

# A. Terms of Reference for Expressions of Interest

## Host Institutions for the Fleming Fellowship Scheme

### 1. Overview of this grant

This is a Request for Expressions of Interest (EOI) for Host Institutions for the Fleming Fellowship Scheme. The grant will be funded by UK Department of Health (DH) under its Fleming Fund Grants Programme. The aim of the Fleming Fund (FF) is to address critical gaps in surveillance of antibiotic resistance in low- and middle-income countries (LMICs) in Asia and Sub-Saharan Africa. Countries in these areas are set to bear the highest burden of antimicrobial resistant infections. Led by the UK, political action against the problem has resulted in a roadmap for global response - the Global Action Plan on Antimicrobial Resistance (AMR).<sup>1</sup> This is the blueprint for a multi-stakeholder global response to averting the burden of AMR. Mott MacDonald has been appointed as the Fleming Fund Management Agent and is responsible for the management of the Fleming Fund Grants Programme.

The Fleming Fund Grants Programme includes the Fleming Fellowship Scheme. Fleming Fellowships provide mentorship and career enhancement opportunities for professionals in LMICs who are working in fields relevant to the national AMR response. Fleming Fellows are supported by Host Institutions. These are organisations that provide customised professional development services (including training, mentorship and secondment) to selected Fellows. We are looking to appoint Host Institutions who will work together to deliver up to 120 Fleming Fellowships across Asia and Sub-Saharan Africa over four years. Typically, each Fellowship award will last for 18 to 24 months.

Through this Request for Expressions of Interest, we are seeking to identify potential Host Institutions to cover 5-7 countries in each of the four Fleming Fund regions: West Africa, East and Southern Africa, South Asia and South East Asia. Further details on the application process are provided in Section 4.

Initially, Host Institutions will be selected to support Fellows from three countries in three of the four regions (Ghana, Uganda and Nepal). Prospective Host Institutions can be based anywhere in the world, but they should have access to countries in the four regions and ideally, a track record of operating there. Prospective Host Institutions can bid to cover one or more than one region. Host Institutions should also have existing networks, capacity building experience, and knowledge specific to the Fellowship Scheme context. This round will focus on two categories of Fellowship namely:

- **Laboratory Fellowships** for senior laboratory personnel who are responsible for bacterial culture and antimicrobial sensitivity testing within national medical and veterinary diagnostic laboratories and networks.
- **Surveillance Fellowships** for senior medical and veterinary epidemiologists and others involved in surveillance of Antimicrobial Resistance and use of antimicrobial agents.

Host Institutions will work closely with Fellows, their employers (hereafter referred to as Beneficiary Institutions) and the Fleming Fund Management Agent. Together, we will plan and deliver customised packages of professional development activities to individual Fellows. These activities will enhance the competency of the Fellow, build capacity of the Beneficiary Institution and support collaboration across the human and animal health sectors.

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<sup>1</sup> <http://www.who.int/antimicrobial-resistance/global-action-plan/en/>

These terms of reference provide information on the Fleming Fellowship Scheme and the role of Host Institutions. This document is accompanied by an application form for prospective Host Institutions to submit expressions of interest.

## 2. Overview of the Fleming Fund

The UK Government has established the Fleming Fund to respond to the global threat of antimicrobial resistance (AMR). The Fleming Fund is critical to achieving the resolution of the 68th World Health Assembly, 2015 (WHA A68/20), and in realising the 'Political Declaration of the High-Level Meeting of the UNGA on Antimicrobial Resistance, 2016'. These initiatives recognise that urgent cross sectoral rationalisation of antimicrobial use (AMU) and prevention and control of infections in humans, animals, food, agriculture, and aquaculture sectors are key to tackling AMR and calls for: innovative research and development; affordable and accessible antimicrobial medicines and vaccines; improved surveillance and monitoring; increased governance on antimicrobial use; and increased international cooperation to control and prevent AMR.

