

## DEPARTMENT OF BASIC MEDICAL SCIENCES

Wayne McLaughlin, BSc Waterloo, PhD UWI  
– Head of Department

### WORK OF THE DEPARTMENT

In 2006/2007 the School of Physical Therapy joined the Department of Basic Medical Sciences, which no doubt makes the department one of the largest with thirty-five academic staff members. Although there are challenges because of the different physical locations and facilities, with cooperation of all the staff in the department we were able to fulfil our principal mandate of teaching and research. We however look forward to the new Basic Medical Sciences Complex which is slated to begin construction in the 2008/09 academic year. The complex will house all five sections with modern teaching and research facilities to accommodate our growing student population. A Quality Audit was undertaken of the department by the Quality Assurance Unit of the Office of the Board for Undergraduate Studies (OBUS). The main recommendations of the audit were to prepare a quality manual and a strategic plan for the department. The first QA review of the department, rather than of Sections will take place in the 2007/08 academic year. The Biochemistry Section began to implement quality assurance procedures towards obtaining ISO17025 certification.



During the academic year the department benefited from the addition of new equipment and also academic staff. The Anatomy Section improved significantly in its delivery of histology practicals as a result of the installation of several plasma screens, audio visual system, a projection microscope and computers. A new bandsaw was also purchased for the Gross Anatomy laboratory. Several offices and laboratories were also equipped with new air condition units. A new -80C ultra-low freezer was also installed in the Biochemistry Section. The computer facilities and internet access were upgraded through the laying of fibre optic cabling with the main campus and the Section of

Physical Therapy. A new 15-seater bus was also purchased for the Section of Physical Therapy. In the next academic year we will continue to improve the research equipment.

In 2006/07 student registration was about the same in most programmes except the FPAS Biochemistry, Biotechnology and Molecular Biology majors which grew by 26% over last year. There were 211 students registered in these majors. BB Med Sci programme which had 15 students was down by 3 from the previous year. One-hundred and sixty-one new students were registered in the MBBS programme and 13 in the Physical Therapy programme. Twelve students were accepted into the postgraduate programme.

Members of the academic staff and their postgraduate students participated in several international conferences, and were also successful in attracting significant research funds of approximately US\$300,000. Drs. R. Irving, J. Mills, R. Wright-Pascoe and W. McLaughlin were awarded a research grant through the Mexican Program for International Cooperation for Development. The team will work with collaborators from the Instituto Nacional de Ciencias Medicas y Nutrition – Salvador Zubiran. The per capita publication rate for the department was 1.14, slightly down from the previous year.

The Department welcomed several new members of staff. Drs. Keerti Singh, Patrick Lodenquai, Roger Hunter, Shamir Cawich and R. Shetty joined the academic staff in Anatomy. Ms Carron Gordon, Sonja Williams and Gillian Hudson-Ducasse were welcomed as lecturers in Physical Therapy. Dr. Dalip Ragoobirsingh was promoted to Professor of Medical Biochemistry and Diabetology and Ms Thornia Smith was promoted to the post of Senior Administrative Assistant.

The Department said farewell to Professor Errol Morrison, Drs. Antony D'Souza, Liris Benjamin and Larry Daniels. Dr. Paul Singh was on sabbatical leave.

## STAFF AWARDS

Professor Helen Asemota

- University Award for Teaching Excellence - Shaw University, North Carolina, USA, April 2007.

