session Chair: Marsha Brown, CAIHR, UWI, Mona</p> <p><b>Sample Size Calculation, (Part III)</b> <b>A Primer on Determining and Justifying Sample Sizes for Research (Part III)</b> John D. Keighley, Ph.D. and Johnathan D. Mahnken, Professor of Biostatistics &amp; Data Science, Department of Biostatistics &amp; Data Science, University of Kansas Medical Center</p>
<b>1:00 p.m. – 2:00 p.m.</b>	<b>Lunch Break</b>
<b>2:00p.m.-3:00 p.m.</b>	Closing Exercises



## ABSTRACTS

### Poster/Oral Poster Presentations

#### Abstract #9

##### **Soft and Hard Data in Environmental Policy and Legislation**

Clayton, C. Andrea

Faculty of Shipping and Logistics, The Caribbean Maritime University

Email: aclayton@faculty.cmu.edu.jm

Environmental damage is usually the result of a combination of failures, including inadequate infrastructure, missing price signals and social factors, and culturally-determined patterns of behaviour. Hard data on environmental damage is increasingly well-documented and verifiable through robust methodologies for observation, peer review, correction and refutation; the process of policy development is therefore largely based on this. This results in regulatory strategies based on measurable targets, such as the maximum allowable levels of particular pollutants or the absorption capacity of the recipient environment. However, less-quantifiable, soft data is frequently overlooked, despite its greater salience to the citizens who are among the primary perpetrators and victims of the problem. This paper examines human decision-making and the motivation for patterns of behaviour that impact the environment. Data collection included interviews, focus groups, and questionnaires administered to over 500 participants. The interviews and focus groups were assessed using thematic analysis, and the questionnaires were analyzed using SPSS to identify correlations between the variables. The study found that the primary determinants of outcomes were culture (including group norms) and perceived behavioural control (i.e. whether people thought that their actions would actually have any effect). The study identifies the need for collaborative integration of evidence between hard, statistically verifiable evidence and qualitative data, in areas where cultural norms and perceptions can significantly impact policy and/or legislative outcomes. It recommends that current and future environmental policies and legislation should consider utilizing 'soft' variables that can induce people to behave well or badly.

#### Abstract # 10

##### **Estimate of Contribution Income Lost to Non-Compliant Venezuelan Migrant Workers.**

*Michael L. Raymond – Research Assistant, National Insurance Board of Trinidad and Tobago.*

##### **Aims & Objectives:**

The aim of the paper is to estimate the financial impact of a recent influx Venezuelan migrants into Trinidad and Tobago. The paper focuses on labour market dynamics in the target population and how much salaried workers are added to the existing customer base of the National Insurance System (NIS). The unrepresented event presents challenges for collecting contributions for an on behalf of this group of migrants; with immediate effects by way of contribution income lost to the system. Estimates of this loss are obtained for a one-year period

and compared to average collections to assess how much of an impact this group is having on the local NIS.

**Methods/Models Used:**

The model for estimating the loss in contribution income is internally developed and relies on assumptions for the target group related to: (i) the level of economic active persons (ii) the ratio of Self-Employed Persons (SEPs); (iii) labour force participation rates and (iv) the statistical distribution of incomes for these migrant workers. The model developed as applied to several scenarios to obtain estimates of the contribution income loss if non-compliance was practiced.

**Results & Conclusions:**

The results obtained was that the amount lost to non-compliance was correlated to the number of migrants assumed to reside within the borders of Trinidad and Tobago. Taking into consideration the claims some of these migrants could/would inevitably make; on a net basis, there appeared to be benefits to the NIS (by way of improving sustainability) for allowing participation in the system. Conversely, if non-compliance was adopted, then the system could forgo significant amounts of income and accrue significant liabilities to the labour market system over the medium-to-long term. The paper argues for full participation by Venezuelan (and all other) migrant groups in the NIS.

