

Our Science

A quarterly newsletter produced by the MRC Unit The Gambia focusing on our scientific research in health and highlights our achievements in Africa.

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Our Science: Issue 3

Capacity development and training opens this third issue of *Our Science*. The Unit has always supported training of young African scientists. The appointment of Dr Jaye as the Head of the Research Training and Career Development Department should improve coordination and coherence of our capacity building efforts. An example of these is the training path of Mamadou Jallow who joined The Unit as Trainee Laboratory Technician and has become now a Trainee Scientific Officer. Such path is relatively common for our staff members. Additional training opportunities are provided by external grants; Drs Opondo and Ahmad have been awarded fellowships from the Malaria Research Capacity Development in West and Central Africa (MARCAD) grant, funded by the Wellcome Trust.

The excellent international reputation of The Unit is highlighted by the request from the World Health Organization to investigate a meningitis outbreak in Ghana, a task successfully and efficiently carried out by Prof Martin Antonio's team. The enabling environment for research is shown by the article on the external quality control program undertaken by the molecular diagnostic laboratory, by the restructuring of the library, and by the E-Induction module for the new staff. We have featured two research projects in this issue: a trial on azithromycin during labour, which was the basis for a larger proposal on neonatal sepsis and mortality, and a study on the interaction between iron supplementation, malaria and anaemia. Finally, in the profiles section you will be able to find that we have been joined by Dr Cerami who will work in the Nutrition Theme, Mr Jobe, our new Head of Human Resources, and Mrs Manneh, the new Trainee Librarian who has contributed to the renewal of our library.

- Professor Umberto D'Alessandro

Nurturing, Training and Developing Careers at MRC Unit The Gambia

MRC Unit The Gambia (MRCG) continues to place the highest priority on staff training and development as the key means of securing skills and knowledge to underpin internationally competitive science. The training of researchers and supporting career development are integral in achieving the mission of MRCG for the production of highest quality science that will have a significant regional and international impact in attracting and retaining staff talents.

The Research Training and Career Development department therefore engages in regional and international collaboration to support training and research career paths for MRCG staff and young scientists from international collaborating institutions. The provision of such training is being carried out through four strategic approaches (Figure 1) namely: Retention Program; Technical and Research Support

Competency Program; Research Leadership and Development Program; and Creating partnerships between institutions with different strengths but a shared vision.

The varied training programs for professional development lead to a wide array of qualifications including Diploma, BSc, MSc and PhD degrees. The Unit Leadership commits about £0.5 million annually

to enable the support of staff, academic and professional development courses including placements for learning and professional enrichment. The Unit has strengthened the strategic direction of training and career development of staff with the appointment in March 2016 of a dedicated training professional, Dr Assan Jaye, who by his own right has vast experience in scientific research and capacity building.