## PAPERS PRESENTED

- Bahado-Singh, P.S., Wheatley, A.O., Osagie, A.U., Boyne, M., Morrison, E.Y.St.A, Ahmad, M.H. and Asemota, H.N. (2006) “Glycemic Indices of some commonly eaten Caribbean foods and dietary intervention using low glycaemic index foods to achieve normoglycaemia in type 2 Diabetics.” Morgan State University 2nd International Complimentary and Alternative Medicine Conference, Baltimore, U.S.A. May 2006. Pg 4
- Bahado-Singh, P.S., Wheatley, A.O., Osagie, A.U., Boyne, M., Morrison, E.Y.St.A, Ahmad, M.H. and Asemota, H.N. (2006) “Lifestyle dietary intervention using low glycemic index foods for the management of type 2 diabetes in the Caribbean.” International Diabetes Federation 19th Congress, Cape Town, South Africa. December 2006
- Cawich, S.O. (2007) “A Critical Evaluation of Resuscitative Thoracotomy in the Caribbean.” Caribbean College of Surgeons 5th Annual Scientific Conference, Coconut Bay Hotel, St Lucia, June 2007
- Dilworth, L., Asemota, H., Green, C. and Bailey, D. (2007). “Bioactive compounds in commonly eaten foods and their impact on animal nutrition.” 121st AOAC International Annual Meeting and Exposition, Anaheim, California, USA.
- Dilworth, L., Asemota, H., Stennett, D., Bailey, D. and Green, C. (2007). “Effects of Bioactive Compounds from commonly eaten Caribbean foods on blood glucose, lipids and kidney function in normal and genetically modified hypercholesterolemic rats.” Life Sciences Conference, July 2007. Glasgow United Kingdom.
- Gardner, M, (2006) “Context and dating of a skull with treponemal disease found at Bull” UISPP (Union International des Sciences Pre et Proto Historiques) XV Congress, Lisbon, Portugal Sept.
- Green, C.O., D. H. Bailey, L. L. Dilworth, A. O. Wheatley, H. N. Asemota (2007). “Flavonoid Biomolecules from Jamaican Citrus: Characterization and Nano-particularization for Potential Biomedical Application.” 15th International

Conference on Composites or Nano Engineering (ICCE-15), July 2007 in Haikou, Hainan Island, China.

- Riley C. K. , S. A. Adebayo, A. O. Wheatley, H. N. Asemota. (2007). "Effect of Dioscorea Yam Glycosidic Biomaterials on the Dissolution Profile of Paracetamol." 15th International Conference on Composites or Nano Engineering (ICCE-15), July 15-21, 2007 in Haikou, Hainan Island, China.
- Stennett, D., H. Asemota, F. Oladeinde, A. Wheatley, L. Dilworth, O. Simon, C. Hohmann, Y. Bronner, D. Hui and J. Bryant (2007). "Hepatic and Nephrotic Changes Induced by Bitter Yam Biomaterials in Transgenic Mice Model of Hypercholesterolemia." 15th International Conference on Composites or Nano Engineering (ICCE-15), July 15-21, 2007 in Haikou, Hainan Island, China.
- Ragoobirsingh D and A. Barceló (2006) "Diabetes Education Curriculum for the Caribbean." 19th World Diabetes Congress, December 3-7, 2006 Capetown, South Africa. Diabetes Medicine (Special Supplement): p999.

## PUBLICATIONS

### Books and monographs

- \* Ragoobirsingh D and Ann Fullick. Human and Social Biology for Caribbean Secondary Education Certificate, Pearson/Longman Publishing for the Caribbean, London, England, 2006.

### Technical Reports

- \* Ministry of Health and Leptospirosis Technical Working Group (2006). Human Leptospirosis Protocol – Jamaica.

### Refereed Journal Articles

WIMJ = West Indian Medical Journal

- \* Agoreyo, B. O., Golden, K. D. Asemota, H. N. and A.U. Osagie. 2007. Post harvest Biochemistry of the plantain (*Musa paradisiacal* L). *Journal of Biological Sciences* 7 (1) 136-144.
- \* Bahado-Singh, P. S., Wheatley, A. O., Ahmad, M. H., Morrison, E. Y. St. A and Asemota, H. N. (2006). Food

processing methods influence the glycaemic indices of some commonly eaten West Indies carbohydrate-rich foods. *British Journal of Nutrition*. 96: 476-481.

