

DEPARTMENT OF MICROBIOLOGY



Dr. Alison Nicholson, MBBS; DM
Head of Department

WORK OF THE DEPARTMENT

Testing for Dengue, Zika, Chikungunya and Influenza viruses

During the past year the Ministry of Health collaborated with the Virus laboratory in the Department of Microbiology to test clinical samples for these viral infections during unprecedented outbreaks of all of them. This was especially challenging since some viruses were causing infection in Jamaica for the first time. This collaboration has resulted in the procurement of equipment to increase the capacity of the laboratory to do molecular testing.

The National Influenza Centre

The National Influenza Centre (NIC) continued to play its role in Influenza Diagnosis and Surveillance during the 2015/2016 Influenza

Department of Microbiology

Season which was marked by increased activity with a predominance of pandemic strain Influenza A: H1N1. The information was sent to the Weekly Surveillance Bulletin for Jamaica (MOH), the CAREC Surveillance Reports and to the Weekly Epidemiological Surveillance Regional Pan American Health Organization (PAHO) publications for the Americas.

Dr. S Jackson who has been in Geneva at the WHO has been gaining further exposure to the monitoring of Influenza viruses globally. In her absence, Professor Monica Smikle has been providing leadership for the NIC.

Infection Prevention and Control

The Infection Control Committee of the UHWI is chaired by Dr A Nicholson (HOD). She is spearheading the drive to train all levels of healthcare workers in the hospital (UHWI) across all disciplines, in the basic concepts of Infection Prevention and Control. So far, about 400 staff members have been trained. Training is being done by Drs A Nicholson, Camille-Ann Thoms-Rodriguez and Glendee Reynolds along with Infection Control Nurse T Hoilett.

ISO ACCREDITATION

Substantial progress was made in the department's effort to achieve accreditation to ISO:15189 Standard for Medical Laboratories. This is being led by Professor M Smikle. The Jamaica National Agency for Accreditation (JANAAC) conducted the on site assessment of the department during February 2016. The laboratory is steadily addressing identified nonconformities to complete the accreditation process.

GLOBAL VIRUS NETWORK

The Global Virus Network is a coalition of top virologists in 26 countries who have come together to advance studies in virology. Professor John Lindo, along with others, played a leading role in fostering the collaboration between the GVN, the University of West Indies, Ministry of Health,

Environmental Health Foundation and other partners to advance research and training on viral diseases of import to Jamaica and the region. This collaboration will strengthen the ability of the Department of Microbiology to respond to the threat of viral infections that has emerged in recent times. Through this membership, Jamaica will benefit from research collaboration with virologists across the world and persons from UWI will be able to access training programmes and workshops to boost local expertise.

WORLD SEPSIS DAY (WSD) 2015

The Department of Microbiology, led by **Dr I Vickers**, in collaboration with the World Sepsis Day Organizing Committee, hosted the first International Sepsis Symposium on Sunday, September 6, 2015 at the Medical lecture Theatre, UWI Mona. The theme was entitled “Sepsis ... Why it matters to you” in keeping with the aim of raising local sepsis awareness. There were 197 participants. Five hours CME credits were offered.

Cutting edge topics in sepsis were covered including: Understanding Sepsis, Laboratory diagnosis of sepsis, Code sepsis and the emergency room, Adult and paediatric sepsis.

Ms Laura Messineo and Dr Niranjan Kissoon were the international speakers. She spoke on Sepsis: Driving change, a centralized approach.

Dr Niranjan Kissoon, Vice-Chairman, Global Sepsis Alliance (GSA) and Professor at the University of British Columbia (Canada) spoke on the topic: Sepsis- A neglected killer, why it matters.

Sponsorship was obtained from The Chase Fund, Pfizer, Industrial and Technical Supplies Ltd, Windward Medical Centre, Main Event Entertainment Group Ltd and Iprint Digital.

Laboratory capacity strengthening for Zika virus/Arbovirus testing:

Workshop 1 (Facilitator: Dr I Vickers)

PAHO/WHO Laboratory Training Workshop for Zika virus/Arbovirus testing was done by Dr Lionel Gresh, PAHO/WHO to standardize the protocol for molecular detection of Zika virus and to review the diagnostic algorithms (Arbovirus) currently used by the laboratory. This was held on February 11–12, 2016 in the Department of Microbiology, FMS, UWI, Jamaica.

i) Virology Laboratory Zika Technical Competence (Facilitator: Dr. I Vickers):

Competence for the identification of acute Zika viral infections in human clinical and ecological samples using molecular methods (ie real time RT-PCR) was obtained from the Arbovirus Diseases Branch, Division of Vector Borne Diseases, Centers for Disease Control and Prevention in March 2016

ii) Workshop 2 (Facilitator: Dr I Vickers)

PAHO/WHO Technical Assistance Workshop for the Detection and Differential Diagnostic of Zika virus and other Arbovirus, – Virology Laboratory at University of West Indies – was done by Julian Leite, Consultant PAHO/WHO on March 15–18, 2016.

