

## DEPARTMENT OF BASIC MEDICAL SCIENCES

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### WORK OF THE DEPARTMENT



**T**hroughout the academic year under review, the Department was confronted with several challenges. The most serious among these challenges was the requirement to contribute \$6 million towards the department's annual material budget of \$7.6 million. Also, the department had to freeze staff vacancies and fill some essential academic positions at lower levels. Fortunately for us, the budgetary short-fall was met by the increased intake of full-fee paying

medical students. But then we encountered difficulty to accommodate the increased number of students in our small lecture theatres and laboratories. However, towards the end of the academic year, the department received some help to solve its accommodation problems. This help was provided in the form of funding for expansion of one lecture theatre and remodelling of one laboratory. Hopefully, in the new academic year the refurbishment of the department will continue so that the increased number of students entering the department's programmes would be adequately accommodated and be provided with modern teaching and laboratory equipment that is consistent with a student-centered facility.

Despite the challenges encountered during the year, the academic programmes of the department were completed with satisfaction. For example, the three undergraduate programmes offered (B.Med.Sc/MBBS, BBMedSc., BSc Biochemistry) in the department enjoyed greater than 80% success rate in the courses. Even those courses that were offered to programmes outside of the department enjoyed a similar success rate. This level of performance is a reflection of the Lecturers' excellent delivery of the contents of the courses. Endorsement of this level of performance was received from the students in the course assessment instruments. Concerns were expressed by both staff and students that most of our laboratory equipment is either non-functional or in need of repairs.

Laboratory equipment obsolescence was also a limiting factor to the progress of the postgraduate programmes. The lack of finance for students' upkeep and the purchase of research materials continue to represent the greatest retarding influence on the rate of students' progress during the pursuit of postgraduate degrees in the department. Because of this financial deficiency, many students are involved in outside employment which hinders the progress of their research and significantly reduces the rate of completion of their postgraduate degrees. This situation is untenable and we must work towards improving the available finance for postgraduate research. In this regard, we have embarked on some new initiatives (see later) to increase our technological tools for research and to generate income to fund these activities. The postgraduate students have also been involved in seeking funding for their research from the School for Graduate studies & Research. Some students have also obtained assistance from overseas universities to undertake short periods of attachment to carry out part of their research in well-established laboratories with modern equipment. These students have benefited from these activities in terms of acquiring new research skills which have enabled them to either complete their degrees within the prescribed period or upgrade their degree status from Master's to Doctoral level.

While we continue to develop the new initiatives, we will be missing a key member of staff who assisted in laying the foundation for the development of these initiatives. This staff member is Dr. Cyril Fletcher who retired early in the academic year after over 30 years of exceptional service to the Faculty of Medical Sciences and The University of the West Indies. Dr. Fletcher's contributions to the teaching of Anatomy have been significant and he has been rewarded with exceptional performances from many students who he trained. Also, he is well respected by his peers; he will be missed by all of us. But as we said good bye to Dr. Fletcher, we also welcomed Dr. Liris Benjamin and Dr. Larry Daniels who joined the Department as Lecturers in Neurophysiology and Molecular Biochemistry respectively. We also offered congratulations to Dr. Norma McFarlane-Anderson who was promoted to the professorship in Biochemistry. There was also a change in Headship of the Department as a result of Dr. Oswald Simon completing his three-year term of office at the end of the academic year. Dr. Wayne McLaughlin is the new head who will guide the Department through the new academic year. It is expected that he would continue to develop the department from the foundation of new initiatives that were introduced by the staff and Heads of Sections led by Dr. Simon. There is therefore much to expect in terms of advancement of the Department in the new academic year and beyond. This expectation can be realized, because the staff are all energized and prepared for this new thrust to increase the visibility and the research output of the Department of Basic Medical Sciences.

### **STAFF AWARDS**

Dr. Sherline Brown: Awarded a Research Fellowship to identify and characterize insect vector(s) of lethal Yellowing Disease of Coconuts in Jamaica

Professor Omkar Parshad: Received an award from the National Council for Indian Culture in Jamaica. This award is for outstanding contribution in the areas of education, social service and promotion of culture in Jamaica.

Dr. Dalip Ragoobirsingh: Awarded a Fulbright Fellowship.