Research Training and Career Development Team

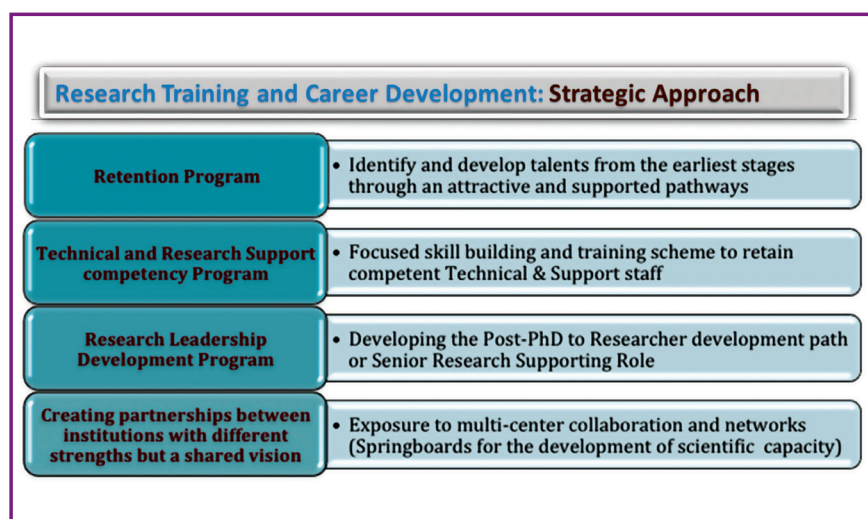


Figure 1: Strategic approach of MRCG research capacity building

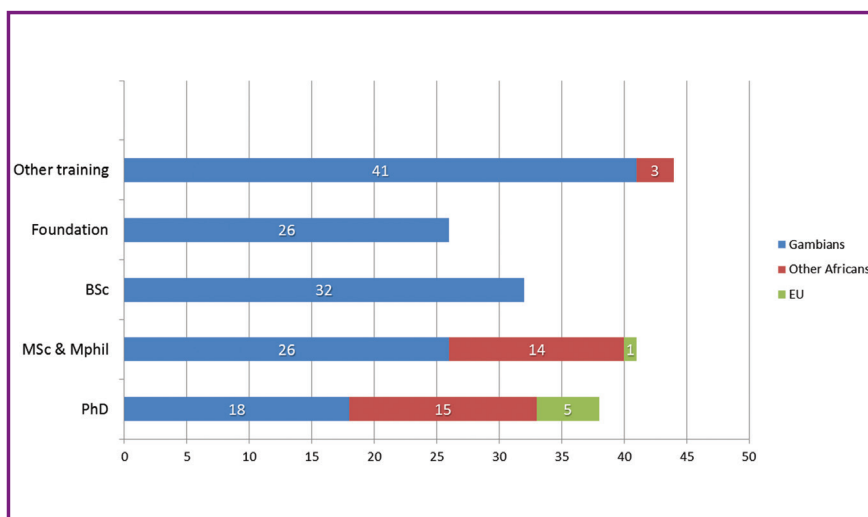


Figure 2: Total number of trainees in 2015 - 2016

The MRCG research training strategy is aligned to the research requirements of The Unit with the aim to build the needed human capital for advancement of scientific health research in The Gambia and the sub-region. The Research Training Department has become a regional health research training hub, which continues to forge strong local, regional and international links for the production of high quality science at the highest level. One key emphasis is to support the continuing professional development of our senior scientists to undertake ground breaking research; but also a strong focus to identify and develop talents in order to grow tomorrow's scientists.

Over the years, The Unit has produced a large number of on-the-job PhDs and continues to do so. In 2015-16, there are a total of 181 individuals (Figure 2) of different nationalities that benefitted from MRCG training support: 26 Foundation Science course for BSc; 32 BSc; 41 MSc/MPhil; 38 PhD and 44 other professional trainings (including research fieldwork methodology; short term scientific specialised courses; logistics and purchasing, facility management, Good Clinical Laboratory Practice and Quality Management, Information Communication Technology and database etc.).

In addition, 265 Gambians, 26 other African nationalities and 57 EU, UK and USA citizens had or are currently on laboratory or clinical internship placements. MRCG trainees undertake distance learning with practical work at The Unit or undergo University placements as they carry out research on MRCG projects. The collaborating universities include Open University (of which MRCG is an affiliated research centre), London School of Hygiene and Tropical Medicine, Institute of Tropical Medicine Antwerp (Belgium), University of Westminster, Manchester University, University of Aberdeen and other research-intensive Universities overseas.

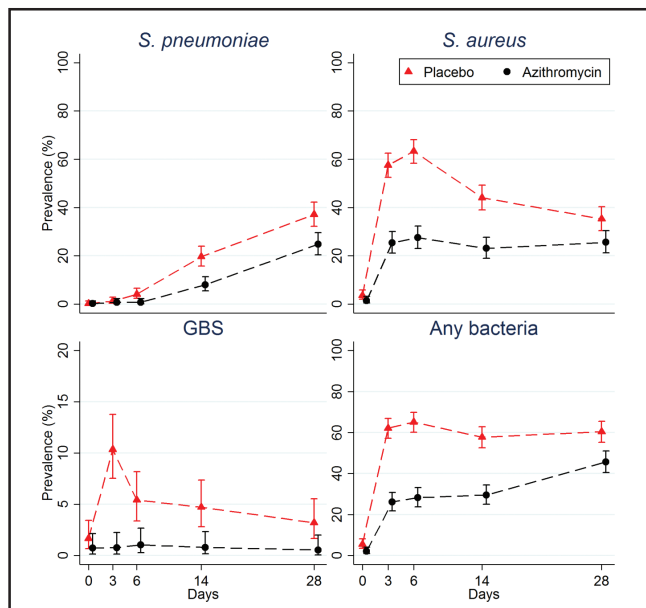
Under the leadership of Dr Assan Jaye, The Unit continues to offer excellent opportunities for staff to pursue professional development at various levels. The Research Training and Career Development department is strengthening its sub-regional training collaborations by its engagement with the recent Developing Excellence in Leadership, Training and Science (DELTAS) programs in West Africa (Malaria Research Capacity Development, West African Centre for Cell Biology of Infectious Pathogens and Developing Excellence in Leadership and Genetic Training for Malaria Elimination in Sub-Saharan Africa) and has recently added a Senior Project Manager to its staff to work closely with the Staff Development Manager for managing the international training programs and leadership development.

