



DEPARTMENT OF MICROBIOLOGY

Dr. Alison Nicholson Head of Department

MBBS, DM(UWI)

OVERVIEW

The period under review was shaped by the pandemic of SARS-CoV-2 which saw the department heavily involved in testing for the virus. Despite the challenges surrounding laboratory safety in a rapidly changing pandemic, the department continued to offer almost full services. Furthermore, staff was involved in mitigating the rate of transmission of the virus through advocacy, outreach, public education and participation in control activities with the UWI, UHWI and the private sector.

ACCESS

Students

The department continued its work in undergraduate teaching across the programs of the FMS including the MBBS/DDS, nursing, physical therapy and PharmD. These programs were delivered online because of the pandemic of SARS-CoV-2. While there were challenges the staff contributed to the effort to ensure that the student received delivery of the program at the required high standard. In addition, the department continued training in the PhD, MPhil, DM, and MSc programs with face to face delivery of content because of small class size and adequate social distancing.

Postgraduate Diploma in Infection Prevention and Control

The pandemic of SARS-CoV-2 highlighted the timeliness of the Postgraduate Diploma program in Infection Prevention and Control in the Caribbean region and saw a success cohort of new practitioners graduating. The

program is also entrenched in the clinical activities of the University Hospital of the West Indies which will, in turn, support teaching and research activities. The Caribbean Association of Clinical Microbiologists (CACM) continued through a series of symposia which addressed crucial pandemic responses while keeping the focus on key areas of medical microbiology such as antimicrobial resistance. The CACM was led by Dr Glendee-Reynolds-Campbell and Dr Kereann Nelson (Secretary).

Publications

The Department is involved in several initiatives to increase its research and publications output including;

Abbott Pandemic Defense

- Dr Joshua Anzinger continued as local Principal Investigator of the Abbott Pandemic Defense Coalition which is a consortium of 15 universities and research centers which are involved in virus discovery and surveillance. Among the projects which have resulted from this:
- Virus surveillance and discovery in humans
- Virus surveillance and discovery in mosquito vectors – led by Dr Simone Sandiford (BMS)
- The association between viral infections including SARS-CoV-2 and HTLV-1 and the development of autoimmunity.

The APDC supports the research of several graduate students and junior faculty members, resulting in publication in high impact factor journals.

2.Global Infectious Diseases Research Training Program (GIDRTP) entered its fifth year with three pre-doctoral and three postdoctoral scholars. A re-submission was made for renewal to the NIH Fogarty for another five years of funding. Travel to laboratories and institutes in the USA was interrupted by the COVID-19 pandemic and the scholars pivoted their research to respond to the pandemic. The scholars have started to publish in conjunction with their mentors and are involved in efforts to obtain extramural research funding. Furthermore, the scholars organized a monthly distinguished lecture series featuring globally recognized scientist which was well-supported by large audiences.

3.Antimicrobial resistance remains a key area of research in the department and is inextricably linked to the teaching and clinical service. The introduction of Next Generation Sequencing in the department has expand-

ed the potential of this area of scientific research.

Referred Journal Articles

Cameron-McDermott, S.M., Barrow, G.J., Webster, A.M., De La Haye, C.O., Wood, D.H., Lewis, V.M., Nicholson, A., Reynolds-Campbell, G.Y., Thoms-Rodriguez, C.A.A., Roye-Green, K.J. and Otto-Stewart, N., 2022. Antimicrobial susceptibility of *Neisseria gonorrhoeae* isolates and syndromic treatment of men with urethral discharge in Kingston, Jamaica, 2018–19. *Journal of Antimicrobial Chemotherapy*, 77(1), pp.218-222.

Butterfield, T. R., Bruce-Mowatt, A., Phillips, Y. Z., Brown, N., Francis, K., Brown, J., & Anzinger, J. J. (2021). Assessment of commercial SARS-CoV-2 antibody assays, Jamaica. *International Journal of Infectious Diseases*, 105, 333-336.

Leys YE, Nwokocha M, Walker JP, Butterfield TR, Frater VD, Thompson TK, Anderson M, Gloherty GA, Anzinger JJ. SARS-CoV-2 receptor-binding domain IgG response to AstraZeneca AZD1222 COVID-19 vaccination, Jamaica. *The American Journal of Tropical Medicine and Hygiene* 106, no. 5 (2022): 1511.

Averhoff F, Berg M, Rogers M, Osmanov S, Luo X, Anderson M, Meyer T, Landay A, Gamkrelidze A, Kallas EG, Ciuoderis K, Hernandez JP, Henry JH, Osiris J, Lindo J, Deshommes J, Anzinger J, Manasa J, Alkashvili M, Souleyman M, Kaleebu P, Correa-Oliveira R, Solomon S, de Olivera T, Suputtamongkol Y, Cloherty G. The Abbott Pandemic Defense Coalition: a unique multisector approach adds to global pandemic preparedness efforts. *International Journal of Infectious Diseases* 117 (2022): 356-360.