The aim of the Fleming Fund Grants Programme is to improve the ability of recipient countries and regions to improve surveillance and monitoring of AMR. This includes enhancing diagnosis of drug resistant infections, with an emphasis on antibiotics and priority bacterial diseases, improving the monitoring of antimicrobial usage, and improve data quality and volume to inform policy and practice at national and international levels. The goal is to avert the human and economic burden of antimicrobial resistance.

The Fleming Fund Grants Programme is one component of financial support undertaken by the wider Fleming Fund, which also provides support to the Tripartite Alliance - the Food and Agriculture Organization (FAO) and the World Organisation for Animal Health (OIE), the World Health Organization (WHO) - as part of the 'One Health' approach. It also funds initiatives in academic institutions to develop guidance on the development of AMR surveillance systems. Through funding to the Tripartite Alliance, the Fleming Fund has contributed to the development of National Action Plans in Sub-Saharan Africa, South and South-East Asia, and to the building of the evidence base and guidance for AMR surveillance. This work will be critical for the overall success of the Fleming Fund Grant Programme and underpins the delivery of the portfolio of country and regional grants, as these will target capacity gaps identified in National Action Plans.

The geographic focus of the Fleming Fund Grants Programme is low and lower-middle-income countries in **four regions: West Africa, East and Southern Africa, South Asia and South East Asia**. It provides financial support to participating countries via three funding channels, over a five-year period from 2017 to 2021:

- Country Grants.
- Fleming Fellowship Scheme, that provides continual professional development and leadership training opportunities for relevant fellows.
- Regional Grants.

The UK Department of Health has appointed Mott MacDonald as the Fleming Fund Management Agent for the Fleming Fund Grants Programme. Mott MacDonald is a global company with expertise in multi-sectoral international development and fund management. On behalf of the UK Government, Mott MacDonald is responsible for allocating funding and oversight of all investments made across the Fleming Fund Grants Programme portfolio. The Fleming Fund Grants Programme will be independently evaluated, and Itad, a specialist evaluation firm, has been appointed for this purpose.

## 3. The Fleming Fellowship Scheme

### 3.1. Aims and objectives

The aims of the Fleming Fellowship Scheme are to:

- Enhance investments made through Country and Regional Grants for improved surveillance of AMR and antimicrobial use (AMU) to set the ground for the improved use of quality data for evidence-based decision making.
- Encourage peer-to-peer learning and joint problem solving through participation in lasting One Health communities of practice and networks that build and strengthen cross-sectoral relationships and contribute to the global dialogue on combatting AMR.

The objectives of the Fleming Fellowship Scheme are to:

- Provide customised professional development support to selected Fellows from nominated Beneficiary Institutions in eligible countries.
- Provide learning, mentorship and skills development for selected individuals.

### 3.2. Scope of the Fleming Fellowship Scheme

Support provided by the Fleming Fund through Country or Regional Grants seek to improve laboratory infrastructure, diagnostic capability, quality management, surveillance systems, and data analysis and interpretation, where these are aligned with fulfilling the objectives of AMR National Action Plans in eligible countries.

The initial stages of the Fellowship Scheme will complement this by enhancing skills and leadership capacity in human clinical and veterinary microbiology, surveillance and data management, analysis and interpretation related to antimicrobial resistance in both the human health and animal health sectors.

Fellowships will strengthen skills and leadership capacity in the following fields:

- Human and veterinary clinical microbiology and laboratory quality management related to AMR of priority pathogens (Laboratory Fellows).
- Human and veterinary epidemiology, data analysis and use related to AMR and AMU surveillance (Surveillance Fellows).

Host Institutions will be drawn on to provide professional development in these areas. Grants will also include funding for 'collaborative projects' which will allow groups of Fellows, mentors, Host Institutions and other in-country participants to undertake applied field studies to foster collaboration using a One Health approach.