### **NEW INITIATIVES INTRODUCED IN 2004/2005**

- . • A Forensic DNA-Typing laboratory was established for teaching and to provide fee-paying services.
- . • An analytical food-microbiology laboratory was established to provide fee-paying services.
- . • A cell-culture laboratory was established for teaching and research.
- . • Introduction of fee-paying services for Toxicity studies and efficacy studies of natural products.

### **Areas to be addressed in Academic Year 2005/2006 and beyond**

- . • Additional Lecture Theatres, Research and Teaching Laboratories and Staff Offices must be built.
- . • Obsolete laboratory equipment should be replaced with modern equipment.
- . • The Department's budget should be increased to a realistic level that would permit purchasing of teaching and research materials.
- . • Funding for post-graduate training should be increased.
- . • The Department should work towards improving the completion rate of the post-

graduate degrees.

- There should be improvement in the maintenance service of the research and general laboratory equipment.
- The Animal care facilities should be refurbished.

## PAPERS PRESENTED

*WIMJ = West Indian Medical Journal*

- **McFarlane-Anderson N.** Stem Cell Research: A local perspective, 1st Caribbean Ethics Conference, April 29 -30, 2005, Mona, UWI.
- **Badal, S., Brown, P.D., and Ragoobirsingh, D.** (2004). In Vitro Studies on the Effect of Nitric Oxide on IRS-1 Phosphorylation in Signal Transduction. Proceedings of the Faculty of Medical Sciences 13<sup>th</sup> Annual Research Conference and Workshop on Violence and Violence Prevention. November 10 -12, 2004, UWI, Mona, Kingston 7, Jamaica. *WIMJ*, Vol. 53 (Suppl. 5): 25.
- **Badal, S., Brown, P.D. and Ragoobirsingh, D.** (2005). In Vitro Studies on the Effect of Nitric Oxide on IRS-1 Phosphorylation in Insulin-mediated signal transduction. Proceedings of the Caribbean Health Research Council 50<sup>th</sup> Scientific Meeting. April 20 -23, 2005, Tobago. *WIMJ* 54 (Suppl. 2): 32.
- **McGrowder, D., Brown, P. and Ragoobirsingh, D.** (2005). Decreased in vitro glucose uptake by S-Nitrosoglutathione in Adipose Tissue of Normal and Diabetic rats. Proceedings of the University of the West Indies Diabetes Outreach Project <sup>th</sup> International Conference on Diabetes, March 6, 2005, Kingston, Jamaica. *WIMJ* Vol. 54 (Suppl. 1):
- **Gossell-Williams, M., Fletcher, H., McFarlane-Anderson, N., Jacob, A., Patel, J., Zeisel, J. S.,** (2005). Free plasma choline concentrations during the first to second trimester of pregnancy in Jamaican women: Implications of inadequate dietary intake. Caribbean Health Research Council 50<sup>th</sup> Annual Council and Scientific meeting April 20 -23. *WIMJ*. Vol 54 (Supp 2): 74 (P-58).
- **Moodie-Henry, B., West, M., Gossell-Williams, M.** (2005). An analysis of the pharmacological actions of alkaloids from *Borreria verticillata* Experimental Biology meeting April 2 6. Abstract # 319.16, San Diego, USA.
- **Rray M., Singh P.D.A., Simon O.R. and Scott P.** (2005). The antihypertensive effect of Monilcara Zopota in DOCA-Salt rats. FASEB Conference, April 2-6, 2005 in San Diego, USA and published in the *FASEB Journal*, 19(4), 71.
- **Wisart, J., Kulkarni, S., and Parshad, O.** (2004). Pre-and postpartum depression in Jamaican women attending antenatal clinic at the University Hospital of the West Indies. *WIMJ*. 53(5):14.
- **Parshad, O.** (2004) Role of Yoga in wellness & management of life-style diseases. 18<sup>th</sup> SRC Annual National Conference on Science and Technology, Nov. 23 -26, Knutsford Court Hotel, New Kingston.
- **Parshad, O.** (2005) Gender selection: Past, present and Future. 4<sup>th</sup> Perinatal Conference, Feb. 11 -13, Main Medical Lecture Theatre, UHWI.
- **Lusia, A., Philip, S., Jones, A., and Gardner, M.** "Palopathological Analysis of Pre-Columbian Skulls from Hellshire, Jamaica." Paleopathological Conference, Rio De Janeiro, Brazil, July 27 -29, 2005.
- **Crawford, T., Gardner, M., and McGrowder, D.** "The Socio-Biological Factors Governing Absolute Poverty and Sex, in Terms of the Number of Children Produced." Caribbean Studies Association Conference, Santo Domingo, Dominica Republic, May 30 to June 4, 2005.
- **Fisher L., Tennant, P. and McLaughlin, W.** 2005. Distribution and molecular characterization of Citrus Tristeza Virus in Jamaica. The Jamaican Society for

