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# The Florey Institute of Infection

Strategy and Vision

2024

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# **Introduction**

The Florey Institute of Infection focuses on accelerating research and medical practice into the diagnosis, causes, prevention and treatment of infectious diseases and antimicrobial resistance (AMR). The Institute promotes interdisciplinary research, and encompasses fundamental science to clinical trials, carried out by multiple integrated teams of over 150 members from across the University of Sheffield (UoS) and Sheffield Teaching Hospitals NHS Foundation Trust (STH). The name pays tribute to the history of Sheffield and its role in the career of Professor Florey, whose pioneering work was central to the development of penicillin. Indeed the first documented use of [penicillin](https://www.sheffield.ac.uk/biosciences/news/first-use-penicillin-university-sheffield-recognised-uks-best-breakthroughs-list) as a therapy was carried out by UoS researchers at Sheffield’s Royal Infirmary.

In recent decades the efficacy of antimicrobial compounds used to treat infections has decreased as pathogens become increasingly resistant. It is against this backdrop that the Florey Institute for Host-Pathogen Interactions, now renamed the Florey Institute of Infection, was established in 2012 as part of the University of Sheffield’s 2022 Futures initiative. Our initial strengths were enhanced by key appointments, with the parallel recruitment of academic and clinical personnel at the core of the endeavour. This was further catalysed by a cohort of centrally (UoS) funded PhD students, linking research areas and interactions with global partners.

The success of the Institute is evidenced by the capture of significant programme and other grant funding from the UK AMR initiative (amongst other funders), including substantial success in career development fellowships that have allowed the next generation of UoS infection researchers to become established research leaders nationally and internationally. The COVID-19 pandemic brought together researchers across UoS and the NHS to rapidly deliver policy-changing research in virology, genomics, immunology and clinical trials. Recognising the global impact of infectious diseases, researchers across the University have also established partnerships in many low and middle-income countries, supported by a range of funders including the Wellcome Trust and the Bill and Melinda Gates Foundation.

Our strategic goal is to leverage these existing and emerging strengths in infection research across UoS and STH by focusing our unique expertise on a range of globally important infectious diseases and their underlying causes. Our aim is to accelerate grant capture across our broad funding portfolio, expand post-graduate training programmes in infection research, and enhance clinically impactful outputs to influence policy and guidance internationally, to make the University of Sheffield a world leader in infection research within the next decade.

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# **Research themes and Leadership**

The Florey Institute is committed to understanding infectious disease at every level of human interaction, from the biological function of molecules to community and population interventions to improve global health. We believe that the health problems facing society can only be addressed through interactive collaborative research that crosses traditional disciplinary boundaries. To address the major threats posed by infectious diseases in the 21st century we will harness the diverse skill-sets of Sheffield researchers within our three research themes. The leadership has changed to reflect our new strategy, with co-Directorship of the Florey Institute of Infection from the leads of each theme.

* **Pathogen Biology, AMR & Diagnostics - lead Claire Turner**
* **Host-pathogen interactions - lead** **Thushan de Silva**
* **Epidemiology & Global Health - lead** **Sarah L Rowland-Jones**

The direction and functioning of the Florey Institute is overseen by a Management Board, which has also been refreshed to reflect our widened scope, paying particular attention to greater representation across Faculties and from the NHS. We will continue to review the membership and invite additional members as necessary, in particular from disciplines and Faculties not represented currently.

**Management Board Members:**

Professor Sarah L Rowland-Jones, Florey Professor of Infection and Immunity, Division of Clinical Medicine, School of Medicine and Population Health; Co-Director.

Dr Claire Turner, Senior Research Fellow, School of Biosciences; Co-Director.

Professor Thushan de Silva, Professor of Infectious Diseases, Division of Clinical Medicine, School of Medicine and Population Health; Co-Director.

Professor Per Bullough, Harrison Chair in Structural Biology, School of Biosciences.

Professor Graham Stafford, Personal Chair in Microbiology, School of Clinical Dentistry.

Dr Luke Green, Research Fellow, School of Clinical Dentistry.

Dr Paul Collini, Senior Clinical Lecturer, Division of Clinical Medicine, School of Medicine and Population Health.

Dr Brian Rice, Senior Lecturer, Division of Population Health, School of Medicine and Population Health.

Dr Tom Darton, Florey Advanced Clinical Fellow, Division of Clinical Medicine, School of Medicine and Population Health.

Professor Andrew Lee, Professor of Public Health, Division of Population Health, School of Medicine and Population Health.