Initially, Fellows will be supported from three early investment countries in three of the four regions (EICs): **Ghana, Uganda and Nepal**. Five to seven other countries in each of the four regions will be added in the coming 12-18 months in line with the roll-out of the Fleming Fund Country Grants programme. The initial round of applications for Fellows will aim to select cohorts of 3-4 Fellows in each country (eventually providing around 30 per region).

Host Institutions or consortia do not need to be based in the three EICs nor in the regions themselves and can be based anywhere in the world. They should have easy access to them and other countries in each of the associated geographical Fleming Fund regions. The exception is for South East Asia, where prospective Host Institutions can express interest without necessarily

operating in the three EICs, with the understanding that countries within the South East Asian region will be added to the programme in line with the roll-out of Country Grants in the coming months and years. Host Institutions should preferably have existing networks, capacity building experience, and knowledge specific to the Fellowship Scheme context.

Fellowship activities are likely to include:

- **Mentorship:** the mentor will be from the Host Institution and the Fellow's main point of contact within the Fellowship Scheme. The mentor should be a senior academic/scientist and is expected to work with the Fellow to define their learning objectives and outcomes, and to plan a programme of activities that delivers on these. Thereafter, the mentor should provide a combination of remote and in-person support, including at the Fellow's workplace, and provide supportive supervision for the other activities outlined below.
- **Secondments:** each Fellow is expected to spend some time seconded into another workplace. Laboratory Fellows are expected to spend time in other laboratories undertaking bench-work and structured learning and guided by their Host Institution and/or extended study visit(s) within other institutions. Surveillance Fellows working in epidemiology may, for example, be seconded to an epidemiology research centre or government institution in another country. Host Institutions will facilitate such secondments so that Fellows learn how other organisations work and gain applied knowledge and skills that can be taken back to their workplace.
- **Collaborative projects with colleagues and/or other Fellows:** Host Institutions will work with Fellows, their Beneficiary Institutions and sometimes other Host Institutions to identify relevant projects for applied learning that involve working collaboratively to complete them. Collaborative projects will use a One Health approach and might include inter-disciplinary work within or between countries. Host Institutions will mentor and support the Fellows and collaborative project participants to design and implement these projects as an integral part of their applied learning programme. The Management Agent will review the design of all collaborative projects to ensure they meet the criteria of scientific rigour, learning value, alignment with national/regional priorities, and value for money.
- **Specialist training:** Fellows may also benefit from specialist training in laboratory, surveillance or data analysis methods including One Health principles and approaches.

Fellowship packages delivered by Host Institutions will also include opportunities for institutional support and advice to Beneficiary Institutions. Activities could include:

- **Capacity building for colleagues of Fellows** by supporting others at the Beneficiary Institution to become mentors or trainers, or to implement lessons learnt by the Fellow on quality procedures, systems or processes.
- **Capacity building for senior managers:** this could include participation in trainings, symposia and communities of practice, where this is feasible and cost-effective.
- **Participation in consultation meetings or workshops with mentors and visiting experts:** when practical, Host Institutions should assist other professionals from the Fellow's workplace to benefit from the guidance of mentors and technical experts during country visits, for example, by running seminars or providing practical support in the laboratory or surveillance setting.
- **Contributions to journals, publications and symposia:** where linkages with Host Institutions create opportunities for collaborative projects, efforts will be made to involve local

professionals in uptake and dissemination of results, as well as the development of publications.

A priority for the Fellowship Scheme is the effective collaboration and building of networks and communities amongst Fellows and Host Institutions, across sectors, disciplines and countries. The Fleming Fund Management Agent will lead on facilitating this process but Host Institutions will be expected to provide practical support for Fellows to participate. This could include:

- **Thematic meetings, workshops and symposia:** these may take place locally or regionally and will primarily support knowledge and skills exchange, sharing of lessons, and presentation of relevant data. This will include supporting opportunities for Fellows to share their work with policy makers and other stakeholders nationally, regionally and globally.
- **Virtual networking and information exchange:** This will mainly involve facilitated participation in communities of practice hosted using an online Fellowship portal. Virtual networking will also support information exchange through resource sharing, social networking, blogs, webinars and access to key publications, including clinical and operational research and data maps.