This was a follow up on the standardization of the protocol for the molecular detection of Zika virus. Additional reagents and materials for Zika virus detection were provided.

Surveillance by the Department:

The Department of Microbiology continues to submit the following monthly surveillance reports to the Ministry of Health.

1. General Virology Report
2. Bacteriology Report
3. Dengue Report
4. Chikungunya Report
5. HIV Report

International Network of SUE Caribe – University of the West Indies Caribbean Researchers Collaboration

This collaboration includes Camille-Ann Thoms-Rodriguez and Nicole Christian of the Department of Microbiology. They, along with the other project collaborators, are currently exploring student exchange opportunities where students from Colombia can come and spend an attachment in the Microbiology lab at the University of the West Indies and vice versa.

Biotech R&D project

Under the leadership of Professor John Lindo, Dr. Thoms-Rodriguez and other members of the faculty have been working in collaboration with the Biotech R&D Institute on a project that is investigating the antimicrobial properties of plant extracts.

Environmental investigation of Moulds

There has been increased requests for investigation of mould contamination in some of the on campus departments (UWI), namely:

- a) MSBM (UWI) where several sections have remained closed until a full mould remediation is carried out to resolve the problem.
- b) Sections of the University Hospital of the West Indies (UHWI) have been assessed and recommendations made for mould remediation.
- c) Request for investigating mould contamination and remediation has been made by public institutions including Technology Solutions, Environmental Planning Risk Management and others.

The increased requests for determining mould contamination and remediation solutions are a good potential source of income generation.

INCOME GENERATION

i) Energy Efficiency Project

The department implanted an energy efficiency project to reduce the consumption of electricity and the costs associated with the running of

Department of Microbiology

the department. The project was funded by PetroCaribe to the tune of UD\$247,600.00 (Joshua Anzinger & John Lindo) and included the following aspects:

1. Replacement of old and energy inefficient equipment with new energy efficient equipment. The grant also included software to monitor the temperature of refrigerators and freezers and upgrade of the wireless service in the department to accommodate this improvement.
2. Encasement of the building in an envelope which reduces heat radiation and lower air conditioning costs. The envelop also makes the glass shatterproof and adds protection for hurricanes.
3. Installation of motion sensors which turn off the lights in empty rooms.
4. Installation of an electronic smart meter to monitor electricity consumption.

ii) Research

National HIV/STI programme, Ministry of Health, Jamaica, “Antimicrobial genetic resistance of Neisseria gonorrhoea in Jamaica”, US\$17,392.84. Principal Investigator: Joshua Anzinger: 2016. Research Student: Suzette Cameron

Broad Based Solutions

The department in conjunction with Abbott Diagnostic Division conducted an audit of the department in order to re-engineer business processes for efficiency. This audit led to the suggestion of several changes to be implemented.

STAFF DEVELOPMENT

Sandra Jackson

- Member, WHO Secretariat. WHO Global Influenza Program and WHO Global Influenza Surveillance and Response System

- Member, Certification Board of Infection Control and Epidemiology. USA

Alison Nicholson

- Certificate course in Healthcare Epidemiology by the Society for Healthcare Epidemiology of America (SHEA) May 2016

Camille-Ann Thoms-Rodriguez

- Certificate course in Antimicrobial Stewardship by the Society for Healthcare Epidemiology of America (SHEA), May 2016

Nicole Christian

- Certificate course: International Atomic Energy Agency (IAEA), Austria. Strengthening regional capacities for the early and rapid detection of Zika virus infections in Central America and the Caribbean Laboratory capacity strengthening for Zika virus/Arbovirus testing workshop (PAHO), Jamaica

PUBLICATIONS

- Jack Sternal, Aspen Hammond, Julia Fitzner, Terry Besselaar, **Sandra Jackson**, Katelijin Vandemaele and Wenqing Zhang. “Review of the 2015 influenza season in the southern hemisphere” *Wkly Epidemiol Rec*. 2015 Nov 27;90(48):645-60.
- Durand L, Cheng PY, Palekar R, Clara W, Jara J, Cerpa M, El Omeiri N, Ropero-Alvarez AM, Ramirez JB, Araya JL, Acosta B, Bruno A, Calderon de Lozano C, Castillo Signor L C, Matute ML, **Jackson-Betty S**, Mung KS, Díaz-Quiñonez JA, López-Martinez I, Balmaseda A, Arévalo BM, Vazquez C, Gutierrez V, Garten R, Widdowson MA, Azziz-Baumgartner E. “Timing of influenza epidemics and vaccines in the American tropics, 2002–2008, 2011–2014” *Influenza Other Respir Viruses*. 2016 May;10(3):170-5. 2016 February 8.