Dr David Partridge, Consultant Microbiologist Sheffield Teaching Hospitals NHS Foundation Trust.

Dr Cariad Evans, Consultant Virologist, Sheffield Teaching Hospitals NHS Foundation Trust.

Dr. Wendy Lawley, Knowledge Exchange Manager, Faculty of Science.

**Pathogen Biology, AMR & Diagnostics**

The Florey Institute of Infection is committed to understanding pathogenesis and combating the threat of microbes and AMR. This theme will focus on research in four specific areas:

*Understanding pathogen biology and the impact of resistance*

Microbial life, death and drug resistance are intimately linked, complex and fundamental biological processes. Our researchers will integrate microbial physiology, genetics and world-leading imaging capabilities with clinical perspectives to gain a transformative understanding of how important pathogens grow, divide and develop AMR, generating the comprehensive understandings needed for developing new control regimes.

*Monitoring AMR emergence*

Combining our institute's expertise in a broad range of pathogenic organisms with our strengths in basic biology research, we will work to understand the evolutionary forces at play as AMR develops and spreads. This research will use the latest imaging and cell labelling technologies, leading to fundamental discoveries on how AMR emerges in clinical populations on a molecular level, with a focus on pragmatic translational solutions.

*Developing new strategies to combat AMR*

Much of our research impact will be in the use of pragmatic and novel approaches to develop new therapeutics. This will include fundamental investigations of alternative therapeutics and novel antimicrobials, such as combining current antibiotics with resensitising agents and the development of phage therapy.

*Pathogen and AMR detection*

We will work to develop new diagnostics, such as better laboratory systems/tools for detecting pathogens and drug resistance, translation of low-cost diagnostic devices in low-resource settings, and modelling/AI for predicting or modelling impact of drug resistance within hosts/systems. Improved diagnostics will be integrated into evaluating enhanced strategies for infection prevention and control in healthcare settings. We will engage with industry collaborators to accelerate the development of diagnostic tools that have the best chance of impacting patient care. To facilitate the translation of these efforts, we will partner with our institute’s NHS and public health researchers. The development of novel sequence-based diagnostics suitable for use in NHS laboratories is a key deliverable within the Sheffield NIHR Biomedical Research Centre Infection and Immunity subtheme and is led by several members of the Florey Institute.

# **Host-pathogen interactions**

Work in this theme focuses on elucidating the intricate dynamics in human infection by a pathogenic organism. By dissecting the mechanisms underlying the host response to pathogenic threats and identifying the key immune response defence strategies that impede infection and disease progression, we aim to develop new approaches to the prevention and treatment of infectious diseases. This includes the critical steps in identifying immune correlates of protection, which are pivotal in the design of efficacious vaccines against infectious diseases. We will also establish how interaction with host immunity and exposure to drugs will drive the evolution of pathogens. Using our established track record in pre-clinical and experimental medicine encompassing early to late-stage clinical trials, our research is primed to inform the development of novel vaccines and therapeutic interventions against infectious diseases. Work in this theme falls into three main categories:

*In vitro mechanistic studies*

Expertise within the Florey Institute spans a broad spectrum of disease and experimental models, from bacterial cells and communities to animal and human tissue models of infection, allowing for an integrated analysis of these interactions. Our approach will specifically integrate in-depth mechanistic studies of host-pathogen interactions utilising cutting-edge *in vitro* human tissue models. We will conduct granular investigations at all biological scales, ranging from holistic human biology to intricate single-cell interactions. This comprehensive exploration will enhance our understanding of human infection dynamics and pave the way for targeted therapeutic strategies.

*Controlled Human Infection Models*

Leveraging our team's extensive experience with a variety of established and emerging controlled human infection models (including *Salmonella* Typhi, *Plasmodium vivax*, *Staphylococcus aureus*, SARS-CoV-2), we aim to transform our understanding of human-pathogen interactions and immunological responses. These unique experimental medicine models serve as a powerful tool for interrogating human responses to pathogens and provide an accelerated pathway for understanding disease pathogenesis, and in expediting the development of novel vaccines and therapeutics.

*Clinical trials and observational cohort studies*

We will employ an integrated approach, utilising a platform of vaccine trials and observational human cohort studies to provide insight into host response to microbial antigens. Alongside human challenge models, these clinical studies are crucial in establishing immune correlates of protection against infectious diseases. In addition to studying the host responses in healthy populations we will develop our research expertise in exploring the perturbation of the human responses to infection in immunocompromised populations. Understanding where these vulnerabilities exist and how to overcome or circumvent is a key area of local academic and clinical expense, and is aligned with key deliverables in the Sheffield NIHR Biomedical Research Centre Infection and Immunity Theme.

