



Commonwealth Partnerships for Antimicrobial Stewardship 2: Scoping Exercise - Executive Summary

1. BACKGROUND

The Commonwealth Partnerships for Antimicrobial Stewardship 2 (CwPAMS2) programme is a project within the Fleming Fund.

The Department of Health and Social Care (DHSC) Fleming Fund

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. By supporting the capture of AMR surveillance data, and other relevant data, we will collectively be better able to understand the scale and scope of the problem in order to effectively tackle the issue of resistance.

The Fleming Fund does this through the following objectives:

1. Supporting the development of National Action Plans for AMR.
2. Developing and supporting the implementation of protocols and guidance for AMR surveillance and antimicrobial use.
3. Building laboratory capacity for diagnosis.
4. Collecting drug resistance data.
5. Enabling the sharing of drug resistance data locally, regionally, and internationally.
6. Collating and analysing data on the sale and use of antimicrobial medicines.
7. Advocating the application of data to promote the rational use of antimicrobials.
8. Shaping a sustainable system for AMR surveillance and data sharing.
9. Supporting fellowships to provide strong national leadership in addressing AMR.

The Fleming Fund will achieve these objectives through funding a number of projects with a diverse range of delivery partners, each focussing on a specific set of objectives and outputs, with a focus on sustainability and training.

The Commonwealth Partnerships for Antimicrobial Stewardship Programme 2

CwPAMS2 will build upon the work in earlier funded programmes (CwPAMS1, CwPAMS1.5), and contribute to achieving objectives 2, 7 and 9 from the above list – i.e.:

- Developing and supporting the implementation of protocols and guidance for AMR surveillance and antimicrobial use.
- Advocating the application of data to promote the rational use of antimicrobials.
- Supporting fellowships to provide strong national leadership in addressing AMR.

The programme will leverage the expertise of UK health institutions and technical experts to strengthen the capacity of the national health workforce and institutions in eight Commonwealth countries (Ghana, Kenya, Malawi, Nigeria, Sierra Leone, Tanzania, Uganda and Zambia), to address AMR challenges identified in countries individual AMR National Action Plans in existence or being drawn up with the support of the Fleming Fund.

Target countries have been carefully selected to derive maximum benefit from the established relationships already held by THET, the Fleming Fund and the UK Government more broadly in these locations. The project will be delivered to galvanise action amongst, and between, Commonwealth actors on AMR.

This programme of works can be seen as an extension of the Commonwealth's partnership working that has been an ever-present feature of the network. The importance of collaborative efforts such as these in progressing the development of nations, are emphasised in Sustainable Development Goal (SDG) 17, and aims to tackle the same priorities as the initial phase of CwPAMS through the Health Partnerships approach, while expanding its scope in line with the Fleming Fund strategy and aligns with the UK NAP for AMR ambition 1: *To be a good global partner.*

The Fleming Fund currently identifies its five core funding areas as:

- **Laboratory Infrastructure Enhancement:** building renovation, microbiology equipment purchase, biosafety and security equipment, reagents, durables and consumables and transport and logistics for goods and specimens.
- **Human Resource Strengthening:** training in AMR laboratory techniques, biomedical data management, bio data safety and biosecurity for fellows and country grant beneficiaries.
- **Surveillance System Strengthening:** support for Antimicrobial Resistance Coordinating Committees (AMRCCs), cross-sectoral meetings, strategy reviews, quality assurance control and data analysis and storage.
- **Building Foundations for Surveillance Data Use:** support for awareness raising, publications, evidence-based strategy, data sharing platforms, etc.
- **Rational use of Antimicrobial Medicines:** Development of Antimicrobial Usage (AMU) or Antimicrobial Consumption (AMC) surveillance strategies and stewardship programmes

Priority Themes

The grant will **target themes and areas of investment currently not being developed by other Fleming Fund funded projects**, but which will make an important contribution to the overall success of the Fund. It aims to increase the rational use of antibiotics and ultimately a reduction in morbidity and mortality associated with AMR.

In particular, this grant will support partnerships to address priorities in the following areas:

- Improving antimicrobial stewardship, including surveillance at hospital and community level (**Rational use of Antimicrobial Medicines**)
- Building antimicrobial pharmacy expertise and capacity (**Human Resource Strengthening**)
- Enhancing infection prevention and control (**Human Resource Strengthening, Surveillance System Strengthening**)
- Improving the use of clinical microbiology and antimicrobial prescribing data to inform clinical decisions (**Building Foundations for Surveillance Data Use, Laboratory Infrastructure Enhancement**)
- Enhancing the detection and reporting of substandard and falsified antimicrobial medicines (**Laboratory Infrastructure Enhancement, Human Resource Strengthening, Building Foundations for Surveillance Data Use**)

2. SCOPING EXERCISE - SUMMARY FINDING - Uganda

The previous programme scoping was completed in November 2021; it assessed the status of AMS in each of the 8 CwPAMS Extension countries, and how health partnerships could support institutions and contribute to each country's AMR National Action Plan (NAP). Recommendations from that previous scoping will inform implementation of CwPAMS 2 projects.