### 3.3. Categories of Fellowship

Fellows will be supported in building their technical and leadership skills through mentorship support, secondments, specialised training, and participation in the design and implementation of collaborative projects.

We expect that the first cohort will include 3-4 Fellows from each of three EICs. These will be drawn from:

- **Laboratory Fellowships:** Laboratory scientists, primarily senior microbiologists, who are responsible for bacterial culture, antimicrobial sensitivity testing and/or laboratory quality management within national medical and veterinary diagnostic laboratories.
- **Surveillance Fellowships:** Senior medical and veterinary epidemiologists and others involved in AMR and AMU data analysis and interpretation.

The Fleming Fund Management Agent will work with national stakeholders to identify the specific focus and activities of the Fellowships in a country. Indicative objectives, activities and outcomes for the two categories of Fellowships are listed in Annex 1.

### 3.4. Observing the Fleming Fund's core principles

The Fleming Fellowship Scheme, just like the broader Fleming Fund, follows four core principles which we expect Host Institutions to support:

- **Country Ownership:** the Fleming Fund will work closely with national governments to ensure that the country's plans and aspirations, as laid out in their National Action Plan, are followed. The Management Agent will consult and work hand-in-hand with national governments to agree the approach. Although we will give priority to ensuring that there will be independent and unbiased selection of Fellows, we will also seek to ensure that the principle of country ownership is not compromised.
- **One Health:** the Fleming Fund recognises that the problem of AMR is wider than just human health and, as a result, will support a One Health approach to addressing it. In practice this means ensuring:

- **Collaborative multi-sectoral governance of AMR:** strengthened leadership of AMR and AMU surveillance and mitigation measures in all the sectors that contribute to the emergence of AMR.
  - **Integrated AMR and AMU surveillance across sectors:** integration and collaboration in surveillance for humans, livestock, aquaculture, crops, food and the environment.
  - **AMR mitigation policies and programmes prioritised across multiple sectors:** evidence-based policies and programmes for AMR mitigation measures that are prioritised across the relevant sectors, based on information generated through AMR and AMU surveillance in all sectors.
- **Alignment of Approach:** Fleming Fellowships will support areas which complement and build on work done to date. To the extent possible, Fellows will need to demonstrate how they will add value to existing investments and systems. Fellowships will also seek to add value to Fleming Fund Country and Regional Grants and avoid duplication of other partners' efforts.
  - **Sustainability:** as far as possible, we will focus assistance to national systems with a view to long-term sustainability. The Fellowship Scheme's coupling to Fleming Fund Country Grants maximise complementarities that will enhance results. In addition, the Fellowship Scheme focuses on professional development of individuals who are already in positions of leadership and are able to demonstrate potential to leverage sustainable change. The Fellowship Scheme will also support the structural and enabling environment of the Fellow and include networking and collaboration within and between countries to strengthen existing linkages or facilitate new alliances.

### 3.5. Selection of Fellows

The Fleming Fund Management Agent will develop terms of reference for each Fellowship in each country. These will be based on the priority capability and competency needs identified in consultation with national stakeholders in each country. Consultation will include identification of Beneficiary Institutions in each country, the staff from which will be eligible to apply for Fellowships.

In general, Beneficiary Institutions will be institutions that are being supported by the Fleming Fund or that contribute to Fleming Fund outcomes; in most cases these will be public-sector institutions involved in AMR work and critical to the functioning of the country's AMR surveillance system as laid out in the country's AMR National Action Plan. For example, likely candidates are the national reference laboratories for AMR in public and veterinary health sectors as well as subordinate labs in the surveillance system (such as Surveillance Sites). The Management Agent will manage a call for Fellowship applications within the selected Beneficiary Institutions.