- . • **Bennett, S. M., Tennant, P. and McLaughlin, W.** 2005. Identification of Citrus viroids isolates in Jamaica by RTPCR and SSCP. The Jamaican Society for Agricultural Sciences (JSAS) 16<sup>th</sup> Annual Conference June 15 -16, 2005.
- . • **Brown, S. E., Been, B. O. and McLaughlin, W.** 2005. Identification of lethal yellowing group (16SrIV) phytoplasmas in the weeds *Stachytarpheta jamaicensis*, *Macroptilium lathyroides* and *cleome rutidosperma* in Jamaica. 7<sup>th</sup> Conference, Faculty of Pure and Applied Sciences, UWI Mona 16<sup>th</sup>-19<sup>th</sup> May, 2005.
- . • **Bennett, S. M., Tennant, P. and McLaughlin, W.** 2005. Molecular characterization, prevalence and distribution of citrus viroids in citrus in Jamaica. 7<sup>th</sup> Conference, Faculty of Pure and Applied Sciences, UWI, Mona 16<sup>th</sup>-19<sup>th</sup> May, 2005.
- . • **Fisher L., Tennant, P. and McLaughlin, W.** 2005. Detection and differentiation of Citrus tristeza virus (CTV) in Jamaica using ELISA, RT-PCR, DNA hybridization and RFLP. 7<sup>th</sup> Conference, Faculty of Pure and Applied Sciences, UWI, Mona 16<sup>th</sup>-19<sup>th</sup> May, 2005.
- . • **McLaughlin W.** 2005. "The Role of Regulatory Agencies in Monitoring and Inspecting Biotechnology and Biosafety in the Caribbean". Regional Biotechnology Workshop sponsored by FAO, the CARICOM Secretariat and CARDI, April 18 -20, 2005 Trinidad.
- . • **Brown, P. D.** (2004). Tissue penetration of anti-infectives. World Conference on Dosing of Anti-infectives, Nuremberg, Germany, September 9 -11, 2004.
- . • **Brown, P. D.** (2004). Leptospirosis seroprevalence and diagnosis in Jamaica. MOH/PAHO Conference on Emerging and Re-emerging pathogens of public health significant, Kingston, Jamaica, December 8, 2004.
- . • **Brown, P. D.** (2005). Leptospirosis in Jamaica: Public Health Significance. MOH/VPH Public Health Inspectors Seminar, Kingston, Jamaica, January 26, 2005.
- . • **McGrowder, D., Brown, P. D., Ragoobirsingh, D** (2005). Decreased in vitro glucose uptake by S-nitrosoglutathione in adipose tissues of normal and diabetic rats. 11<sup>th</sup> Annual International Conference of the UWI Diabetes Outreach Project, Kingston, Jamaica, March 3-6, 2005. *WIMJ*. 54 (Suppl. 1): 44 (Abstract)
- . • **Miles, T. D., McLaughlin, W., Brown, P. D.** (2005). Prevalence of bacterial resistance to tetracycline and other antibiotics among *Escherichia coli* isolates from broiler chickens and human in Jamaica. Caribbean Health Research Council Meeting, Trinidad and Tobago, April 21 - 23, 2005. *WIMJ*. 54 (Suppl. 2): 40 -41 (Abstract).
- . • **Miles, T., McLaughlin, W., Brown, P. D.** (2005). Activities of tetracycline and other antibiotics against fecal *Escherichia coli* isolates from broiler chickens in Jamaica. American Society for Microbiology 105<sup>th</sup> General Meeting, Atlanta, Georgia, June 5-9, 2005. (Abstract).
- . • **Palmer, K. O. and Young, L. E.** The effect of oestrogen on discriminative learning and memory in aged male and female rats. *WIMJ* 2004; 53 (Suppl. 5): 19.
- . • **Young, L. E., Palmer, K.O. and Young, R. E.** Effects of estrogen and testosterone on the rate of learning and extinction time in negative patterning discrimination in aged male rats. *Society for Neuroscience Abstracts Viewer* 2004; 417.10.