This Executive Summary draws on detailed data available in Appendix 1 (Uganda), and highlights gaps in AMS activities in-country. This document is developed as a non-judgemental tool, to be used to guide grant seekers through their application process, to highlight areas which would benefit from partnership activities, develop networks in-country as well as provide resilience and sustainable models of work and training to roll out in the future.

<p>Key needs and priorities identified</p>	<p>There are opportunities in the following areas:</p> <ol style="list-style-type: none">1. Electronic management tool to manage antimicrobial facility supplies and enable the sharing of supplies2. To strengthen One Health AMR surveillance in Uganda by strengthening the accuracy of pathogen identification and Antibiotic Susceptibility Testing results produced by Uganda National Health Laboratory Services and associated human health laboratories3. Produce scientifically robust evidence of AMU practices in hospitals & other healthcare settings4. Interpret AMU surveillance data together with evidence from AMR surveillance to inform future AMR and AMU surveillance priorities within the human, animal & environmental health sectors5. Work with clinicians and other healthcare professionals to improve antibiotic prescribing practices6. Provide data and results to relevant decision-making committees and technical working groups to inform policies or actions regarding responsible AMU to reduce the threat of AMR in Uganda7. Produce scientifically robust evidence of AMU practices in the poultry and livestock production sectors8. Strengthen the accuracy and completeness of AMU data reported by Uganda to the World Organisation for Animal Health (OIE).9. Improving access to microbiology labs for specimen analysis10. The impact and evaluation of Global Point Prevalence Survey (GPPS) on prescribing practices11. In country training for all stakeholders involved in AMS / AMR activities by involving academic institutes12. Lack of inclusion of AMS in the core curricula for veterinarians, and animal welfare and AMR13. Development of local antibiograms14. AMU surveillance system in the human and animal health sector
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	<ol style="list-style-type: none"> 15. Evaluation, feedback, update, revision of The Mandatory Continuing Professional Development (MCPD) for health care professionals (doctors, pharmacists, nurses etc) for AMS 16. Economic impact of AMR 17. Investigation of outbreaks, unusual resistance phenotypes, or delineation of the flow of organisms / genes in AMR 18. Whole genome sequencing for AMR, equipment as well as trained professionals 19. Access to essential medicines (Antimicrobials) and strategies to improve access 20. Public awareness of AMR 21. Veterinary drug residue monitoring 22. E-health, Big data IT, software, mobile apps for AMR 23. Social prescribing, social media, impact, influence and opportunity for AMS/AMR 24. Interventions / services / activities targeting community pharmacy interventions, Midwives and local health workers, community health workers (primary care) 25. Behaviour change interventions for AMR for public and healthcare professionals 26. Inter/intra-collaboration of key stakeholder, organisations, ministries moving in unison towards improved AMS 27. Implementation, evaluation and uptake of national AMR policy 28. GPPS update report 29. Promote Innovations in the Search for Alternative Treatments and Drug Discovery 30. Promote Innovations in Diagnostic Technology 31. Collaborate with International Partners in Basic Intervention Research 32. Improve Infection Prevention and Control 33. Increase and Optimise Use of Vaccines to Prevent Infectious Diseases
<p>Good practice from previous CwPAMS phases</p>	<p>CWPAMS 1:</p> <ul style="list-style-type: none"> ● Antimicrobial prescribing policies inspired the writing of a book on infection in postpartum women ● Adoption of a One Health approach with inclusion of human, environmental and veterinary aspects of antimicrobial usage considered by Makerere University / Nottingham Trent University partnership. ● Formation of Medicines and Therapeutics committees and AMS / IPC Sub-Committees by a number of partnerships. ● Train-the-trainers models of education and training expanded to include Community Health Workers

