



The Fleming Fund

Our Activities: [Workforce Capacity](#)

Develop AMR Technical Workforce Capacity

Introduction

Equipping the current and future generation of AMR technical experts, policy makers and laboratory managers is critical to preserving the legacy of the Fleming Fund and safeguarding its investment. Given the complex nature of bacteriology and the public's relative lack of familiarity with AMR, a cadre of global leaders is needed. Our commitment to sustainability and country ownership guides our training and development initiatives. We seek to build capacity of key individuals in positions of influence or technical excellence to provide them with the support they need to take their country's AMR agenda forward.

Our Approach

Each of our grant streams includes some aspect of training, coaching or mentoring. Our Country Grants portfolio supports training in microbiology techniques, data management and biosafety and biosecurity procedures. Our Regional Grants support advanced microbiology training and build capacity in leading whole genome sequencing facilities across Africa. And our Fellowship scheme provides bespoke coaching and mentoring across a variety of training components, including core technical skills, policy implementation and leadership. We have also provided funding to the Open University to develop an online curriculum in AMR governance, laboratory management skills and One Health.

Our Activities

[Microbiology Capacity](#)

All of our grant streams support laboratory staff to improve their microbiology skills based on the needs of the country. Laboratory staff are trained in culture methods, bacterial identification and antimicrobial susceptibility testing. In particular, we focus on the



WHO's priority pathogens for surveillance. In animal health, we focus particularly on *E. coli*, salmonella and campylobacter which are particularly prevalent in poultry. Staff are taught to use local standard operating procedures for isolate transport and storage. And are trained to culture blood, cerebrospinal fluid, urine and stool sample types. Staff may also learn to use automated systems for bacterial identification and susceptibility testing and in some cases may receive training on whole genome sequencing.

[Biosafety & Biosecurity Training](#)

We support biosecurity and biosafety protocol development and train laboratory staff to follow relevant procedures. Staff learn how to properly dispose of solid and liquid waste, follow safety procedures, and use appropriate PPE and laboratory safety equipment.

[Quality Management](#)

We support quality management training to help laboratory managers improve testing results within their site. Staff learn minimum standards for equipment use and maintenance and data collection and reporting.



Staff in Uganda are trained on how to process and test samples in a MALDI TOF

Clinical Training

Beneficiaries in clinical settings receive training on specimen collection, interpretation of laboratory results, coordination and communication between clinicians and laboratory staff and antimicrobial stewardship. Some sites are supported and trained to set up stewardship committees to identify drug use, infection and resistance patterns.

System Design and Analysis

We support training on data collection, management and coordination. This includes bespoke training in key thematic areas such as statistics, WHONET data entry, point prevalence survey implementation, data governance and data presentation.

Fellows and staff supported by our grant streams may receive epidemiology training including defining sample size and collection methods, developing sampling strategies, analysing and interpreting results and designing surveillance systems. Some beneficiaries may also receive training in bioinformatics.



Fellowship workplans are created in a during a workshop in Papua New Guinea

AMR Policy, Communication, Leadership & Governance

Many fellows receive training and support on engaging with key government stakeholders and policy makers. Technical staff learn to improve writing skills, communicate findings and present results and recommendations convincingly. Fellows also receive leadership and networking training to help them gain access to key influencers.

Online Learning & Curriculum

Given the diversity and geographical scope of our beneficiaries, we support the Open University to develop online curriculum around AMR governance, One Health, laboratory management skills, data management and policy making. These courses will be open to all beneficiaries and will help laboratory staff and policy makers fill gaps in existing knowledge.

Workforce Capacity Development in Practice

Eme Enkeng, Fleming Fund Fellow

Nigeria's public health reference laboratory sits just outside the city centre in Abuja. That's where Eme Enkeng, a medical laboratory scientist for the Nigerian Centre for Disease Control, works. Growing up in Lagos, Eme was fascinated by biology, even as a child. "I love biology. I love the colours, the colour changes and seeing how bacteria grows over time. It was also always easy for me to understand."

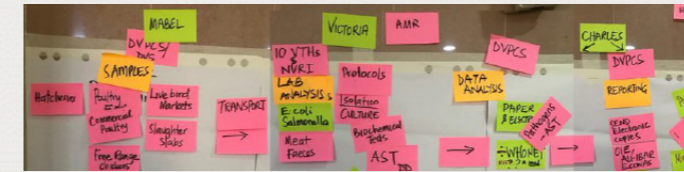
She went on to study medical bacteriology because it was a hands-on profession. She could read about a disease or pathogen and then go use a microscope and run tests on in the laboratory. "I prefer seeing, I prefer practical application - bacteriology gave me that picture," she said.

After working in Lagos for several years, her managers saw potential in her and asked if she would move to Abuja, Nigeria's capital, to help set up a National Reference Laboratory. Only the best scientists were chosen for the move, a decision aimed at improving the whole country's microbiology capacity.

From the beginning, working in Abuja was a learning experience, she learned new testing methods and laboratory skills and was recently awarded a Fleming Fund Fellowship. The Fellowship programme provided her with bespoke scientific and leadership training and expanded her perspective on microbiology.

"The Fellowship programme has completely changed the way I think on the job," she said. In the past, she used to run a standard panel of susceptibility

tests to determine whether a specific drug could be used to fight a particular organism. But through the Fellowship, she has learned about the intrinsic or natural resistance of certain bacteria, meaning different bacteria should be tested against different drugs, depending on their natural resistance.



Fellows map out a bespoke training plan during a kick-off workshop at the start of the Fellowship

Intrinsic resistance means that bacteria are naturally resistant to certain antibiotics. This happens because some antibiotics target specific components of a bacteria's structure. For example, bacteria that have no cell wall, such as mycoplasma, have intrinsic resistance to an antibiotic that destroys bacterial cell walls. "I've learned how to do antimicrobial susceptibility testing (AST) completely differently. Our visit to our Host Institution [academic mentor] blew our minds. There is so much we need to correct," said Eme.

She has also become acutely aware of her new position as a leader in the microbiology community in Nigeria. The level of training she has received is unique and many of her colleagues have high hopes for how she can use her new skills. "The Fellowship has given me a big sense of responsibility, because working at this reference laboratory means we are affecting the whole population when we get it wrong. Doctors can injure patients when we make errors."

In the coming months, Eme hopes the knowledge from the Fellowship will help her support the laboratory to get accreditation and improve the quality management system, nationally and locally. "When we are up to standard, doctors and laboratories across the country will believe in us."



Eme Enkeng, at her workplace Nigerian Centre for Disease Control

The Fleming Fund is a £265 million UK aid programme supporting up to 24 low- and middle-income countries generate, share and use data on antimicrobial resistance. Visit www.flemingfund.org for more information.

