

Global Infections – Vision and Strategy

Vision

The recent outbreaks of Ebola and Zika, bird/swine flu epidemics, food contamination threats, the growing danger of antimicrobial resistance and the on-going global burden of malaria, tuberculosis and foot and mouth disease, illustrate the large-scale challenge that infectious diseases continue to pose to human and farmed animal health.

This challenge arises from a complex interplay between social, economic, cultural, ecological, environmental, technical and biological factors and is exacerbated by our changing climate, rapidly increasing urbanization and expanding globalisation. Low and middle income countries (LMICs) still bear the greatest burden of infectious diseases. Research that is likely to promote or have beneficial impact on the economic growth or welfare of developing countries is classed as official development assistance (ODA).

Addressing the challenge of infectious diseases, to enable better prevention and management, requires a holistic, 'systems' approach, able to map and interrogate the broad range of driving and contextual factors, and the linkages between these. Such an approach will benefit from the pooling of expertise (both UK and 'in-country') and the integration of knowledge of sector specialists in inter-disciplinary teams.

The inclusion of relevant international stakeholders, policy makers, third sector and industry partners in these teams, along with appropriate engagement with affected or at risk communities, is one key method for increasing the likelihood of impact, through assisting in the development of applicable and sustainable "in-country" solutions.

Strategy

To reduce the risk and burden of global infectious diseases, the MRC, working with partner research councils, will launch a series of activities to harness and develop UK research strengths:

Phase I

- **A Foundation Call in Global Infectious Diseases:** aimed to enhance the capability of groups to widen their research scope to tackle global infections of relevance to developing countries. This MRC led call, with contributions from AHRC, BBSRC, ESRC and NERC, will support teams in taking an immediate, short-term, value-adding step towards global transformative change

Phase II

- **Build new capacity** in strategically important sectors, with initial calls in vector biology (led by BBSRC, with MRC and potential other funder support) and vaccine R&D (aligned to the MRC, BBSRC and Department of Health UK Vaccines R&D network)
- Catalyse the development of **large scale global inter-disciplinary teams** in anti-bacterial resistance (building on the cross-council AMR initiative), drawing on the experience of previous cross-council programmes such as Environmental and

Social Ecology of Human Infectious Diseases and Zoonoses and Emerging Livestock Systems

Details of the Foundation Call in Global Infectious Diseases are provided below. Further information on Phase II initiatives will follow later this year.

We recognize that building capabilities and capacities and developing inter-disciplinary approaches able to address LMIC priorities requires considerable time and commitment. We will work iteratively with teams supported through these initiatives, to better define and capture the opportunities that they identify and facilitate, where appropriate, access to relevant downstream funding streams.

Foundation Call in Global Infectious Diseases

The MRC, and partner councils, have a longstanding commitment to global infectious disease research. In collaboration with LMICs and aligned with global initiatives, we have made substantial contributions to the fight against malaria, HIV, TB, and other infections. Continuing this tradition, the Research Councils and funding partners, are currently making major contributions to AMR research, vaccine development, emerging infections and pandemic preparedness.

It is anticipated that more rapid progress in tackling current and future infectious diseases will require a stronger interdisciplinary approach merging biological, discovery and translational approaches, with research to understand the cultural, social, environmental and economic influences on the spread and impact of disease. Engagement with researchers, policy makers, affected or at risk populations in LMICs where infectious diseases remain major health priorities will offer complementary capabilities, ensure relevant contextual influences and are key to providing impact and sustainability.

The MRC led and AHRC, BBSRC, ESRC and NERC supported Foundation Call in Global Infectious Diseases provides an opportunity for investigators to **develop new or expand existing strands of ODA applicable research and partnerships** targeting LMIC infectious disease priorities.

Areas of Interest

Given the funders substantial historic support for global infectious disease research, the Foundation call aims to identify new, immediate, short-term, value adding opportunities that, if successful, could potentially make a transformative contribution to tackling LMIC priority infectious diseases.

The Foundation call is focused on early stage work during which research questions can be defined and partnerships formed. Where proposals are founded on existing well developed evidence and relationships, they are better suited to our standard [response mode schemes](#), or the equivalents in other Research Councils as appropriate.

Proposals should extend existing research capabilities and activities by scale or by scope (for instance by inclusion of an LMIC high burden infectious agent amongst an on-going repertoire of pathogens; by additional technological/disciplinary approach; by addition of new LMIC partner(s), by comparison of target populations etc).

We are keen to encourage systems and 'One Health' approaches, comparing human and farmed livestock infections, where these add value.

Recognising that sustainable research success will, in many cases, depend on the development of particular research capabilities in LMIC partner countries, Foundation awards can be used to build capability through collaboration, as a secondary objective of the proposal.

Areas of opportunity include but are not limited to:

- Detection and diagnostic development
- Epidemiology / Large scale data analysis / Comparative studies
- Cultural, social, economic, environmental and political influences on the emergence and spread of infections
- Modelling
- Pathogen biology, including bacteriology, virology, parasitology, and fungal research
- Transmission, including environmental reservoirs, vector ecology and the behavioural and cultural environments
- Vector/Host-pathogen interactions (including immune response development / protective immunity/ susceptibility/ immunomodulation through the life course)
- Chronic and co-infections (including immune responses through the life course)
- Co-morbidity (infection / non-communicable disease)
- Microbiome – role in resilience / susceptibility / modulating the success of therapeutic intervention
- Early stage prevention, tailored design opportunities and intervention development
- Emergence of resistance, and combatting resistance in non-bacterial infection

Given on-going calls and highlight notices in the areas of **antibacterial resistance** and **vaccines research and development** and plans for further initiatives in these areas, proposals whose primary focus is on these topics are **not** included in this call.

If you are unsure as to the suitability of your proposal to the foundation call, or normal response-mode, please contact gcrf.foundation@headoffice.mrc.ac.uk

Contact

For more information contact: gcrf.foundation@headoffice.mrc.ac.uk

Enquiries about GCRF Foundation Awards will be registered and FAQs published and updated weekly, as such you may not receive an individual response.