When asked to comment Professor Umberto D'Alessandro said "Capacity building is essential to reach our objective of improving health in sub-Saharan Africa. Importantly, there is the need of training young African scientists until they become independent researchers able to compete for research funds. This is a medium to long-term commitment and requires offering fair competition for good training opportunities. International health research is an extremely competitive field and our aim is to identify, support and mentor the best researchers."

Our study shows that oral azithromycin when given during labour decreases bacterial carriage in the mothers and their offspring

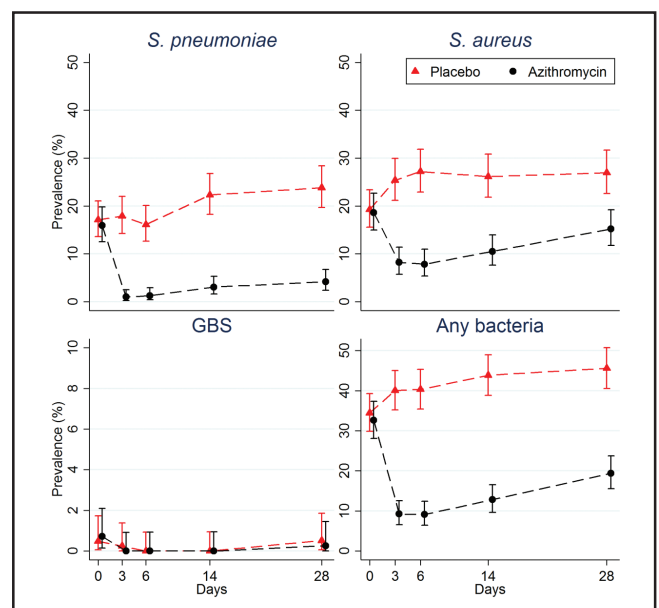
Neonatal deaths, estimated at 4 million annually, account for almost 40% of under-five mortality. Bacterial sepsis is a leading cause of neonatal deaths with *Staphylococcus* and *Streptococcus* species being highly prevalent associated aetiologies in the African continent.

(a) Newborn



Prevalence of nasopharyngeal bacterial carriage during the neonatal period.

(b) Mother¹



Maternal nasopharyngeal swab at day 0: collected before the intervention was given.

MRC Unit The Gambia embarked on a phase-III, placebo-controlled, randomised clinical trial to evaluate the impact of one oral dose of azithromycin (AZI) given to women during labour on bacterial colonization in the mother and the newborn. The novel underlying hypothesis of the trial was that the mother is the main source for bacterial transmission to newborns

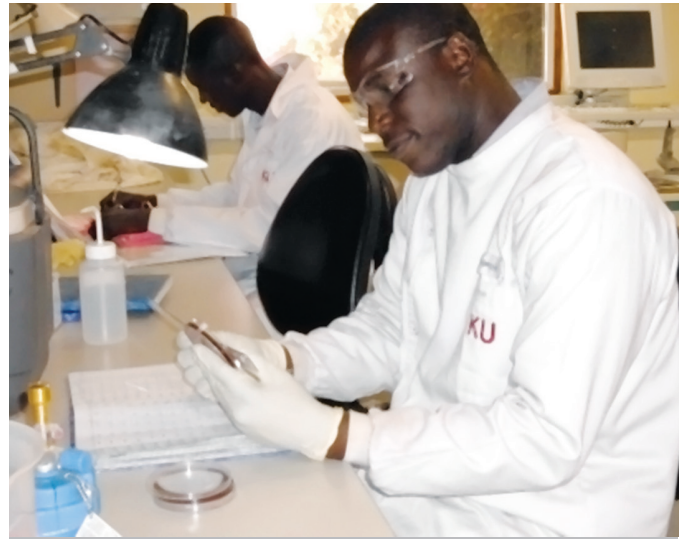
and, therefore, decreasing bacterial colonization in the former should impact on the prevalence of colonisation in the latter.

The trial was funded by the Medical Research Council (MRC) UK and the UK Department for International Development (DfID) under the MRC/DfID concordat agreement, in collaboration with the European

& Developing Countries Clinical Trials Partnership (EDCTP2) programme, supported by the European Union. The study was conceived and designed by Dr Anna Roca (Principal Investigator) and Prof Umberto D'Alessandro (Unit Director and co-Investigator) with the support of both internal and external scientists including support staff from MRCG.