- \* Barrett K, D. McGrowder, P. Brown and D. Ragoobirsingh. Increased PC-1 Phosphodiesterase Activity and Inhibition of Glucose Uptake in Adipocytes of Type 2 Diabetic Rats. *J. Molecular and Cellular Biochemistry*. 293: 9-14.(2006).
- \* Brown, P.D., S. Badal, S. Morrison and D. Ragoobirsingh (2007). Acute impairment of insulin signalling by dexamethasone in primary cultured rat skeletal myocytes. *Molecular and Cellular Biochemistry* 297 (1-2): 171-177.
- \* Brown, P. D., and C.Ngeno (2007). Antimicrobial resistance in clinical isolates of *Staphylococcus aureus* from hospital and community sources in southern Jamaica. *International Journal of Infectious Diseases* 11(3): 220-225.
- \* Brown, S. E., B. O. Been and W. A. McLaughlin (2007). The lethal yellowing (16SrIV) group of phytoplasmas. *Pest Technology* 1(1): 61-69.
- \* Cawich, SO., DIG Mitchell, MS Newnham, M Arthurs. (2006). A Comparison of Open and Laparoscopic Cholecystectomy by a Surgeon in Training. *WIM J*. 2006; 55 (2): 103-109.
- \* Cawich, SO., DIG Mitchell, EW Williams, ME McFarlane, A Martin, J Plummer, G Blake, MS Newnham, H Brown. (2007). Emergency Room Thoracotomy in Jamaica: A Case Controlled Study. *Internet Journal of Surgery*. 5 (5): 311-315.
- \* Cawich, SO., ME McFarlane, DIG Mitchell. (2007). Fistuloclysis: A Novel Approach to Management of Enterocutaneous Fistulae. *Internet Journal of Surgery*. 9(2).
- \* Cawich, S.O., MEC McFarlane and DIG Mitchell. (2007). Fistuloclysis: Cost Effective Nutrition for Patients with Enterocutaneous Fistulae. *Internet Journal of Third World Medicine* 4(2).
- \* Cawich, S.O. TN Gibson, DIG Mitchell, EW Williams and L Simpson (2007). Adult Intussusception from an Inflammatory Fibroid Polyp: A Case Report and Review of the Literature. *Internet Journal of Pathology*. 6 (3): ISSN1528-8307.

- \* Dilworth, L.L., Omoruyi, F. O. and Asemota, H.N. (2007). In vitro availability of some essential minerals in commonly eaten processed and unprocessed Caribbean tuber crops, *BioMetals* 20:37-42.
- \* Duff E. M, O'Connor A, McFarlane-Anderson N, Wint YB, Bailey EY, Wright-Pascoe R. (2006). Self-Care, Compliance and glycaemic control in Jamaican adults with diabetes mellitus. *WIMJ*. 55:232-236.
- \* Green, C., Wheatley, A. O., Osagie, A. U., Morrison, E. Y. St. A and Asemota, H. N. (2007) Determination of polymethoxylated flavones in peels of selected Jamaican and Mexican Citrus (*Citrus* spp.) cultivars by High Performance Liquid Chromatography (HPLC). *Biomedical Chromatography* 21: 48-54.
- \* Gossell-Williams M, Fletcher H, McFarlane-Anderson N, Jacob A, Patel J, Zeisel S. (2006). Dietary intake of choline and plasma choline concentrations in pregnant women in Jamaica. *WIMJ*. 54: 355-359.
- \* Gossell-Williams M, Simon O, Young L and West M. (2006) Choline supplementation facilitates short-term memory consolidation into intermediate long-term memory of young Sprague-Dawley rats. *WIMJ*. 55 (1): 4-8.
- \* Gossell-Williams M, Simon O. R and West M. E. (2006). The past and present use of plants for medicines: A review. *WIMJ*. 55 (4): 217-218.
- \* Gossell-Williams M, and J. Benjamin. (2006) CHOLINE: are our university students eating enough? *WIMJ*. 55(3):197-199.
- \* Gossell-Williams M, A. Davis and N. O'Connor. (2006) Inhibition of testosterone-induced hyperplasia of the prostate of Sprague-Dawley rats by pumpkin seed oil. *Journal of Medicinal Foods* 9 (2):284-6.
- \* Green, C., Wheatley, A.O., Osagie, A.U., Morrison, E.Y.St.A and Asemota, H.N. (2006) Determination of polymethoxylated flavones in peels of selected Jamaican and Mexican Citrus (*Citrus* spp.) cultivars by High Performance Liquid

Chromatography (HPLC). *Biomedical Chromatography* 21: 48-54.