- Cook, J, Hardie, R; Bailey, K; Tapper, M; **Vickers, I**; Calder,D; Harvey,K; Lindo JF. (2016). Seroprevalence of human toxocariasis, Jamaica. *Trop Biomed* 2016; 33(1): 1-7.
- Thoms-Rodriguez, C., Mazzulli, T., Christian, N., Willey, B., Boyd, D., Mataseje, L., Mulvey, M., Christie, C., **Nicholson, A.** New Delhi metallo- β -lactamase in Jamaica. *J Infect Dev Ctries* 2016; 10(2):183-187. Available at: <http://www.jidc.org/index.php/journal/article/view/26927461>
- Todd CD, Reyes-Batlle M, Valladares B, Lindo JF, Lorenzo-Morales J. Vannellid Species Isolated from Freshwater Source in a Park in Jamaica, *West Indies. Microbiol Insights.* 2015 Oct 11;8(Suppl 1):7-9. doi: 0.4137/MBI.S30537.
- Todd CD, Reyes-Batlle M, Piñero JE, Martínez-Carretero E, Valladares B, Streete D, Lorenzo-Morales J, **Lindo JF.** Isolation and molecular characterization of Acanthamoeba genotypes in recreational and domestic water sources from Jamaica, *West Indies. J Water Health.* 2015 Sep;13(3):909-19. doi: 10.2166/wh.2015.232.
- Palmer CS, **Anzinger JJ**, Butterfield TR, Crowe SM. “A simple flow cytometric method to measure glucose uptake and glucose transporter expression for monocytes and monocyte subpopulations in whole blood”. *J. Vis. Exp.* 2015:e54255.
- Chin-Harty LA, Walters CA, Wright-Pascoe RA, Martin A, **Roye-Green K**, Barton EN, Boyne MS. Microbial isolates in diabetic foot lesions of hospitalized patients at the University Hospital of the West Indies. *West Indian Medical Journal* 2015 Nov 18.do:10.7727/wimj.2015.234. (E pub ahead of print).
- Zuo Y, **Willis R**, Papalardo R, Pertri M, Harris EN, Schleh A, DeCeulaer K, **Smikle M**, Vila LM, Reveille JD, Alarcon GS, Gonzalez EB. A unique antiphospholipid assay recognizing phospholipid mixture, compared with criteria antiphospholipid immunoassays in lupus patients. *Lupus* 2016, Oct 16 pii: 0961203316671812

ORAL PRESENTATIONS

- **S Jackson**, T Besselaar, J Fitzner. "WHO Global RSV surveillance". ECDC expert consultation meeting; Burden of RSV disease in Europe workshop in the European Union/European Economic Area, Stockholm, Sweden, 23–24 November 2015.
- **S Jackson**, T Besselaar, T Ziegler. "Laboratory aspects of WHO RSV surveillance guidance". WHO Technical Meeting on Piloting the Respiratory Syncytial Virus (RSV) Surveillance based on the Global influenza Surveillance and Response System. Geneva, Switzerland. 28–30 June 2016.
- **S Jackson**, T Besselaar. "Overview of the preparations and work done for Piloting RSV Global Surveillance since February 2016". WHO Technical Meeting on Piloting the Respiratory Syncytial Virus Surveillance based on the Global influenza Surveillance and Response System". Geneva, Switzerland. 28–30 June 2016.
- **S Jackson**, D Eldemire-Shearer. Emerging Viral Infections and the Elderly: Role of immunization and nutritional enhancement. Emerging Issues Impacting the Health of Older Adults. Medical Association of Jamaica Symposium 2016. June 2–5, 2016. Jamaica.
- **IE Vickers**. Zika virus: the Next Arbovirus in Jamaica. January 2016.. CME Meeting, Department of Community Health and Psychiatry, UWI Mona
- **IE Vickers**. Laboratory Diagnosis of Zika virus. February 2016. Faculty of Medical Sciences collaborating with PAHO/MOH Public Symposium. Teaching and Research Complex, UWI Mona.
- **J. Anzinger**. Zika Diagnostics: Friend or Foe Paediatric Association of Jamaica October 2015.
- **A Nicholson**. Antibiotic Resistance: Caribbean Association of Clinical Microbiologists November 2015, Barbados.
- **A Nicholson**. The Bill Dennis Memorial Lecture: Hospital Acquired Infection: Prevention better Than Cure? July 13, 2016, MMLT, UHWI.

Department of Microbiology

- **A Nicholson.** The Use of Antibiotics in the Intensive Care Unit: St Ann's Bay Hospital Annual Symposium

Poster Presentations

- Poster presentation at FMS Annual Research Conference, November 2015, Kingston Jamaica. Awarded the ASM Prize for Best Poster in Microbiology at the FMS Annual Research conference
- Poster Presentation at the 17th ICID conference in Hyderabad, India, March 2–5th 2016 Reynolds-Campbell G, Campbell L, Williams T, Heslop O: “Microbiological profile of mycotic eye infections at a tertiary care centre in the Caribbean: A retrospective analysis”.