Field staff at study site



Lab staff at work

The study started in 2012 and the clinical phase was conducted in 2013-2014 at Jammeh Foundation for Peace (JFP) hospital, a busy public health facility located within peri-urban settlements in Western Gambia. This included a long-term follow-up completed in 2015. 829 women in labour were given 2g of oral AZI. Women and their newborns were followed up for eight weeks and biological samples were collected during the first four weeks (i.e. nasopharyngeal swabs, breast milk and vaginal swabs). Clinical data was collected during the entire follow-up period.

The results, published in the Clinical Microbiology & Infection website, supported the initial hypothesis and showed that neonates were protected from bacterial nasopharyngeal carriage of the three study bacteria (i.e. *Staphylococcus aureus*, Group B *Streptococcus* and *Streptococcus pneumoniae*) for at least four weeks when the last samples were collected.

The close follow-up of the patients along with the quality of data collection allowed additional clinical analysis. Although clinical endpoints were defined ad hoc, results are unlikely to be biased because data

was collected by study clinicians during the follow-up and thus in a blinded fashion. This clinical analysis showed that the intervention reduced the prevalence of mastitis, occurrence of fever and overall infections among women; and skin infections and overall infections among newborns. The long-term analysis conducted in a sub-group of the study participants, indicated a trend of better anthropometrical measurements (z-scores) among infants born from women who received AZI during labour.

The successful conduct of the trial's clinical phase was largely attributed to the cooperation and willingness of study mothers and their families. The project had an excellent support from The Gambia Government through the Ministry of Health and Social Welfare and the leadership and staff of JFP. Support was also received from the departments of obstetrics and gynaecology, and paediatrics through the neonatology unit of the Edward Francis Small Teaching Hospital (EFSTH) in Banjul.

This study provided the opportunity to conduct several other ancillary analyses such as: AZI excretion in breast milk, dynamics of bacterial transmission among women and

newborns, prevalence of bacterial neonatal conjunctivitis and risk factors for bacterial colonisation. A student has recently started his PhD, aimed at evaluating the effect of the intervention on *S. aureus* AZI resistance (short and long term effect) and its mechanisms.

As a result of the strong baseline data generated by this study, a larger trial awarded by the Joint Global Trials Scheme (co-funded by MRC, Wellcome Trust and DfID) will be conducted in The Gambia and Burkina Faso. The aim of the larger trial will be to examine the effects of the intervention on neonatal mortality and its impact on maternal and neonatal sepsis.

New study confirmed a plausible cellular mechanism by which anemia protects African children against falciparum malaria

Malaria increases the burden of anemia in low-income countries, where, according to 2012 data from the World Health Organization, 40% of children are anemic.



Morgan Goheen working in the flow cytometry lab in Keneba.

Multiple studies have raised the concern that iron supplementation in malaria-endemic areas may put people at increased risk of acquiring malaria. In response, the WHO abandoned its recommendation for universal iron supplementation and now recommends that in malaria regions, iron supplements should only

be given where malaria treatment and prevention services are available. In an effort to investigate these concerns further, the Iron and Malaria study was conducted by MRCG in Keneba from 2014-2016 by a multi-disciplinary team that included, MD/PhD student Morgan Goheen and many other scientists from MRC Unit The Gambia

including Dr Rita Wegmuller, Amat Bah, Bakary Darboe, Ebrima Danso, Dr Muna Affara, Prof Andrew Prentice and Dr Carla Cerami.

The primary objective of this study was to assess whether malaria susceptibility increases transiently during iron supplementation.

The study confirmed and quantified a plausible cellular mechanism by which anemia protects African children against falciparum malaria.

The team studied fresh Red Blood Cells (RBCs) from anemic children age 6-24 months with a hemoglobin level of <11g/dl. 135 children participating in the iron supplementation trial were given iron (12mg/day) as part of a micronutrient powder for 84 days. Children donated

RBCs at baseline, day 49, and day 84 for use in flow cytometry-based in vitro growth and invasion assays with *P.falciparum* laboratory and field strains.

Study results show that anemia substantially reduced the invasion and growth of both laboratory and field strains of *P.falciparum* in vitro (~10% growth reduction per standard deviation shift in hemoglobin).

Parasite growth was 2.4 fold higher after 49 days of iron supplementation relative to baseline ($p < 0.001$) paralleling increases in erythropoiesis.



Keneba lab team

MRC Unit The Gambia and WHO join forces to deal with Meningitis outbreak in Ghana

In February 2016, the MRC Unit in Gambia assisted the WHO to deal with a Meningitis outbreak in Ghana.



MRCG/WHO mission team



The Gambia WHO Regional Reference Laboratory hands over consumables and equipment to support the meningitis outbreak in Ghana

Official figures from Ghana's Health Ministry indicated that at least 93 people had died with 548 cases in the recent outbreak of a variant strain of pneumococcal meningitis in Ghana and MRCG was approached for help.