Anzinger JJ, Mears CD, Ades AE, Francis K, Phillips Y, Leys YE, Spyer MJ, Brown D, Bispo de Filippis AM, Nastouli E, Byrne T, Bailey H, Palmer P, Bryan L, Webster-Kerr K, Giaquinto C, Thorne C, Christie CDC, ZIKAction Consortium. Antenatal seroprevalence of Zika and chikungunya viruses, Kingston Metropolitan Area, Jamaica, 2017-2019. *Emerging infectious diseases* 28, no. 2 (2022): 473.

Brown, M. D., Lindo, J., & Robinson, R. (2022). *Marisa cornuarietis* (Linnaeus, 1758)(Gastropoda: Ampullariidae): a new addition to the freshwater malacofauna of Jamaica with health and economic implications. *BioInvasions Record*, 11(2).

Brown, M. D., Lindo, J., & Robinson, R. (2022). First record of exotic terrestrial flatworms (Tricladida: Geoplanidae) *Bipalium vagum* Jones & Sterrer, 2005 and *Dolichoplana striata* Moseley, 1877 with confirmation of *Platydemus manokwari* de Beauchamp, 1963 in Jamaica. *BioInvasions Re-*

cord, 11(2).

Thoms-Rodriguez, C., Facey, K., Edwards, J., Downie, N., Nicholson, A., Wright, R., Reynolds-Campbell, G. (2022). Cryptococcaemia in a Jamaican Cohort. Caribbean Medical Journal. doi:<https://doi.org/article/36f03f3e-4da745cc94a773f286b72d32> URL:<https://www.caribbeanmedicaljournal.org/2022/03/14/cryptococcaemia-in-a-jamaican-cohort/>

Burnett E, Kucerova Z, Freeman M, Kathariou S, Chen J, Smikle M. Whole-genome Sequencing reveals multiple subpopulations of dominant and persistent lineage 1 isolates of *Listeria monocytogenes* in two meat processing facilities during 2011-2015. *Microorganisms* 2022, 10, 1070. <https://doi.org/10.3390/microorganisms10051070>.

Abstracts and Conference Presentation

- Stone, S., Thoms-Rodriguez, C., Stephenson-Clarke, S. Prevalence of New Delhi Metallo- β -lactamase 1 (NDM-1) among Uropathogens in a Tertiary Hospital in Jamaica. POSTER PRESENTATION at the ASM Microbe Conference, June 8-13, 2022
- Leys Y. E., Cameron J., Frater V., Thomas K., Butterfield T. R., Campbell-Mitchell M., Maddan C., Moore J., Pierre R., Cloherty G. A., Anzinger J. J. Seroprevalence of HTLV-1 in a Jamaican antenatal population and assessment of pooled testing as a cost reduction strategy for implementation of routine antenatal screening. POSTER PRESENTATION at the ASM Microbe Conference, June 8-13, 2022.
- Stone, S., Dawson, F., Stephenson-Clarke, S., Gossell-Williams M., Cameron, J., Thoms-Rodriguez, C. Co-Habitation of ESBLs and Plasmid-Mediated AMPCs in Uropathogens at a Tertiary Care Hospital in the Caribbean" ePOSTER PRESENTATION at the Forecast Academic Conference, August 10-12, 2022
- Dawson, F., Gossell-Williams M., Thoms-Rodriguez, C. M. Detection and Prevalence of Amp-C Betalactamase-Producing Uropathogenic Enterobacteriaceae Isolated from Patients in a Tertiary Care Hospital in Jamaica. ePOSTER PRESENTATION at the National Health Research Council's Annual Conference, November 18, 2021.
- Stone, S., Thoms-Rodriguez, C., Stephenson-Clarke, S. Extended Spectrum Beta-Lactamase Surveillance in Gram Negative Uropathogens in patients at a Tertiary Care Hospital in Jamaica. ORAL PRESENTATION at the 17th Annual Caribbean Association of Clinical Microbiologists (CACM) Symposium, October 29, 2021
- Willis R, Roye-Green KJ, Romy-Penabad Z, Papalardo E, Schleh A.

Vitamin D Deficiency Enhances Antiphospholipid Antibody-Mediated Thrombosis in a Passive Immunization Mouse Model. ARTHRITIS & RHEUMATOLOGY 72 ABSTRACT NUMBER: 1447 Vitamin D Deficiency Enhances Antiphospholipid Antibody-Mediated Thrombosis in a Passive Immunization Mouse Model. ACR Convergence 2020

- Anzinger J. SARS-CoV-2 Variant and the Role of Sequencing. ORAL PRESENTATION at the UHWI COVID-19 Conference, December 2, 2021. (Virtual)
- Anzinger J. SARS-CoV-2 Next Generation Sequencing for Identification of SARS-CoV-2 Variants in Jamaica. ORAL PRESENTATION at the Illumina Workshop, UWI. December 2, 2021. (Virtual).