The selection of Fellows will consist of an interview process, which will include the Management Agent, the Host Institution matched with the Fellowship, and national stakeholders if appropriate. The UK Department of Health will make the final decision on approving the selection of each Fellow, based on recommendations from the Management Agent.

## 4. Applying to be a Host Institution

### 4.1. The application process

The Management Agent for the Fleming Fund, Mott MacDonald, is aiming to appoint Host Institutions who can provide customised professional development services (including training, mentorship and secondment) to selected Fellows. It is anticipated that Host Institutions will, over time, work with around 4-6 countries in a region.

Organisations will apply to become pre-qualified Host Institutions through a two-stage open and competitive selection process.

- **Stage 1:** Expressions of Interest – the form below should be filled in and returned to initiate this.
- **Stage 2:** Those who are selected to proceed will then be asked to provide additional information on their approach to the Fellowships through a full proposal. This will identify pre-qualified host institutions.

Pre-qualified Host Institutions will be matched with Fleming Fellows, with the terms of each Fellowship award being developed in consultation with national stakeholders in each country. Host Institutions that are matched to Fellowships will be awarded with Fleming Fellowship Scheme Grants to support the Fellowship Scheme.

For each Fellowship opportunity, Fellows will be selected based on Fellowship-specific terms of reference. Selection will follow a separate application and interview process that will be undertaken at country level, by the Management Agent, but with support from Host Institutions (that have been matched to the Fellowship) and national stakeholders where appropriate. Fellows will be selected from Beneficiary Institutions, these may be organisations already supported by the Fleming Fund (through Country and Regional Grants) or institutions which complement Fleming Fund investments.

### 4.2. Eligibility criteria for Host Institutions

We expect to pre-qualify 8-12 Host Institutions to deliver Fleming Fellowships across the four regions. From this group of pre-qualified Host Institutions, we will select 2-3 Host Institutions to deliver the first round of fellowships in Ghana, Uganda and Nepal. As the Fleming Fund is rolled out beyond these three countries, pre-qualified Host Institutions will be selected to deliver Fellowships in a growing number of countries. Each Host Institution may be invited to deliver up to 30 Fellowships in one or more region.

Host Institutions must satisfy the following eligibility criteria before applications will be assessed in detail. Host Institutions must:

- Demonstrate they are competent organisations with the appropriate track-record in:
  - AMR-related work and advanced training. Preference will be given to institutions with proven expertise in the thematic focus areas of: clinical microbiology, veterinary microbiology, epidemiology and AMR data analysis and use.
  - Developing, adapting and refining training, mentoring and other capacity building materials for a specific group or context – including proven ability to source and manage individuals providing mentorship support.
  - Building leadership skills, as well as institutional strengthening, applied learning and evidence-based capacity building in low- and middle-income settings.

- Have strong national, regional and/or international networks they can draw on in the delivery of Fellowships and experience of facilitating communities of practice.
- Be single organisations or consortia, though the latter must clearly identify a Lead Host Institution (Grantee), with appropriate governance and coordination mechanisms to manage inputs from other partners.

Host Institutions can be:

- Academic institutions – such as universities and research institutes.
- Non-governmental organisations (NGOs).
- UN agencies.
- Private companies.

Government-owned enterprises or institutions, provided they can establish that they are:

- Legally and financially autonomous;
- Operate under commercial law; and
- Are not government departments or dependent agencies of national governments.

### 4.3. Description of tasks

Host Institutions who are awarded Fleming Fellowship Scheme Grants will be responsible for delivering the customised package of professional development activities for each assigned Fellow. As a first step, Host institutions will assign a mentor (experts in the relevant field) to each Fellow. This mentor will work with Fellows and the Beneficiary Institutions to plan and deliver customised professional development programmes. These will be laid out in costed Fellowship Workplans which will map out the activities proposed by the Fleming Fund Management Agent and national stakeholders in more detail. Costed Fellowship Workplans will form the basis of grant agreements with the Host Institutions.