Meningitis is a well-known infectious disease in Africa, caused by the inflammation of the protective membranes covering the brain and spinal cord, known as the meninges.

The inflammation is usually caused by an infection of the fluid surrounding the brain and spinal cord and serious forms occur with certain bacteria such as meningococcus, pneumococcus, Group B streptococcus and Haemophilus influenzae. The Gambia WHO Regional Reference Laboratory

(WHO RRL), led by Professor Martin Antonio and based at MRCG provides diagnostic services to support the surveillance network for Invasive Bacterial Vaccine-Preventable Diseases (IB-VPD) in the WHO African Region (AFRO) and was asked to help identify the pathogens. The team quickly mobilised resources and personnel and responded remarkably to support the 2016 meningitis outbreak response activities already going on in Ghana.

Preliminary results from lab tests done by the MRCG/WHO mission team on a few isolates tested alongside with colleagues from the National Laboratories in Ghana confirmed that the outbreak was mostly caused by Streptococcus pneumoniae, in particular serotype 1.

Further research on additional samples is ongoing to fully convince the global community and partners that the outbreak in this particular part of Ghana was primarily caused by Strep pneumoniae serotype 1 rather than meningococcus, as was seen in other parts of the country at the same time. Serotype 1 is a rare but particularly invasive strain.

MRCG's response team in Ghana was led by Dr Brenda Kwambana-Adams and included Mr Jacob Otu (Clinical Microbiologist), Mr Ebenezer Foster Nyarko (Clinical Microbiologist) and Mr Archie Worwui (Clinical Data Manager). Participants from WHO included Dr Jason Mwenda (WHO/AFRO Regional Coordinator for Vaccine Disease Surveillance) and

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Dr Charles Okot (Epidemiologists) including Mr Godfred Owusu-Okyare (Senior Biomedical Scientist, National Public Health Reference Laboratory) and Dr David Opare (Head of National Public Health Reference Laboratory) from the Ghana Government.

Whilst the above team worked on the ground in Ghana, at MRCG, “Mission Control”, i.e. the WHO RRL Team in Fajara provided the overall coordination for the outbreak under the leadership of Professor Martin Antonio, and Mrs Catherine Okoi (Molecular Microbiologist-Lab

Manager) provided support to strengthen the bacteriology laboratory capacity in Brong Ahafo and Asanti Regions of Ghana. The Fajara team determined the serotypes and confirmed laboratory results.



Ebenezer Foster Nyarko (MRCG) conducting bacteriology and antimicrobial testing

Molecular Diagnostic Laboratory (MDx)

One of the platform services provided by Molecular Diagnostic Laboratory (MDx) is the Qualitative HIV-1 test for early infant diagnosis (EID). Participation in Proficiency Testing (PT) programmes is essential to demonstrate competence in the provision of this service.



Molecular Diagnostic Laboratory Team

The MDx has been enrolled in an external (PT) scheme, run by Afriqualab (AFQL), Cheikh Anta Diop Dakar University (CADU) to further assure the quality of the test.

Recently, the Bacteriology Virology Laboratory of AFQL and the Molecular Biology Unit of CADU awarded the Molecular Diagnostic platform an outstanding performance for achieving a 100% score in every round of the test conducted in 2015. The certificate was issued in March 2016 by AFQL.

The award further strengthens our position as a centre of excellence for laboratory research in the sub-region and reinforces our commitment to high standards of quality within MDx and all other laboratories of The Unit. The ability of our laboratories to produce consistent and reliable results is critical for patient care, clinical trials and scientific research. To maintain this level of performance, the lab plans to enrol more diagnostic tests in PT schemes to be able to bid for ISO 15189 certification in the near future.

This award is the outcome of the strong emphasis on quality and the hard work of the MDx platform staff, especially Ms Aminata Vilane who led and coordinated the process. The support of other services within The Units- including Biomedical Engineering and Quality, were critical to this achievement.

MRC Unit The Gambia Advocates Open Access Publishing

Publishing journals is an essential activity for science research which forms an archive of collective endeavours.



Isatou Manneh, Trainee Librarian

Most online journals require a subscription or purchase to access the full text which is a limitation to research advancement. The majority of MRC Unit the Gambia's publications are published in open access journals. This allows readers to access scientific research papers free of charge, without print or online journal subscription charges. "The United Kingdom (UK) Government, in line with its overarching

commitment to transparency and open data, is committed to ensuring that published research findings should be freely accessible". As MRC Unit The Gambia is the UK's single largest investment in medical research in a developing country, MRC Unit The Gambia strongly advocates the Open Access Policy of the Research Council, United Kingdom's (RCUK).