*21st June 2019.*

**Abstract # 11**

**Influencing policy development through research: Examples from the UWI Faculty of Science and Technology.**

Marcia Ford, Mona Webber, Patrice Francis, Gina-Marie Maddix  
Centre for Marine Sciences, Faculty of Science and technology.

**Aims and Objectives:**

This paper seeks to identify and review the impact that research carried out in the UWI Faculty of Science and Technology has had on influencing decision making and policy in Jamaica over the last 20 years.

**Methods**

The UWI Faculty of Science and Technology has a long history of research into many issues of importance to national development and some of these accomplishments were highlighted during the 2019 UWI Research Days exhibition. Through the review of the relevant policies and interviews with the researchers we will present and demonstrate the valuable contribution that funded research has and continue to make to national development.

**Results and Conclusions**

Research carried out by the UWI-FST has provided evidence-based information that has informed and impacted local, regional and international policies. The research projects, through engagement and collaboration with the relevant decision making agencies has provided data to facilitate the policy development process. Over the past 20 years the faculty has carried out evidenced-based research which has influenced policy related to environmental protection (e.g. Cockpit Country Protected Area boundary, designation of Blue and John Crow Mountain National Heritage Site, designation of the Palisadoes and Port Royal Protected Areas a Ramsar site), renewable energy (e.g. National Energy Policy 2009-2030), occupational health and safety (e.g. NEPA's Guidelines for the Management of Asbestos) and food & agriculture (e.g. Amendment to the Food and Drugs Act ). In addition, research has enabled

Jamaica to fulfill its obligations under critical international conventions and agreements (e.g. The Nuclear Safety and Radiation Protection Act (NSRP) Act, The Ballast Water Act (2017)). Gathering the right data, carrying out detailed analysis and communicating these results in an understandable way has contributed to ensuring that informed policy decisions are made.

#### **Abstract # 16**

##### **Aging indicators, population growth and implications for sub-national population projections in small areal units – Towards building a statistical model for Trinidad and Tobago**

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##### **Background:**

Aging is a common phenomenon in Caribbean societies and perhaps an indicator of prospective trajectories with respect to population growth rates in different spatial contexts. Modeling this phenomenon is likely to inform growth scenarios in the context of sub-national population projections.

##### **Aim:**

Using sub-national geographic spaces, the paper seeks to explore whether there exists a statistical relationship between aging indicators and measures of population growth drawing on intercensal population dynamics in Trinidad and Tobago. The paper also seeks to assess the impact of aging on population growth controlling for other influential population dynamics.

##### **Methods:**

In Trinidad and Tobago, census enumeration areas stratified by urban/rural characteristics will be selected and intercensal changes in selected population attributes including aging will be computed in order to examine their association and impact on population growth. The changes focus on two intercensal periods – 1990-2000 and 2000-2011.

##### **Results:**

The research proffers a model for predicting the exponential population growth rate during intercensal periods for small areas characterizing communities as small areas in Trinidad and Tobago.

##### **Conclusion and Recommendations:**

This paper has implications for establishing parameters albeit different for reproducing similar models in other Caribbean jurisdictions in order to facilitate small area population projections.

#### **Abstract # 18**

##### **Next generation P2Y12 inhibitors improve survival in ACS: An analysis from the British Cardiovascular Intervention Society database.**

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### **Background**

Dual antiplatelet therapy (DAPT) is the standard of care following a presentation with an acute coronary syndrome (ACS) but there remains debate regarding the relative merits of the available P2Y<sub>12</sub> receptor antagonists and the optimal combination with aspirin, particularly in those treated with percutaneous coronary intervention (PCI).

### **Methods**

We performed a retrospective analysis of all PCI procedures undertaken in patients with ACS recorded in the prospectively gathered British Cardiovascular Intervention Society database between 2007 and 2014 treated with DAPT consisting of aspirin and one of either clopidogrel, prasugrel or ticagrelor. The primary endpoint was 30-day all-cause mortality, with secondary endpoints of mortality at 1 and 5 years. Odds ratios (ORs) for mortality were determined from multivariable logistic regression models allowing for clustering by hospital.