## REFEREED PUBLICATIONS

- .\* **Dilworth, L., Omoruyi, F. O., Simon, O., Morrison, E. Y. and Asemota, H. N.** 2005. The effect of phytic acid on the levels of blood glucose and some enzymes of carbohydrate and lipid

metabolism. *WTMJ*. 54(2): 102-106.

□.\* **McAnuff, M. A., Omoruyi, F. O., Morrison E. Y. and Asemota H. N.** 2005. Changes in liver enzymes in streptozotocin-induced diabetic rats fed extract from bitter yam (*Dioscorea polygonoides*) or commercial diosgenin. *WTMJ*. 54 (2): 97 -101.

□.\* **Stewart, O. J., Roghawan G.S.V., Golden K. D. and Gariepy Y.** 2005. Modified Atmosphere storage of

Cavendish bananas using silicone membrane and diffusion channel systems. *Postharvest Biology and Technology*. 35. 309-317.

□.\* **McGrowder, D., Ragoobirsingh, D., Dasgupta, T. and Brown, P.** (2004). The Effect of Nitric Oxide on Glucose Metabolism. *Journal of Molecular and Cellular Biochemistry*. 263, 29 -34.

□.\* **Ragoobirsingh, D., Morrison, E. and Reid, H. L.** (2004). Comparative Blood Studies in Jamaica Diabetic Patients.

*Journal of the National Medical Association*. 96(11): 15 -17.

□.\* **Brown, P. D., & Izundu, A.** (2004). Antibiotic resistance in clinical isolates of *Pseudomonas aeruginosa* in Jamaica. *Pan Am. J. Public Health* 16 (2): 125 -130.

\* **Dawkins, G. S., Hollingsworth, J. B. and Hamilton, M. A.**

**E.** 2005. Research note: incidences of problematic organisms on petrifilm aerobic count plates used to enumerate selected meat and dairy products. *Journal of Food Protection*: 68 (7): 1506 - 1511.

□.\* **Dilworth, L. L., Omoruyi, F. O., Simon, O., Morrison, E. Y., and Asemota, H. N.** 2004. Hypoglycaemia and faecal minerals in phytate fed rats. *Nutrition and Food Science*, 34(2), 60 -64.

□.\* **Lindo, R. L., Morrison, E. Y. St. A. and Nair, M.** 2004. Hypoglycaemic effect of stigmat-4-en-3-one and its corresponding alcohol from the bark of *Anacardium occidentale* (Cashew). *Phytotherapy Research* 18: 403 -407.

□.\* **McAnuff, M. A. Omoruyi, F. O., Sotelo-Lopez, A., and Asemota H. N.** 2005. Proximate analysis of some antinutritional factor constituents in selected varieties of Jamaican yams (*Dioscorea* and *Rajana*). *Plant Foods for Human Nutrition* 60 (2): 93 -98.

□.\* **Winkelmann A. and Guldner, F. H.** (2004). Cadavers as teachers: The dissecting room experience in Thailand.

*British Medical Journal*, Vol. 329, 1455 -1457.

## GRANTS RECEIVED

### New Grants

**Dr. Maxine Gossell-Williams** received a grant of US\$65,770.00 for a collaborative study with the University of North Carolina, USA – “Choline Supplementation and Neurodevelopment”.

**Professor Omkar Parshad** received US\$763.24 from the School of Graduate Studies and Research. This grant was used to assist postgraduate student Research.

**Dr. Wayne McLaughlin** received the following grants:

- .- US\$6,600.00 was received to study coconut lethal yellowing disease in Trinidad.
- .- US\$23,000.00 was received to establish a Forensic DNA-Typing Laboratory.

