The Fleming Fund

UKaid from the British people

Fleming Fund Country Brief

December 2023

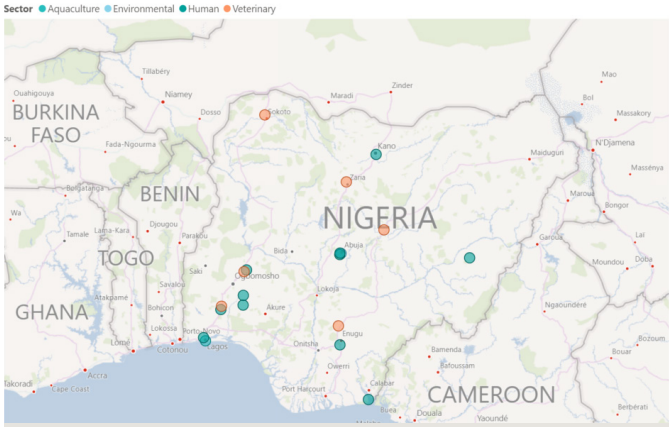
NIGERIA

Who we are

The Department of Health and Social Care (DHSC)'s Fleming Fund is a UK aid programme supporting up to 25 countries across Africa and Asia to tackle antimicrobial resistance (AMR), a leading public health threat across the world. The Fleming Fund invests in strengthening surveillance systems through a portfolio of country grants, regional grants, and fellowships managed by Mott MacDonald and global projects managed by DHSC partners.

Focusing on low- and middle-income countries (LMICs), as they bear the heaviest consequences of the spread of drug-resistant infections, the programme generates, shares, and uses robust and quality-assured data to support AMR strategies and interventions.

Supporting AMR data collection and analysis, through a One Health approach across human clinical, animal, and environmental sectors will help improve patient health, inform health policies, and warn of emerging threats.



Map of Nigeria showing types of labs supported by the Fleming Fund

Country context

In November 2016, the national AMR coordinating body was officially established under the Nigerian Centre for Disease Control (NCDC) to assess the national AMR situation in Nigeria. The first AMR National Action Plan (NAP) was developed in line with the Global Action Plan on AMR, guided by the priority gaps identified in the national response to AMR.

The NAP 1.0 (2017-2022) was approved by the Ministers of Health, Environment and Agriculture and Rural Development. The Fleming Fund supported the implementation of the NAP which aligned with several of the Fund's objectives, including 'Building a One Health AMR surveillance system'.

The development of NAP 2.0 (2023-2028) informed by the achievements and challenges of implementing NAP 1.0, focusing on the following five strategic objectives:

- Improve awareness and understanding of AMR through education and training.
- Strengthen knowledge and evidence base through surveillance and research.
- Reduce infection in health facilities, farms, and food industry premises with Infection Prevention and Control and other measures.
- Optimise the use of antimicrobial medicines in human and animal health.
- Develop the economic case for sustainable investment in-country, and increase investment in new medicines, diagnostic tools, vaccines, and other interventions.

More information about Nigeria and its work on AMR can be found on the Fleming Fund website: flemingfund.org/countries/Nigeria

Country Grant

Grantees: DAI
Subgrantees: see pg2
Value: £8,445,684
Duration: May 2019 – Jun 2022

Fellowship Scheme

Number of Fellows: 13
Host Institutions: UK Health Security Agency, Technical University of Denmark
Total Value: £917,897
Duration: May 2019 – Feb 2023

Regional Grants

Grantees: Technical University of Denmark, African Society for Laboratory Medicine, International Vaccine Institute
Value: £21,088,398
Duration: Nov 2018 – Nov 2023

Country Grant

Management Agent: Mott MacDonald
Grantee: DAI Global Health

Sub-grantees: Livestock Management Services, Institute of Human Virology in Nigeria, Ausvet Pty Ltd, Health Security Partners, Liverpool School of Tropical Medicine and Hygiene, and International Foundation Against Infectious Diseases in Nigeria.