### **Results**

Among 252,202 eligible patients with 2 million person-years of observation, 7.4% (19,101) of patients had ticagrelor, 7.4% (n=19,161) had prasugrel and 85.2% (n=220,993) were treated with clopidogrel for ACS. A total of 41,107 (12.2%) patients died during a median of 3.2 years (IQR: 1.6 – 5.2 years) follow-up. Crude mortality rates were 34.7 (clopidogrel), 30.6 (prasugrel) and 36.9 deaths per 1000-person-years for ticagrelor treated ACS. In an age-sex unadjusted multinomial logistic regression analysis, mortality rates at 1 year in those treated with aspirin and ticagrelor was 64% lower (OR 0.34, 95%CI (0.32-0.36)) than those receiving DAPT with clopidogrel. DAPT with prasugrel was associated with a 27% lower mortality compared to clopidogrel (OR 0.73 (0.69-0.77), p<0.0001). Stratifying by ACS status, 1-year mortality age-sex adjusted rates for ticagrelor compared to clopidogrel were 63% lower (OR 0.37 (0.34 – 0.40) in STEMI and 80% lower in NSTEMI (OR 0.20 (0.18 – 0.23), p<0.0001). Reduction in mortality at 1 year in prasugrel versus clopidogrel treated patients were relatively greater (57%) in individuals with STEMI (OR 0.43 (0.40-0.45), p<0.0001) compared to those with NSTEMI (OR 0.64 (0.55-0.74), p<0.0001).

### **Conclusions**

This very large, real-world dataset of patients presenting with acute coronary syndromes demonstrates a significant net clinical benefit favouring the use of ticagrelor and prasugrel in ACS patients for DAPT, over clopidogrel. This analysis concurs with the data from the landmark TRITON and PLATO RCTs and suggests these agents should be considered as the standard of care in the modern management of ACS.

## Oral Presentations

### Abstract # 3

#### **Urban Settlement and its implication for Zika: The Case of Trinidad and Tobago**

Julian P. Prescod

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#### **Theme:**

Health & Environment

#### **Background:**

Urbanization may contribute increasingly to poor living conditions (National Geographic 2019). This may increase the prevalence of vector-borne diseases such as Zika carried by the *Aedes Aegypti* mosquito.

#### **Objective:**

To identify the possible effect of urbanization as a contributor to the prevalence of the Zika virus in Trinidad and Tobago.

#### **Methods:**

The four Health Districts of Trinidad and Tobago were categorized by Municipality from which fifteen regions were identified based on a classification provided by the Human Development Atlas: Trinidad and Tobago (2012). The following variables were used to identify the possible relationship between reported Zika cases in 2016. These variables were Population Density (persons living in an area per square mile), Socioeconomic Status (Poverty Index), the Population Served by the respective Health District and the Child Mortality Rate. Logistic Regression analysis utilizing a Step-wise approach was applied after which non-significant variables were dropped.

#### **Results:**

The Pseudo R<sup>2</sup> (.62) and p-value < .05 suggested that the model was a good-fit. The variable Population Density (PD) with a p-value < .05 indicated significance.

#### **Conclusion:**

The clearing of forested/agricultural area for housing development, which results in urbanization, may create poor environmental conditions that increase the prevalence of vector-borne diseases such as the Zika virus. Environmental factors such as poor waste management coupled with supporting warmth conditions improve the survivability of such vectors attributed to urbanization (Cropper Foundation 2010).