As the research portfolio of MRC Unit The Gambia's spans from basic scientific research, clinical studies, large epidemiological studies and intervention trials, MRC Unit The Gambia ensures that all research outputs are open access and published through the Europe PubMed Central website.

MRC Unit The Gambia launched an E-Induction module for new staff

As part of MRCG's drive towards operational efficiency and to increase the retention of new employees, MRCG launched an E-Induction module for new staff. The E-Induction module was created to communicate The Unit's established culture, values and goals to new and incoming staff.



E-Induction in progress

The module architects (Director of Operations Mr Joan Vives Tomas, in conjunction with The Unit's Information Technology and Human Resources departments) together with the Project Manager, Aminatta Houma Colin set off to develop the E-Induction module. The new module allows staff to complete parts of their induction process online with a certificate of completion issued at the end.

The module gives an overview of the services provided by some of our departments including Human Resources, Information Technology, Research Training and Career Development as well as Health, Safety and Environment. It also outlines what all employees should know about the services provided by these departments.

The E-Induction programme which ensures a comprehensive and consistent message to new and incoming staff was well received by staff and managers. According to users, the online module offers a more balanced induction process, improves understanding of the organisation, departmental structure, processes and procedures.

Associate Professor Dr Carla Cerami from University of North Carolina Gillings School of Global Public Health joins MRC Unit The Gambia

Associate Professor Dr Carla Cerami from the Division of Infectious Diseases, Department of Medicine and the Institute of Global Health University of North Carolina School of Medicine in Chapel Hill, North Carolina, joined our Nutrition Theme as a Senior Investigator Scientist in June 2016. Dr Cerami's research interests are in global health, infectious diseases, metabolism and nutrition.



Dr Carla Cerami,
Senior Investigator Scientist

In 1987, Dr Cerami acquired her Bachelor's degree in Biochemistry from Columbia College in New York City. She earned both her Medical Degree and PhD from the New York University School of Medicine in 1993. Dr Cerami's interest in malaria and commitment to Global Health began during her dissertation at the New York University with Dr Victor Nussenzweig.

Having completed her surgical internship at North Shore University Hospital, Dr Cerami went on to become one of the founders of The Kenneth S. Warren Institute, a non-profit research Institute dedicated to translational global health research. In 2009 she joined the faculty of the University of North Carolina (UNC) Gillings School of Public Health in Chapel Hill, USA where she carried out research on the impact of host iron status on growth and viability of erythrocytic states of *Plasmodium falciparum*, host determinants of susceptibility to cerebral and use of novel neuroprotective peptides to treat cerebral malaria.

At MRCG, Dr Cerami is currently working on two research projects, investigating host iron and pathogen interactions.

Iron supplementation studies in Africa and Asia have reported increased rates of respiratory infections, severe diarrhea and febrile illnesses of unknown origin, but the mechanisms are unclear. Dr Cerami and her team are investigating the possible mechanisms by which host iron supplementation impacts bacterial pathogenesis.

Dr Cerami and Professor Andrew Prentice have just been awarded Bill & Melinda Gates Foundation funding for the Neolnate study examining the possible protective effect against septicemia of acute neonatal hypoferrremia. The study will be conducted at Serrekunda Hospital.

Dr Cerami's previous work has shown that the effects of iron deficiency and iron supplementation on parasite growth are due to changes in red blood cell physiology and the age structure of the red blood cell population. She is now continuing this work using red blood cells from pregnant women and children enrolled in iron supplementation trials in The Gambia.

Both the malaria infection and iron supplementation project and bacteria and iron supplementation hold potential keys to the safe administration of iron in malaria endemic areas in a sustainable cost-effective manner.

Mustapha Jobe joined MRCG as the Head of Human Resources in April 2016.

Mustapha would like to see more young professionals choosing HR as a career pathway, as it offers a broad range of opportunities.



Mustapha Jobe,
Head of Human Resources

Mustapha Jobe joined MRCG as the Head of Human Resources (HR), in April 2016. He is a Fellow of the Chartered Institute of Personnel and Development and holds a Masters Degree in Human Resources Management and a Business Studies Degree.

He is also a certified workplace mediator and career coach. His interest in career coaching stemmed from his many years of involvement in recruitment and selection in the UK during which he noticed how well-educated Africans struggled to break into the professional employment market.

Prior to joining The Unit, Mustapha worked briefly for the National Water and Electricity Company (NAWEC). He has a keen interest in talent management and the development of processes and strategies that enhance staff development and improve standards across the workplace. Mustapha has completed a number of private HR projects for various organisations both locally and internationally.