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# **Epidemiology & Global Health**

People living in resource-limited settings continue to experience high mortality and morbidity from infectious diseases. This impact is compounded by undergoing the epidemiological transition towards an increased burden of non-communicable diseases (NCDs), which, in turn, are often modified by the presence of particular infections such as HIV or *Streptococcus pyogenes* infection. Those living in low-resource settings are disproportionately affected by the effect of antimicrobial resistance, while the prevalence of AMR is increased by the lack of reliable diagnostic tests, uncontrolled use of antimicrobials, and counterfeit, poor quality or limited access to medicines.

Members of the Florey Institute have high quality established partnerships with teams in a number of LMICs, including in Africa in The Gambia, Ghana, Malawi, South Africa, Uganda, Kenya, Zambia and Zimbabwe, and in Asia in India, Nepal, Bangladesh and Sri Lanka. We regard respect for the autonomy and best interests of the LMIC researchers as central to these partnerships, and share expertise and resources in an equitable manner, as well as contributing wherever possible to building local research capacity and promoting south-south cooperation and partnerships.

Work in this theme is centred around several areas:

*Reducing the burden of infections and AMR in LMICs*

We will work with our LMIC partners to deploy strategies aimed at reducing the burden of infections and their longer-term consequences. This will include collaborations to assess the efficacy of new vaccines, both to prevent infections and also to reduce the extent of AMR. We will also collaborate to evaluate and implement new diagnostic approaches, particularly those that can be used at point-of-care (POC), to improve the fair and rational use of antimicrobials. We will work with our partners to understand how infections may contribute to the growing NCD burden, for example the increasing burden of chronic comorbidities in people with HIV infection (PWH).

We will provide platforms that bring together experts across a range of disciplines to discuss, develop, and share best practice. We will develop mechanisms to explore and promote the exchange of methods and learnings between partners / countries. For example, developing and implementing frameworks of engagement that promote, where applicable, the application of learnings in one theme / expertise area and setting to another (e.g. from a LMIC partner to the UK context)

*Pathogen surveillance*

The future of infectious disease control relies upon forecasting emerging public health issues and responding to these before they become unmanageable, and upon ensuring prevention and treatment programmes targeted ongoing issues are evidence-based / data driven.

To achieve the goal of sustainable infectious disease control, we will use a combination of sequencing- and phylogenetic-based methods of discovery to identify shifts in pathogen biology and drug resistance patterns. Increasingly bioinformatics and AI data analysis are vital tools to combat pathogens at global scales and we look to develop and inform these areas, aiming to use large datasets to identify how pathogens adapt to their hosts, how AMR arises in this context, and what may be done to stop it. To meet the needs of different countries and communities, we will also explore and promote the collection and use of routine data in more equitable (rights-based / person-centred), sustainable and epidemiologically robust frameworks and measurement approaches, and in our analytical and modelling activities. We will improve the interpretation of these data in global, national and sub-national model calibrations.

*Improved Evidence and Decision Making for Communicable Disease Control*

Florey colleagues also have considerable public health topic and methodological expertise across a broad range of areas to support public health policy and systems work related to communicable disease control, such as through evidence reviews and synthesis, quantitative and qualitative studies, policy studies, health economics. modelling and decision science.

We have been engaged, through external consultancy and research, with various global initiatives to strengthen infectious disease surveillance and response to outbreaks. These include collaborative work, for example, with the [International Association of National Public Health Institutes (IANPHI)](https://www.ianphi.org/) on [Integrated Disease Surveillance and Response (IDSR)](https://www.ianphi.org/_includes/documents/sections/tools-resources/ids/ianphi-ids-summary-report.pdf), and ongoing work to develop the [Global Health Emergency Corps (GHEC)](https://www.who.int/emergencies/partners/global-health-emergency-corps).

Similarly, we are part of a UK-South East Asia Vaccine Manufacturing Research Hub (UK-SEA Vax Hub), a multidisciplinary research consortium with colleagues in our engineering department as well as other universities internationally, working on strengthening vaccine manufacturing research in SE Asia. In this collaboration, our modelling and health economics expertise and research work provides a key perspective to guide vaccine manufacturing processes.