Strengthening One Health governance structure for AMR and AMU (antimicrobial use) surveillance in One Health sectors.

Achievements

759
laboratory staff trained and **134** mentors trained in multiple technical areas: laboratory management, data quality assurance, Point Prevalence Survey (PPS), Antimicrobial Susceptibility Testing, biosafety and biosecurity, and equipment use for animal health (AH) and human health (HH) laboratories.

22
Strategic documents developed across HH, AH, Environment and Aquaculture sectors.

Supported establishment of OH National AMR governance structures, with regular meetings, clear organogram, and communication structure, as well as agreed and validated Terms of Reference (TORs).

One Health governance manual developed and validated.

State level AMR engagement plan developed based on national AMR framework.

50
Over 50 data elements in supporting deployment of data capturing tool to surveillance sites.

2
External Quality Assessment (EQA) events organised for the NRLs and surveillance sites to evaluate the laboratories' capacities for AMR bacterial identification.

Supported development and installation of National One Health Antimicrobial Resistance Information Management System, passed over to the NCDC and rolled out as integrated system for analysing and managing AMR/AMU data across sectors in-country.

One Health National AMR/AMU community of practice launched, with regular meetings.

Development of Situational analysis document on determinants and status of AMR/U, with costed strategic plan for operationalising AMR/U surveillance in both aquaculture and environment sectors.

Quality Management System (QMS) process set up for NRLs to provide support, oversight, and mentoring role to surveillance sites

13

laboratory items centrally procured to value of **£383,105** and local procurement of equipment, reagents and consumables to value of **£557,223.**

18

Supported renovations of **18** laboratories in Nigeria: **11** HH (2 NRLs and 9 surveillance), **7** AH (1 NRL and 6 surveillance sites).

Provided technical support, guidance and leadership to development, review and finalisation of National AMR Surveillance Strategy for Nigeria Poultry Sector.

Provided technical support, guidance and leadership to development of draft National AMR Policy for the Environment Sector.

17

national laboratories participating in EQA schemes, supporting Nigeria's enrolment and institutionalised quality assurance processes.

Provided technical support, guidance and leadership to the full drafting and costing of Sub-national Engagement Plan for AMR.

Fellowship Scheme

Host Institutions: UK Health Security Agency (UKHSA), Technical University of Denmark (DTU)

Professional Cohort I: AMR Surveillance, AMU/C Surveillance and AMR Laboratory in HH and AH

Professional Cohort II: AMR Laboratory in Aquaculture, and Bioinformatics & Sequencing in HH and AH

Achievements

Collaborative research projects by Fellows on the following topics in Nigeria

- Pattern of extended spectrum beta lactamase producing *Escherichia coli* and *Klebsiella pneumoniae* in hospitals in Nigeria.
- Prevalence and Risk Factors for Drug Resistant *E. coli* and *Salmonella* isolates in beef cattle and slaughterhouse workers.
- Prevalence of Antimicrobial Resistance and Production of EBSL *E.coli* and *Salmonella* in Hospital Patients and Poultry Farm Workers in Plateau State Nigeria.
- Prevalence and Antimicrobial Resistance in *E. coli* and *Salmonella* spp from Pig Farms in Lagos and Nasarawa States, Nigeria.
- Prevalence of ESBL-producing Faecal E. coli and Salmonella among under-fives and their mothers in Kano and Taraba state, Nigeria.
- Isolation and antimicrobial resistance of Salmonella species, commensal and ESBL Escherichia coli from commercial poultry farms in Plateau State, Nigeria.
- Knowledge, attitude, and perception of antimicrobial resistance among selected urban-rural populace in Nigeria.