- \* Irving, R. R., J. L. Mills, E. G. Choo-Kang, E. Y. Morrison, R. A. Wright-Pascoe, W. A. McLaughlin and A. M. Mullings (2007) Depressive symptoms in children of women with newly diagnosed type 2 diabetes. *Primary Care Companion: J Clinical Psychiatry*: 9: (1) 21-24.
- \* Jacob A, Simon O, Reese P and Singh P. (2007). Demonstration of antihistamine properties with AST-1, a bioactive extract from garden slugs (*Diplosolenodes occidentalis*). *WIM J.* 56 (1):11-16.
- \* Kahwa EK, L.A. Sergeant, A. McCaw-Binns, N. McFarlane-Anderson. (2006) Anticardiolipin antibodies in Jamaican primiparae. *Journal of Obstetrics and Gynaecology.* 26: 122-126.
- \* Levy Arkene SA, Simon Oswald R, Shelly Janet and Gardner Michael. (2006). 6-Shogaol reduced chronic inflammatory response in the knees of rats treated with complete Freund's adjuvant. *BMC Pharmacology* 6: 12.
- \* Levy N., G. Bramwell, A. Wierenga, H. Fletcher and N. McFarlane-Anderson. (2007). Booking blood pressures and plasma nitrite in Jamaican women with pre-eclampsia. *J. Obstetrics and Gynaecology* 27(4): 383-387.
- \* McAnuff-Harding, M.A., Omoruyi, F. O. and Asemota, H. N. (2006). Intestinal disaccharidases and some renal enzymes in streptozotocin-induced diabetic rats fed sapogenin extract from bitter yam (*Dioscorea polygonoides*). *Life Science* 78 (22):2595-600.
- \* McGrowder, D. and P.D.Brown (2007). Effects of nitric oxide on glucose transport: in vivo and in vitro studies. *Asian Journal of Biochemistry* 2(1): 1-18.
- \* Morrison E. Y. St A., D. Ragoobirsingh and S. A. Peters (2006). The Unitarian Hypothesis for The Aetiology of Diabetes Mellitus. *Medical Hypotheses Journal.* 67 (5):1115-1120.
- \* O'Connor A, McFarlane-Anderson N, Duff EM, Wright-Pascoe R., Wint YB. (2006). High levels of F2-isoprostanes in

Jamaican adults with diabetes mellitus. *International Journal of Diabetes and Metabolism*. 14: 51-54.

- \* Omoruyi, F.O., Dilworth, L. and Asemota H.N. (2007). Anti-Nutritional factors, zinc and calcium in some Caribbean tuber crops and the effect of boiling and roasting. *Nutrition and Food Science*, 37: (1) 8-15.
- \* Omoruyi, F. O. McAnuff-Harding, M. A. and H. N. Asemota (2006). Intestinal lipids and minerals in Streptozotocin-induced diabetic rats fed bitter yam (*Dioscorea polygnoides*) Sapogenin extract. *Pakistan Journal of Pharmacology Science*. 19(4): 269-275.
- \* Palmer C., Golden, K., Daniels L. and H. Ahmad. (2007). ACC deaminase from *Issatchenkia occidentalis*. *Journal of Biological Sciences* 7 (1), 188 – 193.
- \* Riley, C. K., Adebayo, S. A., Wheatley, A. O., Ahmad, M. H. and Asemota, H. N. (2006). Fundamental and Derived Properties of Yam (*Dioscorea* spp.) Starch Powders and Implications in Tablet and Capsule Formulation. *Starch/Stärke*. 58: 418-424.
- \* Riley, C. K., Andrew O. Wheatley and H. N. Asemota. (2006). The physiochemical properties of starches from yams (*Dioscorea* spp.) grown in Jamaica. *European Journal of Scientific Research* 15 (2): 207-219.
- \* Riley, C.K., Adebayo, S.A., Wheatley, A.O. and H. N. Asemota (2006). Isolation and Characterization of Starches from eight *Dioscorea alata* cultivars grown in Jamaica. *African Journal of Biotechnology* 5(17): 1528-1536.
- \* Roye, M., A. Collins, M. Brown, C. Stewart, S. Turner, M. Chin, L. Fisher, P. Tennant and W. McLaughlin (2007). Plant virus and phytopathology research in Jamaica: A Review. *Americas Journal of Plant Science and Biotechnology* 1(1): 36-45.
- \* Saunders M and K. Golden. (2006). Determination of the capsaicinoid content of Jamaican peppers before and after microwave irradiation using HPLC. *Jamaican Journal of Science & Technology* 16&17: 30- 37.