In addition to our international partners, we also work with regional and national partners, such as the UK Health Security Agency and Robert Koch Institute (Germany), on various projects that build the evidence base to inform national public health decisions. Recent examples include evidence reviews on [mass population testing for COVID-19](https://www.sciencedirect.com/science/article/pii/S0033350621002468?via%3Dihub), modelling COVID-19 infection in prison settings, determinants of delays in TB diagnosis and treatment in high income country settings such as the UK, and studies of antibiotic drug-bug pairings associated with AMR.

Finally, we have collaborated with local partners such as the NHS to provide analytical support for various evaluations and studies on health interventions such as [Outpatient Antimicrobial Treatment (OPAT)](https://www.tandfonline.com/doi/full/10.1080/14787210.2024.2334059), and in doing so building the evidence base for locally relevant initiatives and interventions that meet local population health needs around infection, and bridging the evidence-into-practice gap.

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# Cross-cutting themes

## **Technologies and data science** (lead Luke Green)

## A key pillar of the Florey Institute is to provide a collaborative, cross-faculty environment which will produce high-quality, impactful research in the infection theme. The Florey Institute of Infection hosts members throughout UoS, spanning several faculties, and STH. Current and historical research from the Florey Institute uses cross-faculty resources including those from FoH (core spectral flow cytometry facility, third generation sequencing, BSL2/BSL3 facilities and anaerobic growth facilities) and from FoS (next generation sequencing, the Wolfson Light Microscopy Facility, the Biological Mass Spectrometry Facility and the RNAi Screening Facility). Analysis of the high quality ‘omics’ studies produced from these facilities have been supported by the Sheffield Bioinformatics Core at FoH. To continue and build upon this high-quality research we will continue to expand and improve partnerships across UoS faculties, for example, utilising links within the Drug Discovery facility and continuing to build our links with the Biophysical Imaging Centre.

## The research ongoing within the Florey Institute produces large global health datasets requiring intensive bioinformatic analysis and secure storage of data. Current research practices tend to analyse datasets using bespoke pipelines created by the individual group. We will pool these resources producing pipelines that will allow rapid analysis of large genomic and proteomic datasets. We will seek input from independent research groups, the NIHR Biomedical Research Centre, UoS IT Services and the Sheffield Bioinformatics Core, whilst pursuing new and further collaborations with Shef.AI and the N8 Centre of Excellence in Computationally Intensive Research (N8CIR) to build a universal toolset. This will allow our researchers to pursue new high-quality research and to train our next generation of PGR students in both ‘wet’ and ‘dry’ laboratory techniques.

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## **Training** (lead Paul Collini)

The Florey Institute is committed to providing an inclusive and enriching training environment for post-graduate infection researchers. Postgraduate Taught (PGT) courses represent opportunities both to attract new students with potential for research careers and for the Florey to promote its brand external to the University. Members teach on PGT courses in both the Faculty of Health ([MPH](https://www.sheffield.ac.uk/postgraduate/taught/courses/2024/public-health-mph-pg-certificate-pg-diploma), MSc [Molecular Medicine](https://www.sheffield.ac.uk/postgraduate/taught/courses/2024/molecular-medicine-msc), [DTM&H](https://www.sheffield.ac.uk/smph/postgraduate/dtmh)) and Science ([Biosciences MSc](https://www.sheffield.ac.uk/biosciences/postgraduate/masters/biosciences-courses) - Biomedical Science, Human & Molecular Genetics, Molecular Biology & Biotechnology). Our aim will be to build on the successes of the 2019-2023 Florey MSc in Antimicrobial Resistance, specifically by drawing on teachers from across University faculties, to create a new masters course founded on the Florey research themes that is relevant and current for the career development of national and international students.

For PostGraduate Research (PGR) the Florey will complement the outstanding training framework within the UoS, e.g. the doctoral training programme and Think Ahead Programme, The Sheffield BRC Training Academy and regional opportunities (e.g. Wellcome Trust 4ward North programme and MRC Discovery Medicine North partnership) to attract and support high quality PhD students from clinical and non clinical backgrounds. The Florey membership are already linked in with the NIHR Integrated Academic training programme and the UoS BSc Med Science Research course for intercalating medical students. PhD students and postdoctoral researchers will join the Florey infection researcher cohort, with its regular research meetings, PPIE activities, annual research presentation day and involvement in national meetings.

## **Translation and knowledge exchange** (lead Wendy Lawley)

Knowledge Exchange (KE) is an umbrella term for the range of ways in which academics share their research with, and gain insights and perspectives from individuals and organisations from beyond the University. These include businesses, charities and other third sector bodies, governments, and communities, at local, regional, national, and global scales.