Publications

- Determination of antimicrobial use in commercial poultry farms in Plateau and Oyo States, Nigeria.
- Prevalence and Characterization of Extended-Spectrum Beta-Lactamase Producing *Escherichia Coli* and *Salmonella* Isolates from Hospital Patients and Poultry Farm Workers in Ibadan, Oyo State.
- Prevalence and Antibiogram of ESBL producing *E.coli* and *Salmonella* spp from commercial poultry farms in Ibadan, Nigeria.
- ESBL-producing *Escherichia coli* Among Humans, Beef Cattle, and Abattoir Environments in Nigeria.

4

Fellows developed standard operating procedures (SOPs) for isolation of **E. coli** and **Salmonella** and participated in SOP review workshop on collection and identification of National Priority samples and pathogens.

4

Fellows raised awareness on AMR through sharing short videos on social media and participating in radio panel discussion during World Antimicrobial Awareness Week.

2

HH Laboratory Fellows observed first-hand advanced methods in bacterial identification using Maldi-TOF, DNA extraction and Polymerase Chain Reaction.

4

Fellows received training on AST methods, AMR detection and interpretation, health and safety, risk assessment, quality management systems (internal and external) and validation of laboratory processes and equipment.

4

Fellows trained on bioinformatics using the Centre for Genomic Epidemiology online tool to analyse sequenced raw reads of **Vibrio Cholera** and **Salmonella** isolates.

4

Fellows received training on WHONET by software developer.

Fellow drafted AMR testing SOPs for isolation of *E. coli* and *Salmonella*.

132

Participants trained from **4** Fellows organising knowledge transfer training.

15

Microbiology scientists from Maitama District Hospital participated in 2-day laboratory training, coordinated by Fellow, in collaboration with Robert Koch Institute, on AST, quality management and AMR data analysis.

8

Participants trained on performing AMR/AMU assessment by Fellow, in 14 hospitals using a tool modified from WHO (World Health Organisation) instruments.

Fellow provided training on WHONET to AMR desk officers for surveillance laboratories.

36

Fellow trained state veterinary directors, federal and state veterinary, and HH epidemiology officers from 36 states and Federal Capital Territory on antimicrobial residue testing in preparation for surveillance activity.

Fellow produced Biosecurity videos in English, Yoruba, Hausa, and Pidgin on as preventive AMR measures. Videos uploaded on YouTube and shared on various social media platforms to create AMR awareness.

Fellow presented findings of FF Collaborative Project to stakeholders who provided samples and government officials in Lagos. Topic: Prevalence and Risk Factors for Drug Resistant E. coli and Salmonella isolates in beef cattle and slaughterhouse workers.

2

Tertiary hospitals (LAUTECH Teaching Hospital and Obafemi Awolowo University Teaching Hospital) in Nigeria supported by Fellow in planning, training, and monitoring of AMU Point Prevalence Survey with funding from the FFCG.

Regional Grants

Management Agent: Mott MacDonald

Grantees: Technical University of Denmark (DTU), African Society for Laboratory Medicine (ASLM), and International Vaccine Institute (IVI)

Achievements

MAAP

Collection of Historical Data, ASLM
Value: £3,340,705*
Duration: Nov 2018 – Nov 2023
Supports the collection and analysis of historical AMR data across key Fleming Fund countries to provide preliminary information for policymaking.

85,127
Total culture results were collected from 25 facilities.

52
Pharmacies provided AMU data and total antimicrobials consumed in public health facilities during reviewed period (2016-2018) documented. This supported Spatiotemporal analysis for combined AMR and AMU data sets contributing to Resistance Map and Index.

EQuAFRICA

External Quality Assurance - Africa, ASLM
Value: £ 4,364,227*
Duration: Oct 2019 – Sep 2023
Supports the development of external quality assurance practices in laboratories around Africa which ensures confidence in laboratory testing results.

Strengthening pathogen ID and AST for AMR data samples.

4 to 15
labs - increasing enrolment on EQA programme across 3 cycles.

Supporting laboratory Quality Management Systems towards accreditation.