	<ul style="list-style-type: none"> • Many of the pharmacists that were part of the CwPAMS Programme are now considered core members of their respective AMS committees, providing a sustainable model for AMS within their hospitals. Others have been recognised as key figures in multidisciplinary teams which aim to empower internal healthcare staff with respect to AMS and improve compliance within AMR policies and associated conduct <p>CWPAMS 1.5:</p> <ul style="list-style-type: none"> • Knowledge in production of hand sanitiser which resulted in an increase in local production and knowledge shared enabled by building local collaborations • Inclusion of Community Pharmacies in education and training.
<p>FF partners in country with AMR/AMS projects (titles)</p>	<p>Include:</p> <p>Microbiology laboratories</p> <p>1a Uganda National Health Laboratory Service Active Human health</p> <p>1b Makerere University College of Health Sciences Active Human health</p> <p>1c National Animal Disease Diagnostic Epidemiology Centre Active Veterinary</p> <p>1d Microbiology Research Laboratory - COVAB, Makerere University Active Veterinary</p> <p>2a Mbarara University of Science and Technology and Mbarara National Referral Hospital Active Human health</p> <p>2b Department of Medical Microbiology, Mbarara University of Science & Technology Active Human health</p> <p>2c Mbarara Regional Referral Veterinary Laboratory Active Veterinary</p> <p>3a Arua Regional Referral Hospital Active Human health</p> <p>3b Arua Regional Veterinary Lab Active Veterinary</p> <p>4a Mbale Regional Referral Hospital Active Human health</p> <p>4b Mbale Regional Veterinary Lab Active Veterinary</p> <p>5 Kabale Regional Referral Hospital Active Human health</p> <p>6 Masaka Regional referral hospital laboratory Active Human health</p> <p>7 Jinja Regional referral hospital Laboratory Active Human health</p> <p>8 Soroti Regional referral hospital Laboratory Active Human health</p> <p>9 Lira Regional referral hospital Laboratory Active Human health</p> <p>10a Gulu Regional referral hospital Laboratory Active Human health</p> <p>10b Gulu Regional Veterinary Lab Active Human health</p> <p>AMR Governance Structure</p>

	<p>Previous CwPAMs partner institutions</p> <p>Uganda:</p> <ul style="list-style-type: none"> ● Makerere University Department of Obstetrics and Gynaecology ● Makerere University Health Services ● Infectious Disease Research Collaboration ● Makerere University School of Public Health ● Uganda Makerere University and Mulago National Referral and Teaching Hospital Uganda Kampala Cambridge ● Pharmaceutical Society of Uganda ● Gulu Regional Referral Hospital Uganda ● Mulago National Referral Hospital ● Uganda's AMR-NCC ● Healthcare facilities in Kabarole District ● Uganda's National Animal Health Laboratory ● Church of Uganda Kisiizi Hospital ● Mountains of the Moon University ● Mbarara University of Science and Technology <p>Uganda Sub grantees:</p> <ul style="list-style-type: none"> ● Department of Medical Microbiology, Makerere University ● Pharmacy Department, Makerere University ● College of Veterinary Medicine, Animal Resources and Biosecurity, Makerere University ● Department of Medical Microbiology, Mbarara University <p>Other African or other organisations/institutes with FF grant (project scope in Uganda)</p> <p>Lead grantee:</p> <ul style="list-style-type: none"> ● National Food Institute, Technical University of Denmark ● International Vaccine Institute ● African Society for Laboratory Medicine ● Ending Pandemics ● African Society of Laboratory Medicine ● South Centre <p>Other African or other organisations/institutes with FF grant Sub grantees:</p> <ul style="list-style-type: none"> ● Kilimanjaro Clinical Research Institute; National Institute for Communicable Diseases South Africa; University of Ibadan ● Public Health Surveillance Group; WHONET; Big Data Institute, University of Oxford ● Fondation Merieux; American Society for Microbiology; Africa CDC; Institut Pasteur; Institut de Recherche en Santé, de Surveillance Epidémiologique et de Formation ● Asia Partnership on Emerging Infectious Disease Research; Kheasar Gyalpo University of Medical Sciences of Bhutan; East Africa Integrated Disease Surveillance
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	<p>Network; Eastern Mediterranean Public Health Network; Mekong Basin Disease Surveillance Consortium; Middle East Consortium on Infectious Disease Surveillance; Pakistan One Health Alliance; South Africa Centre for Infectious Disease Surveillance; Southeast European Centre for Surveillance and Control of Infectious Diseases</p> <ul style="list-style-type: none"> ● Africa CDC; Public Health England; Food and Agriculture Organization; National Institute for Communicable Diseases ● Center for Disease Dynamics, Economics & Policy; IQVIA, Africa Centers for Disease Control & Prevention (CDC); West African Health Organisation; East, Central and Southern Africa Health Community; Innovative Support to Emergencies, Diseases and Disasters
<p>Non-FF grant holders in country with AMR/AMS projects (titles)</p>	<p>Include:</p> <p>Microbiology laboratories</p> <ul style="list-style-type: none"> ● Field Epidemiology and Laboratory Training Program (FELTP) has been established at Makerere University funded by CDC. <p>Other funders for this include:</p> <p>Wellcome Trust African Academy of Science(AAS) Alliance for Accelerating Excellence in Science in Africa (AESA) New Partnership for Africa's Development (NEPAD) UK Aid Royal Society</p> <p>Many other contributors have provided additional support for fellows' research</p> <ul style="list-style-type: none"> ● Makerere University/Uganda Virus Research Institute (UVRI) Centre of Excellence for Infection & Immunity Research and Training (MUII) <p>Non-CwpAMs institutions</p> <ul style="list-style-type: none"> ● World Health Organisation (WHO) ● Food and Agriculture Organisation (FAO) ● OIE (World Organisation for Animal Health) ● CDC ● Global Health Service Partnership (GHSP) ● World Bank-funded East Africa Public Health Laboratory Networking Project (EAPHLNP) ● United States Agency for International Development (USAID) ● Medicines, Technologies and Pharmaceutical Services (MTaPS) ● ReAct Africa ● WHO Access, Watch and Reserve ● Drivers of Resistance in Uganda and Malawi (DRUM) consortium ● German Federal Ministry of Economic Cooperation and Development (BMZ) and the CGIAR Research Programs