With his vast HR experience built up over many years whilst living and working in the UK, Mustapha describes MRCG as a great place to work. Mustapha is currently working on a HR action plan to

improve the way in which The Unit attracts, recruits, retains, supports, engages, rewards and recognises staff. He is keen on elevating The Unit's status globally as an employer of choice.

Mustapha is an advocate of corporate social responsibility. Over many years, he has encouraged organisations to allow staff paid time off from work to engage in voluntary activities. He also advocates for organisations to support internships, thus giving young people the work experience they need to prepare them for the ever changing demands of the workforce.

Isatou Manneh shaping the Library Management System

Since April 2016, MRC Unit The Gambia's Librarian Isatou Manneh has been providing Research Information Services to The Unit. Following her appointment, one of Isatou's first activities was the coordination of the complete renewal of the library which saw its transformation into a state-of-the-art Research Information Centre.



Isatou Manneh,
Trainee Librarian

Isatou first joined MRCG in 2005 as a Data Entry Clerk on attachment within the malaria, viral and tuberculosis project having previously worked as a team leader on the National Polio Immunisation Campaign at Sukuta Health Centre. In 2007, she re-joined The Unit as a Data Entry Clerk and in 2009 progressed to Research Records Assistant. From there, Isatou's hard work and determination to develop the service lead to a natural progression to Research Records and Library Assistant which cumulated in her appointment as Trainee Librarian.

From early on Isatou realised the importance of her own professional development as a means to create permanent capacity at The Unit and over the years embarked on several professional development courses. These included a course on information technology at SOS Hermann Gmeiner, Quantum Net Institute of Technology and online computer maintenance as well as distance learning via the Open University Australia, Open2Study and Future Learn.

Isatou's most recent project was structuring the library's physical and electronic collections for which she closely collaborated with The Unit's Data Management and Archives Department. This included the development of a customized online Library Management System. With Isatou's input, MRCG's team of database developers created a system that catalogues and categorises library resources including books, journals, thesis and Unit publications.

All materials are now barcoded allowing efficient check-out and check-in of materials and management of information resources. This streamlined

process is testament to the importance of interdepartmental communication and cooperation resulting in efficiency gains, costs savings and most importantly a better service for our research community.

When asked what she likes most about her job, Isatou responded "I take great pride in giving direct support to my colleagues and knowing that the information I provide contributes to research that saves life".

Isatou now oversees a widely used and highly functional Research Information Centre frequented by a large number of students, researchers and other Unit staff on a daily basis. By developing and tirelessly ensuring compliance with the library's process and code of conduct, she ensures that the Research Information Centre remains central in MRCG's drive to develop the local knowledge base and talent.

According to Jonas Lexow, Research Governance & Support Services Manager, "Seeing the library being transformed into this exceptional space for research and study is truly impressive. Thanks to Isatou and the team at Data Management and Archives, we now have an electronic system that complements and completes this state-of-the-art Research Information Centre which will benefit the current and future generations of Gambian and international researchers alike".

The 5-year transition of Mamadou from Laboratory Technician to Trainee Scientific Officer

Mamadou Jallow joined the MRC Unit The Gambia fresh from high school in 2011 as a Trainee Laboratory Technician in the Clinical Laboratories.



Mamadou Jallow,
Trainee Scientific Officer

A year later, he was promoted to the position of Laboratory Technician, and awarded a scholarship to undertake the Foundation degree in Biomedical Science with St. George's University in London by distance learning. Through hard work and support from the Clinical Laboratories team, he graduated with distinction in June 2015. Being one of the best graduating students for the year, he was sponsored for full-time BSc degree in Biomedical Science at Kingston University, London. Mamadou demonstrated that hard work pays off as he graduated with first class honours in June 2016.

He has since resumed as a Trainee Scientific Officer in the Clinical Laboratories adding to the excellent pool of skilled personnel in Laboratory Services. The knowledge acquired through his degree has been particularly helpful in strengthening the clinical microbiology platform, in the areas of bacteriology and parasitology. Mamadou's training is an added boost to the clinical labs quality management system and will contribute in sustaining the ISO15189 accreditation status of the laboratory.

Mamadou's career progression is another example of the success story of MRCG's strategy of identifying, training and preparing indigenous talent for key roles that support our track record for excellent research. The transition from Laboratory Technician to Trainee Scientific Officer, with a first class honours degree in Biomedical Science, happened within a 5-year period of May 2011 to August 2016.

According to Mamadou "it is a lesson that it is possible to manage the lifelong process of learning, working and leisure".