- \* Williams, E.W., SO Cawich, R Irvine, S Shah, J Williams-Johnson, G Blake, P Singh, N Hall, K Espinosa, S French. (2007). Lessons from Surgical Embolectomy for Saddle Pulmonary Embolism: A Case Report and Literature Review. *Internet Journal of Thoracic and Cardiovascular Surgery* 10(1).
- \* Wint Y. B, E. M. Duff, N. McFarlane-Anderson, A. O'Connor, E. Y. Bailey, R. A. (2006) Wright-Pascoe. Knowledge, motivation and barriers to diabetes control in adults in Jamaica. *WIMJ*. 55: 330-333.

Other Peer Reviewed Publications/Abstract

- \* Choo-Kang E, Irving R, James J, Wright- Pascoe R. Day to day variation of Microalbumin excretion: *Clinical Chemistry* 2006 , 52 (6)
- \* Asemota, H.N., Dilworth, L.L., Wheatley, A.O., Morrison, E.Y., Osagie, A.U., Stennett, D., Green, C.O., Bailey, D. (2006). Bioactive compounds in Jamaican food crops. *WIMJ* (Supp 02) P-5, 75.
- \* Benjamin, L. C. A. McCaw-Binns, D. Nevins, L.E. Young-Martin and G.C. Benjamin "Barriers to sexually transmitted infections and HIV Prevention Practices Amongst University Students: Are Condoms Barriers?" *WIMJ* 2007, 56 (Suppl. 1): 36.
- \* Campbell-Shelly J and Simon O. (2006) Anti-inflammatory effects of pimento oil in a rat arthritic model. *WIMJ* 55: (Suppl 4).
- \* Cawich, S.O., DIG Mitchell, A Martin, MS Newnham, VE Dacosta, T Lewis, H Brown and L Christie. (2007) Can we Improve Therapeutic Outcomes after Obstetric Anal Sphincter Injury at the University Hospital in Jamaica? *WIMJ*. 56 (1):53(A).
- \* Cawich, S.O., EW Williams, DIG Mitchell, ME McFarlane, G Blake, MS Newnham, A Martin, JM Plummer and H Brown. (2007). Does Emergency Room Thoracotomy really save lives in Caribbean Countries? *WIMJ*. 56 (1):54(A).
- \* Dilworth, L.L., Omoruyi, F.O., Gardner, M., Reid, W. and Asemota, H. (2006) Morphological changes in Wistar rats

associated with consumption of sweet potato (*Ipomoea batatas*) phytic acid extract. WIMJ 55: (Suppl. 4) 23.

- \* Gossell-Williams M, Williams-Johnson J and Simon O. (2007) Trends from the University Hospital of the West Indies of non-fatal intentional and accidental self-poisoning with benzodiazepines, phenothiazines, tricyclic antidepressants, paracetamol and non-steroidal anti-inflammatory drugs. WIMJ. 56, Supplement 1.
- \* Green, C.O., Wheatley, A.O., Osagie, A.U., Dilworth, L.L., Mills, J., Morrison, E.Y.St. A., Asemota, H.N. (2006). Characterization of Polymethoxylated flavones in Jamaican and Mexican Citrus peel by high performance liquid chromatography. WIMJ 55(4): 37
- \* Melville T, Gossell-Williams M & Simon O. (2006). The effect of pumpkin seed oil on vascular reactivity in hypercholesterolaemic male Sprague-Dawley rats. WIMJ. 55, Supplement 4.
- \* Pepple, D.J., Mullings, A.M and Reid, H.L. (2006). Fetal haemoglobin level in pre-eclampsia. WIMJ. 55 (2); 130.
- \* Riley, C. K., Andrew O. Wheatley, A.S. Adebayo. Mohammed H. Ahmad, Errol Y. St. A. Morrison and Helen N. Asemota. (2006). Effect of micrometric properties on the in vitro digestibility of starches extracted from yams (*Dioscorea* spp.) grown in Jamaica. WIMJ 55: 42.
- \* Stennett DK, Wheatley AO, Simon O, Oladeinde F, Dilworth LL & Asemota HN. (2006). Liver and kidney function analysis in hypercholesterolaemic mice fed bitter yam proprietary preparation. WIMJ. 55, Supplement 4.
- \* Thompson M, Simon O, Singh P. (2006). Folic acid reverses hyperhomocysteinemia and endothelial dysfunction caused by dietary methionine supplementation. WIMJ. 55, Supplement 4.