	<p>on Livestock and Agriculture for Nutrition and Health (A4NH)</p> <ul style="list-style-type: none"> ● Global Health Security Agenda (GHSa) partnership ● International Association of Public Health Institutes - IANPHI are an organisation of government agencies ● Center for Disease Dynamics, Economics & Policy (CDDEP) under Global Antibiotic Resistance Partnership (GARP) ● CDDEP supported UNAS to put in place a Standing Committee on Antimicrobial Resistance ● Global Health Security Agenda (GHSa) partnership ● Alliance for the Prudent Use of Antibiotics (APUA) Chapter ● The Uganda National Academy of Sciences (UNAS) ● Uganda AMR Surveillance Task Force ● Uganda National Antimicrobial Resistance Committee (UNAMRC) consisting of representative from all of the following: <ul style="list-style-type: none"> ○ Ministry of Health (MoH) ○ Ministry of Agriculture Animal Industry, and Fisheries (MAAIF) ○ Ministry of Water and the Environment (MoWE) ○ National Drug Authority (NDA) ○ Uganda National Academy of Sciences (UNAS) ○ Public and Private Universities and Post-Secondary Teaching Institutions ○ National Medical Stores (NMS) ○ Research Institutions (Uganda National Health Research Organisation, National Agricultural Research Organisation, Uganda Virus Research Organisation) ○ Professional Societies (Uganda Medical Association, Uganda Veterinary Association Pharmaceutical Society of Uganda, Uganda Allied Health Sciences) ○ Uganda Consumer Society ○ National Water and Sewerage Corporation (NWSC) ○ National Environment Management Authority (NEMA) ○ International agencies (WHO, OIE, FAO etc.) ○ Uganda National Council of Science and Technology (UNCST) ○ Uganda Police Force/Uganda People's Defence Force ○ The Fleming Fund
<p>AMS activity in-country since 2021 (GPPS, WHO PPS, other)</p>	<p>CWPAMS 1.5: All four partnerships aimed to carry out GPPS in 2021-2022. Makerere University School of Public Health -GPPS survey</p>

	<p>conducted at one site in 2021-2022. * Please find more information in the appendix</p> <p>2020-2021: A study reports the application of World Health Organisation's (WHO) standardised point prevalence survey methodology to assess antibiotic use in 13 public and private not-for-profit hospitals across the country. Data for 1077 patients and 1387 prescriptions were collected between December 2020 and April 2021. https://pubmed.ncbi.nlm.nih.gov/35203802/</p>
AMU reviews in-country since 2021 (non-PPS)	none found
Evidence of use of data gathered in development of NAP (especially GPPS methodology)	Unclear whether GPPS data was used. However, members from FF were part of the NAP.
Principal stakeholders in AMS arena in-county	<ul style="list-style-type: none"> ● Ministry of Health (MoH) ● Ministry of Agriculture Animal Industry, and Fisheries (MAAIF) ● Ministry of Water and the Environment (MoWE) ● National Drug Authority (NDA) ● Uganda National Academy of Sciences (UNAS)
Training	<p>Pre-service HealthCare professionals: Yes In-Service Health Care professional: Yes</p> <p>Both yes, ongoing please see appendix for more information.</p> <ul style="list-style-type: none"> ● Some professional/institutional training have been developed in line with FF projects ● Policy fellowships by FF institutes ● The Professional Fellowship by FF institutes ● Currently the Pharmaceutical Society of Uganda in collaboration with the Commonwealth Pharmacists Association has started Continuous Professional Developments (CPDs) on AMS. ● AMR Surveillance Fellowship - Human Health at Mbarara University of Science and Technology ● The Fleming Fund and the Open University have released new modules on the Tackling Antimicrobial Resistance course, meaning 23 modules are now available. The course is completely free and available world-wide, regardless of whether participants are affiliated with the Fleming Fund. ● On the 26th and 27th of April 2022, the first SPARC training workshops were hosted in Uganda to train and