## **Abstract # 8**

**Author: David Smalling**

**Tax Administration, Jamaica**

**Title: The Economics of Taxation**

This paper sets out to identify the key macroeconomic drivers (factors) of tax revenue, these factors are Gross Domestic Product (GDP), Remittances, Inflation, and Exchange Rate Depreciation, Interest Rate and Unemployment. The paper dives deeper to examine how the makeup (various sectors) of the economy behaves vis-à-vis its contribution to tax revenue. A finite distributed lag model was used to estimate the strength and nature of the relationships. The data used in this study covered 45 quarters from June 2007 to June 2018. The interest rate and unemployment rate were dropped for being highly correlated with other independent variables in the model

The results indicate that the model with an F-Statistic of 19.99 is significant at the  $\alpha = 0.05$  level of significance. The probability value of falsely concluding significance is less than 0.000. An adjusted  $R^2$  of 0.6440 means model explains approximately 64% of the variation in tax revenue. There was a mean Variance Inflation Factor of 1.96 and the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity produced a  $\chi^2$  of 1.13 with a probability value of 0.2873, indicating no heteroskedasticity. The results showed that GDP, Remittances and Inflation are significant macroeconomic variables that determine the inflows of tax revenues. After examining each sectors' contribution to tax revenues, finance and insurance, and manufacturing were found to be the highest contributors to tax revenue while the largest contributors to GDP were the wholesale and retail also the agriculture sectors.

## **Abstract # 12**

**Road fatalities in Jamaica 2017-2018. Are there improvements?**

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**Introduction** : Road crash fatalities are the leading cause of death and disability worldwide and is far more prevalent in developing countries like Jamaica. Local statistics from the Road Traffic Agency (RTA) exhibited that motorcyclists, pedestrians, passengers in private motor vehicles, and drivers of private motor vehicles accounted for the majority of fatalities. Cost of care is a societal burden to the nation and hospital resources are sacrificed exponentially. A two year (2017-2018) retrospective review is analyzed to assess our present status and trends, acknowledging the present revision of Road Traffic Act in 2018. Injury prevention is proposed at all strategic levels.

**Method:** A retrospective review was done using data from the Road Traffic Agency in 2017-2018. The crash fatalities for different categories of victims were examined such as pedestrians, motor cyclists and motorists. SPSS version 20 was used to analyze the data.

**Results:** Overall there was an increase of fatalities of 68 victims, an increase of 18 % in the latter year. Similar categories continue to head the list with a significant male: female ratio of 6:1

**Discussion/Conclusion :** A comparison revealed no significant improvement over the study periods and immediate attention is warranted. Law enforcement must be energized and education of all road users must also be pivoted to overhaul a potentially uncontrollable consequence. Much more vigilance is urgently needed in a resource limited country to curtail morbidity and mortality.

### **Abstract # 13**

#### **Statistical modeling of people's perception of threat and decision-making under probabilistic tornado hazard information**

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**Background:** Investigating the effect of the alarm type on people's level of fear and protective decision-making during a tornado event can result in a more effective warning system. There is an ongoing debate, however, on the appropriate method of analysis for the resulting ordinal and Likert type data.

**Objective:** Collecting data about people's responses to hypothetical tornado displays using the Probabilistic Hazard Information (PHI) tool, we study the effect of providing some uncertainty information associated with the threat-occurrence on people's level of fear and chances of taking protective action.

**Method:** We use a Bayesian hierarchical multivariate model with non-informative (Jeffreys') priors to analyze this ordinal data. We demonstrate that the common practice of treating ordinal data as metric can lead to false conclusions, and that the Bayesian approach is more powerful than nonparametric tests for handling this kind of ordinal data.

**Result:** Our method finds that providing uncertainty information about a tornado occurrence through PHI significantly increases people's level of fear and probabilities of taking protective action, compared to the deterministic 'WarnGen' tool currently used by the National Weather Service (USA). As the distance between the tornado and the weather information recipient decreases, the levels of fear and the protective action increase, and vice versa. The level of fear, which can be thought of as the level of perceived risk, is different among different people and can be explained by the differences in their personal traits.