**Dr. Oswald Simon** received the following grants:

- .- US\$6,000.00 was received from the Scientific Research Council (SCR) of Jamaica to investigate the Anticholesterolemic effects of an herbal extract.
- .- US\$1,664.00 was received from the Veterinary Division, Ministry of Agriculture. This funding was used to perform Bioassay analysis for toxins in extracts from conch meat for export.
- .- **Dr. Paul Singh** received US\$1,486.00 from the UWI Research and Publication Fund to purchase laboratory equipment.
- .- **Postgraduate students** received US\$14,000.00 from the School of Graduate Studies and Research.

<b>Total</b>	<b>Grants</b>	<b>Received:</b>	<b>US\$119,283.24</b>
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## **PUBLIC SERVICE**

### **Professor Norma McFarlane-Anderson**

- .- Member, Stella Maris HIV/AIDS Ministry
- .- Member, Friends of Foundation for International Self-Help (FISH)

### **Dr. Paul Brown**

- .- Member, Technical working group on Leptospirosis, Jamaica
- .- Guest Reviewer, Journal of Infection (UK)

### **Mrs. Tazhmoye Crawford-Brown**

- Member, Consumer Advisory Committee for Jamaican Utilities

### **Mr. Michael Gardner**

- Executive member, Jamaica Historical Society

### **Dr. Maxine Gossell-Williams**

- Director, Optimist Club of North St. Andrew

### **Dr. Kareth Golden**

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

### **Dr. Wayne McLaughlin**

- .- Deputy Chairman, Jamaica Biosafety Committee, National Commission on Service and Technology
- .- Council member, Jamaica Society for Agricultural Sciences



### **Professor Omkar Parshad**

- .– One year Director, Lions Club of St. Andrew
- .– Immediate Past President, Indian Culture Society of Jamaica

### **Dr. Dalip Ragoobirsingh**

- .– Consultant Diabetes Educator, Diabetes Association of Jamaica
- .– Chairman, Caribbean Secondary Education Certificate: Human and Social Biology panel, Caribbean Examination Council, Western Zone office.
- .– Chief Examiner, Caribbean Secondary Education Certificate: Human and Social Biology, Caribbean Examination Council, Barbados

### **Dr. Paul Singh**

- Member, Caribbean Poison Information Network Management Committee

### **Dr. Oswald Simon**

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

## **CATEGORIES OF STUDENTS**

### **1. Undergraduate Degree Programmes**

#### **(a) BSc Biochemistry Programme:**

This is the largest programme in the Department in terms of number of registered students (approximately 500). These students either do Biochemistry as a single major or as part of a double major with other subjects in Pure and Applied Science. Sixteen courses were offered to students in this programme. The overall performance in these courses was a 90% pass rate. From the final year group of students, 47 graduated in Biochemistry (one first class honours), 19 graduated in Biotechnology and five in Molecular Biology.

#### **□ .(b) Stage 1 BMed.Sc./MB BS – Medical Programme**

About 380 students were registered in this 3-year stage of the medical programme in which the course contents continued to be offered as modules. The students performances in these modules ranged from 82% pass rate for year-1 (MB111), 86% for year-2 (MB222) and 96% for year-3 (MB333). The successful third year students will be proceeding to the Clinical Stage of the programme.

BBMedSc. (Major in Anatomy, Biochemistry, Pharmacology, Physiology): This new programme completed two years since its introduction in September, 2003. Fourteen (14) additional students were admitted to the programme, although as much as sixty (60) students applied for admission but could not be accommodated because of limited seating capacity in the lecture theatres and laboratories. Both year-1 and year-2 students in this programme performed exceptionally well in all the 18 courses offered. Ninety (90%) percent of the students scored a minimum of grade B in the courses.

## **2. Postgraduate Degree Programmes**

Seventy (70) students pursued postgraduate research degrees (PhD & MPhil) in the following disciplines: Anatomy, Biochemistry, Pharmacology and Physiology. Ten (10) of these students have completed their laboratory work and are in the process of writing their thesis. Another three (3) students have submitted theses for examination. The remaining students are continuing in their research with varying levels of progress which is greatly influenced by the availability of research materials and equipment.

### **Students who were awarded Degrees**

Sean Morrison – PhD Biochemistry

Wayne Myrie – PhD Biochemistry

Kisha McLeod – MPhil Biochemistry Collab