## **INCOME GENERATION**

Research Grants:

Professor Helen Asemota, Dr. Andrew Wheatley,  
Dr. Lauriann Young-Martin

- Environmental Health Foundation: “Nutritional supplement for harm reduction in illicit drug addiction”. Ja \$750,000

Drs Rachael Irving, James Mills, Rosemarie Wright Pascoe, Wayne McLaughlin

- Mexican Program for International Cooperation for Development: “Early-Onset Type 2 Diabetes: Metabolic and genetic characterization in Mexico and Jamaica” US\$100,000

Dr. Wayne McLaughlin, Mr. Compton Beecher, Dr. George Carmody

- Principal’s New Initiative Fund: “Genetic variation in short tandem repeat (STR) loci in the Jamaican population” Ja \$600,000

Dr. Dagogo Pepple

- Principal’s New Initiative Fund: “Maternal blood viscosity and perinatal outcome in homozygous sickle cell disease” J\$1.4 M

Dr. Oswald Simon and Nordia O’Connor

- CHASE Funds: “The anti-diabetic potential of noni juice” Ja\$895,000

Dr. Keerti Singh, Professor Joseph Frederick, Dr. Michael Boyne, Dr. William Aikens, Professor Norma McFarlane Anderson, Dr. Wayne McLaughlin

- Principal’s New Initiative Fund: “Evaluation of oxidative stress, sperm DNA damage and genetics in male fertility and outcome of IVF and ICSI cycles” J\$1.5 M.

## PUBLIC SERVICE

Professor Helen Asemota

- International Consultant for Biotechnology. United National Food and Agriculture Organization (UN-FAO). Tajikistan
- Member, Delegate, Jamaica/Mexico VII Binational Commission
- Member, Editorial Advisory Board of the International Journal of Biomedical and Health Sciences

- Founding Editor, State-of-the-art Strategies for Reaching Unreached Populations for Education, Development and Sustainability (STEPS-UP)

Dr. Paul Brown

- Member, Technical working group on Leptospirosis, Jamaica

Mr. Michael Gardner

- Executive member, Jamaica Historical Society

Dr. Kerith Golden

- Vice Chairman, Stock Form Road Citizens Association, Golden Spring, St. Andrew
- Member, Editorial Advisory Board for Stewarts Post harvest Review.

Dr. Maxine Gossell-Williams

- Vice President, Optimist Club of North St. Andrew
- Pharmacology Section Representative, Ministry of Health

Professor McFarlane-Anderson

- Member, International Proxy Parents Education Committee
- Member, Stella Maris HIV AIDS Ministry
- Member, Friend of Foundation for International Self Help (FISH).

Dr. Wayne McLaughlin

- Deputy Chairman, Biosafety Committee, National Commission on Science and Technology, Jamaica
- Council Member, Jamaica Society for Agricultural Sciences

Professor Dalip Ragoobirsingh

- Chief Examiner, CXC, CSEC Human & Social Biology.

Dr. Oswald Simon

- Observer, Technical Advisory Committee for the CARICOM Drug Testing Laboratory

Dr. Paul Singh

- Member, Caribbean Poison Information Network Management Committee

## CATEGORIES OF STUDENTS

BB Med Sci.

Number of First Class Honours = 8

BSc Biochemistry/Biotechnology/Molecular Biology

Number of First Class Honours = 3

Physical Therapy

Number of First Class Honours = 2

Postgraduate Degrees Awarded:

Lorenzo Gordon	–	PhD Biochemistry
Patience Bazuaye	–	PhD Molecular Biology
Pamela McLaughlin	–	PhD Molecular Biology
Arkene Levy	–	PhD Pharmacology
Grace-Ann Bramwell	–	MPhil Biochemistry
Suzette Curtello	–	MPhil Biochemistry
David Garwood	–	MPhil Biochemistry
Tricia Miles	–	MPhil Biochemistry
Adrian Spence	–	MPhil Molecular Biology
Mark Grey	–	MPhil Pharmacology
Christopher Murray	–	MPhil Pharmacology
Kencliff Palmer	–	MPhil Pharmacology
Tamika James	–	MPhil Physiology