Fleming Fellowship Scheme Grants to preselected Host Institutions will be based on development and approval of costed Fellowship Workplans for each fellow. Grant disbursements to Host Institutions will be based on satisfactory progress in delivery of these workplans and financial reports. Implementation of Fellowship awards will be subject to routine monitoring, verification and quality assurance activities by the Management Agent. This will include a schedule of internal and external audits.

The main task areas for Host Institutions will be consistent with the scope of work for the Fellowship Scheme (see Section 3.2). The duration of grants and deliverables will be specific to each Fellowship. Key activity areas are likely to include:

- Building capacity in the field/s that are relevant for the Fleming Fellowship Scheme.
- Delivering learning, training, mentoring or other professional development activities.
- Developing, adapting and refining training, mentoring and other capacity building materials.
- Sourcing and managing individual mentors and experts.
- Building leadership skills.
- Delivering or supporting institutional strengthening activities.
- Drawing on strong regional and international networks.
- Supporting the development and functioning of communities of practice.

#### **4.4. Evaluation criteria for Expressions of Interest**

All sections of the EOI will be scored by the Fleming Fund Management Agent using the scoring criteria listed in the Expression of Interest application form. This initial appraisal will be based on: compliance with the eligibility criteria for Host Institutions (Section 4.2); the quality of the applicants track record, fields of expertise and relevant experience; and institutional capacity to accountably manage and administer Fleming Fellowship Scheme Grants (that is, capacity to meet due diligence requirements, including those relating to International Organization for Standardization (ISO) quality standards, ethical practice and duty of care).

#### **4.5. Restrictions/limitations**

Any conflict of interest, or potential conflict of interest, should be declared to Management Agent when prospective grantees are registering their interest to apply for the grant. If a conflict of interest, or potential conflict of interest, arises after that point, the prospective grantee must clearly declare this in their EOI document.

# Annex 1: Indicative objectives, activities, and outcomes

## Indicative objectives, activities, and outcomes for Laboratory Fellowships

Laboratory Fellowships in human and animal health are likely to focus on establishing quality systems which may include building or strengthening quality circles among a network of laboratories. This includes strengthening quality of the entire diagnostic system, from maintaining an uncontaminated laboratory environment, careful sample management, accurate diagnostic practices and inputting reliable quality data in to information management systems.

Depending on the needs and gaps identified in a country, the Fleming Fellowship Scheme may consider supporting one Laboratory Fellowship in human health and one in animal health, to promote a One Health approach through sharing methods and resources.

Indicative Fellowship objectives, activities and outcomes for Laboratory Fellowships in human and animal health can be found in the table below. NOTE, this is not an exhaustive list and additional objectives and activities can be suggested.

**Table A. 1: Indicative Fellowship objectives, activities, and outcomes for Laboratory Fellowships in human and animal health**