**Recommendation:** Switch over to a PHI-like system from WarnGen.

## Abstract # 15

### **Contributory factors impacting detection status for homicide cases in Trinidad and Tobago – Evidence from the Early 21<sup>st</sup> Century**

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#### **Background:**

Given the spate of homicide cases in Trinidad and Tobago across the first two decades of the 21<sup>st</sup> century, the low rate of homicide detection is disturbing and needs to be redressed. Preliminary analyses show that detection rates have been more favourable dependent on circumstantial characteristics of homicide cases.

#### **Aim:**

The paper is exploratory and seeks to examine a host of main and interaction effects to determine their respective impact of detection status of homicide cases in Trinidad and Tobago.

#### **Methods:**

The Crime and Problem Analysis Branch of the Trinidad and Tobago Service has collected data that permit the establishment of a statistical datafile of homicide cases for the period 2000-2018. Using a host of statistical techniques including binomial logistic regression, the effect of antecedent factors such as time, police jurisdiction, homicide motive, nature of homicide event, age of victim and sex of victim are examined in relation to detection status.

#### **Results:**

A preliminary exploration of the results reveals that the pattern reflecting detection status is more or less the same irrespective of variation in motivation factors, police jurisdiction and annual period. The other factors however provide more impactful results relating to variation in detection status for homicide cases.

#### **Conclusion and Recommendations:**

This paper has implications for establishing a model that can be modified and tested in other national settings to facilitate efforts geared towards increasing detection rates. It also provides a basis for recommendations that have implications for reversing unacceptable trends in homicide cases in Trinidad and Tobago.

## Abstract #17

### **Index of multiple deprivation and percutaneous intervention: An analysis from the British Cardiovascular Intervention Society database.**

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#### **Background**

The impact of socio-economic class on outcomes from percutaneous coronary intervention in populations with access to universal unrestricted health-care are limited.

#### **Methods**

We performed a retrospective analysis of centrally-tracked outcomes from index PCI procedures entered in the British Cardiovascular Intervention Society database between 2007 and 2014 stratified according to quintiles of index of deprivation (from the least deprived to the most deprived). The analyses were restricted to procedures performed in England. The primary endpoint was 30-day all-cause mortality, with secondary endpoints of mortality at 1 and 5 years. Hazard ratios (HR) for mortality were determined from multivariable Cox regression models allowing for clustering by hospital. Sensitivity analyses were performed using multiple imputations.

#### **Results**

Among 437,024 eligible patients with 1.78 million person-years of observation, 40% of patients had PCI for stable coronary artery disease (CAD), 37.7% with NSTEMI and 21.6% were treated for STEMI. Compared to the least deprived, individuals with the most deprived IMD. A total of 52,258 (11.9%) patients died during a median of 3.5 years (IQR: 1.8 – 5.5 years) follow-up. There was a trend of an increase in crude mortality rates (per 1000 person years) with increasing quintile of IMD (from 26.7 per 1000 in least deprived to 28.5 per 1000 in the most deprived),  $P_{\text{trend}} < 0.0001$ . When assessed by indication for PCI only those undergoing intervention for NSTEMI/unstable angina had increased mortality rates as IMD worsened. In an age-sex and indication for PCI adjusted multivariable analyses, mortality rates at 30-days were 14% greater (HR 1.14, 95%CI (1.06-1.24),  $P < 0.0001$ ) in individuals from the most deprived areas compared with those with the least deprived IMD. These findings were similar in mortality at 1-year (HR 1.09, 95%CI (1.04-1.14) and at 5-years (HR 1.10, 95% CI: (1.06-1.16).

#### **Conclusions**

This very large, real-world dataset of patients presenting with acute coronary syndromes demonstrates that deprivation is an independent marker of mortality following presentation with non-STEMI and efforts should be directed at overcoming this. Reassuringly, in the setting of universal healthcare, deprivation does not influence outcomes from stable or STEMI presentation.