	<p>empower in-country consultants (ICCs) and site champions from Nigeria, Eswatini, Malawi and Zimbabwe to help change behaviour in antimicrobial use through the collection and reporting of Global Point Prevalence Survey (GPPS) data.</p> <ul style="list-style-type: none"> • The capacity building deployed innovative teaching methods including games and technologies such as use of the CwPAMS antimicrobial prescribing app (CwPAMS MicroGuide®) which hosts the Ugandan Clinical Guidelines, playing the CwPAMS AMS game®, and Glo Germ experiment to illustrate proper handwashing and the balloon experiment (e-Bug) to illustrate the phenomenon of resistance. (Makerere University Health Services in Uganda is working in partnership with Buckinghamshire Healthcare NHS Trust)
Registered pharmacist numbers in-country (2021-2022)	Draw from in-country sites Pharmacists: 1445
Other registered healthcare professionals	<p>Doctors: 7031 Nurses: 51327 Midwives: 23546 Medical and Pathology scientist number: 3874 (last updated on 01-2022) https://www.who.int/data/gho/data/themes/topics/health-workforce</p>
Evidence of leadership training for HCPs	<p>Yes</p> <p>Policy fellowships by FF The Professional Fellowship by FF</p>
Evidence of CQI/Behaviour Change training for HCPs in the AM arena	<p>Yes</p> <ul style="list-style-type: none"> • Local manufacturing of hand sanitiser and use • Uganda has defined Key Performance Indicators (KPI) for surveillance of AMU/C alongside the surveillance of AMR labs based using country defined antibiotics and pathogens • Local antibiogram is under development at Gulu Regional Referral Hospital to build on the medicine formulary • Educational interventions have been developed to improve treatment of acute respiratory infections (ARI) in children in community pharmacies/drug outlets, but not in hospital settings • The curricula at Makerere College of Health Sciences has been updated to include clinical pharmacy and visits to Mulago Hospital. • A project aimed at strengthening AMS in Wakiso district, Uganda, was conducted using a One Health approach.

	<p>Upon evaluation, 92.2% Healthcare Practitioners (HPs) and 90.3% Community Health Workers reported enhanced practices, including improved hand washing (57.3% and 81.0%, respectively). Approximately 51.5% of the HPs reported a reduction in unnecessary antibiotics given per patient</p>
Registered numbers of clinical microbiologists	<p>Medical and Pathology scientist number: 3874 (last updated on 01-2022) https://www.who.int/data/gho/data/themes/topics/health-workforce</p>
Evidence of Good Practice in AMS, AMU, AMR in Community Health arena	<p>Yes</p> <ul style="list-style-type: none"> ● November 2021: Fleming Fund professional and policy fellows took a very active role in events highlighting World Antibiotic Awareness Week in Uganda (World Antimicrobial Awareness Week WAAW 2021 in Uganda) ● Successful outcome for antimicrobial stewardship capacity building meetings in Uganda (Feedback after a successful CwPAMS and SPARC meeting) ● Ugandan Director General of Health Services met with directors of National and Regional Referral Hospitals with clinicians, laboratory staff, and development partners, to discuss implementation of active AMR surveillance in their facilities, supported by the FlemingFund
Evidence of Supply Chain management processes in-country	<p>Yes however, unclear on specifics for antimicrobials/antibiotics. Further information awaited.</p>
Evidence of Substandard and Falsified Medicines reporting mechanisms	<p>Yes</p> <p>Makerere University participated in the pilot project to create the undergraduate curriculum for pharmacy students - Global Competency Framework for Pharmacists' Education and Training on Substandard and Falsified (SF) Medical Products together with International Pharmaceutical Federation and the WHO.</p>