Indicative objectives and activities	Indicative outcomes
<p><b>Quality assurance (QA) expertise to support establishment and maintenance of quality assurance and control. Activities could include:</b></p> <ul style="list-style-type: none"> <li>• <b>Mentoring in theory</b> <ul style="list-style-type: none"> <li>• Good laboratory practice (GLP).</li> <li>• Important quality control (QC) points in labs.</li> <li>• QC methods.</li> <li>• International [external] QA Programme.</li> </ul> </li> <li>• <b>Placement in a well-functioning lab to learn GLP and understand effective implementation of QA/C.</b></li> <li>• <b>Mentoring &amp; guidance:</b> <ul style="list-style-type: none"> <li>• Strengthening GLP and QA programmes in labs.</li> <li>• Preparing practical documentation (flow charts).</li> <li>• Leading external QA testing.</li> </ul> </li> <li>• <b>Collaborative project – e.g. analysis of QA data and comparison between laboratories</b></li> <li>• <b>‘Train the trainer’ training – theory and practice of learning.</b></li> <li>• <b>Attend relevant conference(s).</b></li> <li>• <b>Networking with other Laboratory Fleming Fellows, developing a community of practice with which to share experience and practices.</b></li> </ul>	<p><b>Reliable quality diagnostic results</b></p> <ul style="list-style-type: none"> <li>• Improved quality of diagnostic results</li> <li>• Improved lab efficiency</li> <li>• Staff satisfaction</li> <li>• Good work environment</li> </ul> <p><b>Strengthened laboratory system</b></p> <ul style="list-style-type: none"> <li>• Strengthened network of AMR surveillance labs</li> <li>• Strengthened role of a central laboratory as a National Reference Laboratory for AMR</li> </ul>
<p><b>Bacteriology expertise. Activities could include:</b></p> <ul style="list-style-type: none"> <li>• <b>Specialist training in diagnostic techniques including advanced technologies if appropriate with an objective of passing on the training to others.</b></li> <li>• <b>Collaborative project – e.g. could involve more advanced diagnostic technologies if appropriate such as serotyping or polymerase chain reaction (PCR).</b></li> </ul>	<p><b>Strengthened microbiology expertise</b></p> <ul style="list-style-type: none"> <li>• Expertise available to implement more advanced diagnostic technologies, and to train others in laboratory network.</li> <li>• More specific diagnostic information from isolates e.g. <i>Salmonella</i> serotypes.</li> </ul>
<p><b>One Health collaboration between human and animal sectors. Activities could include:</b></p>	<p><b>Strengthened One Health collaboration</b></p> <ul style="list-style-type: none"> <li>• More efficient use of resources</li> </ul>

Indicative objectives and activities	Indicative outcomes
<ul style="list-style-type: none"> <li>• <b>Identify opportunities for collaboration and sharing of approaches, resources and training for building capacity and quality across human and animal health laboratories.</b></li> <li>• <b>Activities which promote collaboration across labs from any sector contributing to AMR surveillance (e.g. including environmental, animal, agriculture, etc).</b></li> </ul>	<ul style="list-style-type: none"> <li>• Stronger relationships and information sharing between human and animal health laboratories contributing to AMR surveillance.</li> <li>• Strengthened One Health approach to managing AMR across all sectors.</li> </ul>

### Indicative objectives, activities, and outcomes for Surveillance Fellowships

Surveillance Fellowships will focus on surveillance system design/evaluation and the collection, management, analysis and utilisation of AMR or AMU surveillance data, supporting the Fellow to become a leader in AMR/AMU surveillance. Supporting Fellowships in surveillance is expected to strengthen the entire surveillance system, from generation and management of data at surveillance sites to using AMR or AMU data for policy making.

As with Laboratory Fellowships, depending on the needs and gaps identified in a country, the Fleming Fellowship Scheme may consider supporting one Surveillance Fellowship in human health and one in animal health, aligning the activities of both to promote a One Health, collaborative approach across sectors. NOTE, this is not an exhaustive list and additional objectives and activities can be suggested.

Indicative Fellowship objectives, activities outcomes for Surveillance Fellowships in human and animal health can be found in the table below.

**Table A. 2: Indicative Fellowship objectives, activities outcomes for Surveillance Fellowships in human and animal health**