Professor Martin Antonio shaping state-of-the-art methodologies available to African investigators and research sites in Africa

Professor Martin Antonio is the leader of the molecular biology group at the MRC Unit The Gambia and was recently awarded an honorary professorship at the Division of Microbiology & Immunity, Warwick Medical School, Coventry, UK.



Professor Martin Antonio,
Unit Molecular Biologist & Principal
Investigator, Vaccines & Immunity
Theme

Prof Antonio is also the Director of WHO Regional Reference Laboratory for Invasive Bacterial Diseases and the MRC Programme Leader-Track at MRCG.

Originally from Ghana, Martin trained in molecular microbiology in the UK and set up the molecular microbiology research group in 2005, when he was first appointed at MRCG. Since then, Martin was instrumental in establishing the molecular capabilities at The Unit. Martin's research is focused on the leverage of new molecular technologies in diagnosis of tropical infections, investigation of microbial transmission and clinical trials.

Martin's group has led and participated in a growing number of large-scale international research projects, investigating the aetiology of pneumonia, diarrhoea, serving as the WHO reference laboratory for pneumococcal disease and establishing large disease surveillance platforms for bacterial infections across Africa.

Part of the Vaccines & Immunity Theme, Martin is an outstanding networker in science with collaborations across the globe with a keen determination to make state-of-the-art methodologies available to African investigators and research sites in Africa. He is an advocate for training at all levels, specifically the advanced methodology courses in Africa. Martin heads the higher degree committee at the MRCG for students registered via the Open University in the UK.

In February 2016, Prof Antonio's team was called upon by the World Health Organisation (WHO) to assist with the recent outbreak of meningitis in Ghana and his team helped the Ghanaian government and public health officers to identify the causative pathogens by applying the molecular tools available through the MRCG's laboratories.

MRC Unit The Gambia Staff Awarded with Two MARCAD Fellowships



Dr Kevin Opondo
awarded a 3 year Post-doctoral MARCAD Fellowship

Malaria Research Capacity Development in West and Central Africa (MARCAD) recently awarded Dr Opondo with a Post-doctoral Fellowship to conduct his research on the 'Impact of Insecticide Resistance on Malaria Vector Longevity and Transmission Potential in the Wild'. Dr Opondo's research focuses on measuring the transmission potential of resistant malaria vectors in the wild and later use the empirical data to update malaria transmission models specific to The Gambia. The award Dr Opondo received will help to establish a critical mass of internationally-competitive scientists in West and Central Africa with a focus on malaria control and elimination.

Dr Opondo holds a PhD in Tropical Medicine majoring in entomology/epidemiology from the Liverpool School of Tropical Medicine (LSTM), UK which sought to understand how mosquito behaviour and insecticide resistance affect malaria transmission patterns in The Gambia. Kevin previously spent two years at Ifakara Health Institute (IHI) in Tanzania as part of his MSc training, investigating how mosquito behaviour affects the design and development of mosquito sampling tools.

Dr Opondo is interested in the application of Geographic Information System (GIS) tools to guide malaria control strategies and in simplified communication of science to policy makers, to enable evidence-based decision making. He will be advised by Professor Umberto D'Alessandro (MRCG), Professor Martin Donnelly and Dr David Weetman both from (LSTM) and Dr Jo Lines (London School of Hygiene and Tropical Medicine).



Dr Abdullahi Ahmad
awarded a 4 year PhD MARCAD Fellowship

The MARCAD consortium which seeks to train African scientists toward building a critical mass for the control and the elimination of malaria, has recently awarded Dr Abdullahi Ahmad with a 4 year PhD Fellowship to conduct his research on 'Understanding the Role of Asymptomatic Plasmodium falciparum Infections and Gametocyte Carriage in Maintaining Malaria Transmission'.

Dr Ahmad holds a medical degree, a diploma in tropical medicine and public health and an MSc in tropical medicine and disease control. He previously took part in the clinical development of the most advanced candidate malaria vaccine to date (RTS,S) during a World Health Organisation Special Programme for Research and Training in Tropical Diseases (WHO/TDR) career development fellowship with GlaxoSmithKline Biologicals.

Dr Ahmad is passionate about research focusing on the development and evaluation of novel interventions for the control and elimination of malaria and is keen on further contributing to the quest for answers to help control and eliminate malaria. He is confident that his PhD work will narrow an important knowledge gap and generate more research questions relevant for malaria elimination. He will be supervised by Professor Umberto D'Alessandro, Dr Jane Achan and Professor Chris Drakeley, London School of Hygiene and Tropical Medicine.

Leading health research in West Africa to save lives and improve health across the world

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We are keen to receive feedback and suggestions for new features from our readers, if you have any comments, please let us know.

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