TECHNICAL REPORTS

- Abou-Elnaja H, L Alariqi, M Allan, A Barakat, I Bergeri, S Bertagnolio, S Briand, C Chadwick, P Couto, V Cozza, J Diaz, H Doan, A Elkholy, J Fitzner, E Frodeman, A Hammond, M Hegermann-Lindencrone, B Herring, S Hirve, F Inbanathan, S Jackson, J Jara, W Khan, A Lackenby, J Leite, M Lievre, B Maharjan, A Mamahit, M Marklewitz, K Mazhar, M Medina, A Moen, P Andrew, N Mook, K Nahapetyan, P Nguyen, B Pavlin, R Pebody, D Pereyaslov, A Rodriguez, H Sadler, G Samaan, M Samaan, R Silvia, S Tempia, S Thwin, K Vandemaele, M Van Kerkhove, A Vicari, A Villalobos, P Wijesinghe, X Xu and Wenqing Zhang. End-to-end integration of SARS-CoV-2 and influenza sentinel surveillance. WHO Revised interim guidances Jan 2022. End-to-end integration of SARS-CoV-2 and influenza sentinel surveillance: revised interim guidance (who.int) Jackson-Betty SJ (2021). Report of the WHO Meeting to Review Progress in Phase-2 of the RSV Surveillance based on GISRS Virtual meeting – 18, 21, 22 June 2021

ALIGNMENT

Public Service

Dr. Glendee Reynolds-Campbell

- Infection Prevention and Control Consultant to the PAHO; Jamaica, Bermuda, and the Cayman Islands
- President of the Caribbean Association of Clinical Microbiologists (CACM)

- Member of the National Laboratory Services Network of Jamaica Planning Committee
- Member of International Society for Human and Animal Mycology (ISH-AM)(2019-present)
- Member of International Histoplasmosis Advocacy Group (IHAG)
- Member of the American Society of Microbiologists
- Member of International Congress on Infectious Diseases

Dr Camille-Ann Thoms-Rodriguez

- Young Ambassador to the American Society of Microbiologists
- Member of the University Hospital of the West Indies Medical Intensive Care Unit (MICU) Taskforce
- Member of the Oversight Committee for the University Hospital of the West Indies Neonatal Protocols Implementation Programme
- Secretary of the Caribbean Association of Clinical Microbiologists

Dr Joshua Anzinger

- Associate Editor, Journal of Clinical Virology Plus
- Member, Abbott Pandemic Defense Coalition
- Member, Caribbean Sub-regional Certification Committee for the Global Eradication of Poliomyelitis. Pan American Health Organization (PAHO).
- Member The Arbovirus Diagnostic Network of the Americans (RELDA)
- Director, Global Virus Network, Jamaica Affiliate Center of Excellence
- Invited Participant: MEDICC Review fact-finding mission is to assess the science, clinical trials, regulatory process, production capacities and potential impact of the Cuban COVID-19 vaccines. Havana, Cuba.

Professor Alison Nicholson

- Member, National Health Fund Patient Education and Medication Compliance Programme Committee.
- Member of the Governance Team of the UHWI Taskforce for COVID-19: Established to guide the UHWI's response to COVID-19 since 2020.
- Caribbean Association of Clinical Microbiologists (Co-Founder, Country Representative)
- Chair, Infection Prevention and Control Committee, UHWI.
- Member, West Indian Medical Journal Editorial Board.
- Member, Infection Prevention Society(UK)

Professor John Lindo

- Co-chair, SUNY-UWI Health Research Consortium
- Member, University Hospital of the West Indies Board of Management
- Chairman Procurement Committee, UHWI Board
- Member, Abbott Pandemic Defense Coalition, Scientific Steering Committee
- President, Senior Common Room
- Member, Rotary Club of New Kingston

AGILITY

Income Generation

- Wellcome Trust West Africa, West Indies, West London: Mechanisms driving heterogeneity in immunity to SARS-CoV-2 variants. Joshua Anzinger: Co-Investigator
- Abbott Laboratories. Viral Surveillance and Discovery in Jamaica and the Caribbean Region. Joshua Anzinger: Principal Investigator
- The department was heavily involved in testing for SARS-CoV-2 for the University Hospital of the West Indies and private facilities. While this had the potential for generating substantial revenue the absence of a system of billing may have compromised income.
- We identified Clinical Immunology as an area for significant growth and drafted a strategy which includes training, expansion of the testing menu and re-equipping of the laboratory.
- .The Next Generation Sequencing service was used exclusively for identifying variants of SARS-CoV-2; however, it has great potential for generating income.
- 6Fogarty International Training Center, NIH 15/04/2018 Global Infectious Diseases Research Training Program (USD1.1M over 5 years) Gene Morse and Katherine Anderson (SUNY) Co-PIs.

Dr. Sandra Jackson-Betty

- Member, World Health Organization Global Influenza Program/Global Influenza Surveillance and Response System
- Member, World Health Organization Global Surveillance for Respiratory Syncytial Virus
- Member, International Society for Influenza and other Respiratory Virus Diseases
- Member, Certification Board of Infection Control and Epidemiology