## Abstract # 19

### **Asthma Triggers in Children with Doctor Diagnosed and Undiagnosed Asthma in Jamaica: Knowledge and Attitudes.**

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#### **Background:**

Comprehensive asthma management programmes educate asthma cases on the avoidance of asthma triggers. This study compared doctor-diagnosed and non-doctor-diagnosed asthma cases with respect to knowledge of and attitudes to triggers.

#### **Methods:**

The sub-sample of asthma cases from a representative sample of 2,017 Jamaican children aged 2-17 years, recruited in an island-wide, cross-sectional, community-based prevalence multi-stage sampling survey, provided data, gathered via questionnaire, on asthma and allergy symptoms and knowledge of and attitudes (changes to environment in response) to triggers. Data management classified cases according to doctor-diagnosed asthma status (DDAS), asthma severity and knowledge of triggers. Statistical data analysis used Pearson's chi-squared test corrected for survey design (PCTCSD), ordinal (OLR) and binary logistic regression (BLR) models.

#### **Results:**

Some 60% of cases knew 7-10 triggers (highest knowledge score tertile) and 14% made  $\geq 1$  environmental change in response to triggers. PCTCSD revealed no association between DDAS and each of knowledge score tertiles, attitude to triggers, severity of asthma, the socio-demographic factors, age, area of residence and household income. Adjusted estimates from OLR identified sex (*Males vs Females: OR=0.40(95% CI=0.23-0.69), p<0.01*) as the only significant correlate of knowledge score tertiles. BLR identified sex of participants ( $p<0.05$ ), age ( $p<0.05$ ), area of residence ( $p<0.05$ ), household income ( $p<0.05$ ) and severity of asthma ( $p<0.001$ ) as significant correlates of attitude to triggers.

#### **Conclusions:**

DDAS was associated with neither knowledge nor attitude to triggers. However, the study identified correlates of attitudes to triggers that may be the basis for targeted interventions aimed at development of asthma management programmes.

## Abstract #20

### Computing the Multidimensional Poverty Index (MPI) for Jamaica

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#### Background

Poverty has traditionally been measured in one dimension, usually the Foster-Greer-Thorbecke method where persons consuming below a specified line are deemed poor. However, the poor defines poverty much more broadly to include lack of education, health, housing, and much more (Santos and Alkire 2011). Therefore it becomes important to define a new measure that takes into consideration some of the dimensions identified by the poor.

#### Objective

To compute a Multidimensional Poverty Index (MPI) for Jamaica and explore differences between regions

#### Methods

Data used in this research are the Jamaica Survey of Livings Conditions 2017. The computation of the national and regional Multidimensional Poverty Indexes follows the Alkire-Foster method that focuses on household deprivation in three dimensions namely: education, health and Living Standards. The Student's T Test and Chi Squared test are employed to underscore statistical significance across regions.

#### Results

The JSLC 2017 data set had 6904 individuals in three regions : Kingston metropolitan area, other major towns and rural areas. Estimates for the MPI headcount ratio and Confidence intervals are described below:

Jamaica: headcount ratio= 0.131, 95% CI=( 0.123 – 0.139); KMA: headcount ratio=0.083, 95% CI=(0.071 – 0.094); Other Towns: Headcount ratio=0.151, CI=( 0.133 – 0.169)and Rural: Headcount ratio=0.149; 95% CI=(0.137 - 0.162 )

#### Conclusion and Recommendation

Confidence intervals indicate differences in MPI headcount ratios across regions. These differences are between KMA and Other Towns and KMA and Rural. Chi Square Tests of Difference support the observation:  $\chi^2(1, 3702)=43.9892$  and  $\chi^2(1, 5353)=54.8823$ , respectively.



## Abstract # 21

### Community Property Value and Healthy Diet: Findings from Urban Participants in the Jamaica Health and Lifestyle Survey 2016-2017

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**Aim:** To evaluate the relationship between community wealth and healthy diet.