Developing management and technical standard operating procedures to standardise laboratory operations.

Moving HH laboratory towards EQA accreditation.

Star increase from baseline EQA assessment for laboratory; and maintaining 3-star rating in **2** laboratories; and preparing **2** laboratories towards slipta exit assessment.

QWArS

Microbiology and Epidemiology Testing, ASLM
Value: £ 3,924,547*
Duration: Oct 2019 – Apr 2023
Improves data sharing for global AMR planning and advocacy to provide policymakers with evidence to make robust, data-based policy recommendations.

24
Participants (12 Microbiologists- 7 HH, 6 AH; and 12 Epidemiologists - 6 HH, 6 AH) taking part in QWArS Training.

13
participants (8 Microbiologists and 5 Epidemiologists) successfully passed the final QWArS Professional Exam.

The country established National AMR workforce Tasktorce.

Drafting framework for domesticating QWArS (Qualifying the Workforce for AMR Surveillance in Africa and Asia).

SEQAFRICA

Whole Genome Sequencing, DTU
Value: £6,766,632*
Duration: May 2019 – Apr 2023
Supports development of regional capacity for Whole Genome Sequencing (WGS) and bioinformatics.

Assisting in expanding microbiology unit into regional sequencing centre, extending WGS capacity in Nigeria and for West Africa by delivering sequencing infrastructure and training to staff.

Supporting publication of paper from WGS findings - 'ESBL-producing Escherichia coli among humans, beef cattle, and abattoir environments in Nigeria'

RADAAR

Value: £2,715,217*
Duration: Sep 2019 – Nov 2023
Supporting data sharing for global AMR planning and advocacy to provide policymakers with evidence for robust, data-based policy recommendations.

2
policy documents produced on completing bottleneck analysis, regional data sharing networks and delivered virtual training sessions.

*(across multiple countries, including Nigeria)

Strategic Alignment Grants

Management Agent: Mott MacDonald

Achievements

WHONET

Grantee: Brigham and Women's Hospital
Value: £889,044*
Duration: Apr 2022 - Dec 2023
Providing training and technical support on WHONET free desktop application for managing and analysing microbiology laboratory data, with focus on AMR surveillance.

Developing training materials and providing ongoing technical support to software users

Supporting development of modules, including online data entry and integration platform compatible with DHIS-2, and providing scientific guidance for breakpoints (aiding pathogen AST) interpretation and report generation for AMR analysis.

Running centralised training (on-site and remotely) and identifying gaps for specialist training in FF-supported countries.

FIND

Grantee: FIND
Value: £2,586,226*
Duration: Apr 2021 - Dec 2023
Enhancing common approaches to laboratory quality management systems, bacteriology laboratory network design, collation and analysis of AMR surveillance data, and clinical engagement strategies.

Using digital tools to reduce time taken to clean AMR data received from surveillance sites, leading to more efficient HH and AH data analysis, and national-level reporting.

New opportunities for cross-sectoral AMR data use and interventions based on collation of AH and HH AMR data in single repository.

SPARC

Grantee: Commonwealth Pharmacists Association
Value: £1,152,947*
Duration: Dec 2021 – Dec 2023
Assisting with AMU surveillance and using surveillance data to improve prescribing practices.

CPA networks established in FF-supported countries to provide HH and AH guidelines for uploading data sharing permission documents.

Identified clinical sites for PPS training which aligns with sustainable model to ensure capacity in-country to undertake and support future studies.

*(across multiple countries, including Nigeria)

The Fleming Fund supports a range of additional projects delivered at national, regional, and global levels to support the generation, sharing, and use of high-quality AMR data. These all align closely with the country and regional grants and fellowships portfolio and support further achievement of the Fleming Fund objectives. A full list of global grants is available on the Fleming Fund website.

To contact the Management Agent, Mott MacDonald, email flemingfundWA@mottmac.com