Indicative objectives and activities	Indicative outcomes
<p><b>Surveillance expertise</b></p> <ul style="list-style-type: none"> <li>• <b>Mentoring in surveillance system design &amp; evaluation:</b> <ul style="list-style-type: none"> <li>• Understanding biases in surveillance data.</li> <li>• Different approaches to surveillance.</li> <li>• Key elements of surveillance (representativeness, timeliness, usability).</li> <li>• One Health surveillance – linking the One Health Domains</li> </ul> </li> <li>• <b>Theory &amp; practice of AMR surveillance with a focus on improvement of the Fellows’ own surveillance system(s), in line with GLASS, National Action Plans and other overarching guidelines.</b></li> <li>• <b>Mentoring to keep up-to-date with AMR or AMU surveillance literature.</b></li> <li>• <b>Provide training in AMR and AMU data collection and assessment tool(s).</b></li> <li>• <b>On-going in-country support for collecting AMR and AMU data, interpretation and assistance with reporting for policy makers and action.</b></li> <li>• <b>Mentoring and support with identifying 1 – 3 target AMU issues to address in hospitals and assessing the implementation of such changes.</b></li> <li>• <b>Collaborative project – study design, implementation, data analysis, reporting.</b></li> <li>• <b>‘Train the trainer’ training – theory and practice of learning.</b></li> <li>• <b>Participation in relevant conferences / technical fora.</b></li> <li>• <b>Mentoring and support to work across sectors within the country to collect and interpret AMR and AMU data.</b></li> </ul>	<p><b>Strengthened surveillance system</b></p> <ul style="list-style-type: none"> <li>• Improved surveillance programmes designed, implemented, evaluated and refined.</li> <li>• Interpretation of surveillance results based on an understanding of biases in the data</li> <li>• Presenting surveillance data to support decision making regarding AMR policies</li> <li>• AMU data routinely collected and analysed in a standardised way across facilities</li> <li>• AMR surveillance results interpreted in the context of AMU and more appropriate changes to prescribing practices.</li> </ul>

Indicative objectives and activities	Indicative outcomes
<ul style="list-style-type: none"> <li>• Networking with Surveillance Fellows in other countries to develop a community of practice with which share experience and practices.</li> </ul>	
<p><b>Data management, analysis &amp; interpretation</b></p> <ul style="list-style-type: none"> <li>• Mentoring in: <ul style="list-style-type: none"> <li>• Working with their institution’s surveillance data (data management, analysis, interpretation).</li> <li>• Presenting results, scientific writing.</li> <li>• Using results to inform policy.</li> </ul> </li> <li>• Specialist training in advanced analysis such as geographic information systems.</li> <li>• ‘Train the trainer’ training – theory and practice of learning.</li> <li>• Attend relevant conference(s).</li> <li>• Contribute AMR or AMU surveillance results and project results to national and/or regional symposia.</li> </ul>	<p><b>Data management, analysis &amp; interpretation</b></p> <ul style="list-style-type: none"> <li>• AMR and AMU data is used for identifying priorities and policy regarding responsible antimicrobial use at local and national levels.</li> <li>• Quality data management and data analysis is embedded across AMR and AMU surveillance networks.</li> </ul>
<p><b>Integration of AMR and AMU surveillance</b></p> <ul style="list-style-type: none"> <li>• Mentoring in interpreting AMR results in light of AMU data in hospitals and livestock production systems (identifying factors that may be influencing AMR patterns).</li> </ul>	<p><b>Integration of AMR and AMU information</b></p> <ul style="list-style-type: none"> <li>• More accurate interpretation of drivers of AMR patterns, and promotion of action to address it.</li> <li>• Reduce chance of inappropriate changes to prescribing patterns based on biased AMR results.</li> </ul>
<p><b>One Health collaboration between human and animal sectors</b></p> <ul style="list-style-type: none"> <li>• Mentoring in comparing and interpreting surveillance results of AMR patterns and AMU across human and animal populations and within the environment.</li> <li>• Collaborative projects involving human and animal Surveillance Fellows.</li> <li>• Collaboration between all Fellows within a country to build cross-sectoral and cross-disciplinary relationships and understanding.</li> </ul>	<p><b>Strengthened understanding of all aspects of AMR and AMU across sectors.</b></p> <ul style="list-style-type: none"> <li>• One Health AMR/AMU surveillance Technical Working Groups strengthened with improved analytical capacity.</li> <li>• Epidemiological patterns compared across populations.</li> <li>• Requirements for further investigations identified to gain greater understanding regarding AMR risk pathways and patterns of AMU.</li> <li>• Appropriate policies recommended.</li> <li>• Opportunities for sharing expertise/ resources, etc identified.</li> </ul>