**Methods:** Cross-sectional analysis of urban Jamaicans  $\geq 20$  years from the Jamaica Health and Lifestyle Survey 2016-2017 was conducted. Community wealth was defined as median unimproved land value, from the National Land Agency. A healthy diet was defined as  $\geq 3$  of the following behaviours: fruits and vegetables  $\geq 3$  times/day, fish  $\geq 2$  times/week, sugar sweetened beverages  $< 2$  times/week and a low salt diet. Logistic regression, weighted for survey design, assessed the association between a healthy diet and median land value [MLV] tertiles.

**Results:** Of the 1025 participants (360 men; 665 women; mean age  $47.1 \pm 17.5$  years), 20.3% reported healthy diet (male 18.8%, female 21.6%,  $p=0.332$ ). Men who exercised  $\geq 150$  minutes per week were 2.5 times more likely to have a healthy diet ( $p=0.011$ ). Furthermore, women with the fewest number of household assets were 63% less likely to have a healthy diet ( $p < 0.001$ ). In sex-specific multivariable models adjusted for age, household assets and physical activity, both men (OR 0.51, 95%CI 0.19-1.34,  $p=0.169$ ) and women (OR 0.82, 95%CI 0.51-1.31,  $p=0.401$ ) of lower MLV communities were less likely to have a healthy diet when compared to those in upper MLV communities, though this association did not achieve statistical significance.

**Conclusion:** Community wealth was not significantly associated with healthy diet, however healthy diet was more commonly reported in women having larger number of household assets and men engaging in moderate /vigorous physical activity.

**Abstract # 22**

The Impact of Road Traffic Fatalities on Economic Growth

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Road Safety Unit

*Ministry of Transport and Mining*

**Background:**

The Global Status Report on Road Safety (2015) detailing information from 180 countries posited that road traffic fatalities have reached 1.25 million deaths per year. Road traffic crashes are the leading cause of death for persons between the ages 15 to 29 years old. This level of carnage undoubtedly has enormous economic consequences on nations.

**Objective:**

To investigate the impact of road traffic fatalities on Economic Growth for the year 2013.

**Methods**

An ordinary least square (OLS) multiple regression was employed for cross-sectional data for the year 2013. A random sample of 98 countries was utilized. Data used to conduct this analysis was obtained from the World Bank Development Indicators database and the World Health Organization - Global Health Observatory database where the road traffic fatalities were obtained. Several tests were conducted on the dataset to ensure that the Classical Linear Model assumptions held for the OLS model.

**Results:**

The empirical results confirmed a significant relationship between traffic fatalities and economic growth. The relationship was a significant and negative one, concluding that at a 1% level, for every additional road traffic death, US\$1,421 will be subtracted from GDP per Capita. This is in line with traffic fatalities being in the top ten cause of death in the world.

**Conclusion and Recommendation:**

Road safety continues to be a major challenge for developing countries as it ravages their socio-economic fabric. There is a profound need to ensure that the road safety vaccines are implemented in order stem the tide of traffic crashes

**Abstract # 22****Interviewer Variability and Survey estimates - Quantifying Data Quality**

Novie Younger-Coleman, Shelly McFarlane, Rainford Wilks

CAIHR, UWI, Mona

Ensuring data quality in national health surveys using large numbers of observers is important. Assessment of data quality and validity of survey estimates is desirable. Training and certification contribute to improved data quality but maintenance of quality in the field is often not assessed. Health survey data can quantify observers' influence on precision of sample means. Random effects models estimate association between observers' and supervisors' ("gold standard") independent replicate measurements adjusted for time lag. We estimate the intra-observer correlation coefficients (IOCC), observer design effects and the impact of observer variability on the variance of means. These results quantify survey data quality and suggest optimal intervals between interviewers' measurements and their "gold standard" for the purpose of quality control.

## NOTES