Florey members have historically delivered KE through collaborative research with industry partners, researcher training, organising research symposia and engaging in outreach events. In 2019, Florey Institute (Florey) members confirmed their commitment to building strong external relationships with industrial and other partners in a review conducted by independent consultancy firm IP Pragmatics. The review was intended to identify commercial and translational opportunities from the Institute’s research plans and identify the best strategic fit with external needs. Since November 2019 when IP Pragmatics shared their report, the external landscape has changed in a number of ways, not least as a result of the COVID pandemic. Many Florey KE activities were necessarily shut down due to the COVID pandemic.

We have therefore reviewed the findings and recommendations of the IP Pragmatics report in the light of AMR policy and funding developments since 2019 and begun to refresh awareness of the varied types of KE, including when and how they might be included in the research cycle. We also conducted a rapid, light-touch review of capacity, interest and expertise of individual Florey members to engage with different non-academic sectors, as well as a first stock-take of active and recent non-academic Florey interactions.

The Association of Medical Research Charities notes that “Transformative breakthroughs involve many different players working collaboratively and in sequence, often in non-linear paths and involving dead-ends or unexpected turns.” ([https://www.amrc.org.uk/making-a-difference-impact-report-2021](https://www.amrc.org.uk/Handlers/Download.ashx?IDMF=730de9f3-ee00-403e-917e-e12318a8f753)). Looking to the future, this cross-cutting theme will focus on opportunities to increase collaboration and mutual exchange of knowledge with non-academic partners at key points throughout the full research lifecycle.

The following strategic steps will be taken to reinvigorate and consolidate Florey KE and translation activities:

1. Capture and address KE training and capacity-building needs including for Florey students.
2. Build on recent stock-take activities, developing case studies to share best practice and build confidence.
3. Embed a rapid management-level triage process to ensure that time-sensitive KE opportunities are reviewed and cascaded to appropriate Florey members.
4. Promote targeted collaboration with new industry partners to address knowledge gaps identified by both Florey researchers and non-academic partners.
5. License Florey Institute proprietary knowledge to partners positioned to exploit it commercially, including spin-out companies where appropriate.
6. Contribute to the development of Government and NGO policies, strategies and action plans at local, national and global levels within the Florey remit.
7. Identify areas of complementarity to grow engagement with AMR research charities and non-profit organisations.
8. Resume public engagement activities, seeking to pilot novel approaches which will capture the interest of the next generation of researchers, inform future research direction and contribute to wider sector endeavours to encourage responsible antimicrobial use.

## **Engagement with public (lead Graham Stafford)**

A key component of any cutting edge research institute is the communication of its research achievements and promotion of its core challenges and goals.

While infection is an easy to understand concept to most people in the street, the problem of AMR is more abstract. However, setting AMR in the context of how it might impact families and communities in the UK and globally could be the key to messaging and activities.

The Institute contains a broad church of members that work across several disciplines and UoS faculties. By utilising these, building upon existing public-engagement opportunities that exist through UoS, Royal Society of Biology, etc. We seek to target high profile events (such as world AMR week) with a sustained presence while also reaching out to the local community in the form of school visits, local charity engagement (e.g. Diabetes-UK\_Sheffield), social media and via other routes, such as small grants to engage with artists and filmmakers (e.g. Diva). The other key is for researchers to embed realistic funding within Responsive mode grants to enable publicengagement activities that can meet the aims of UKRI to “*break down the barriers between research, innovation and society*” and “*build a sense of shared endeavour*” (<https://tinyurl.com/UKRIpubeng>).

Our web-page refresh is an early opportunity to rebrand the Florey to make it more obvious our goals and aims, on top of acting as an external window. The key to its continued usefulness is contemporaneous information synced to social media events and promotion of activity.

The UoS press-office will also play a key role, with the ability to promote stories to national and international press, as with recent phage/ AMR/ diabetes work.

Key to success here will be support to help gather, capture and routinely report activity via social media routes, but also internally in UoS via mail-shots to re-engage academics who may then get involved to banner activities and with support from Florey.

In turn, the routine promotion and engagement of the public and stakeholders such as the NHS, local GPs, local GDPs, clinical students and trainees will also promote the AMR awareness agenda in the city and wider. This will then potentially raise profile, improve grant capture and contribute to the fight against AMR by increasing patient awareness in the NHS as well as among practitioners.

## **Policy engagement** (leads Cariad Evans and Brian Rice)

Bridging the gap between the Florey Institutes Infection research discoveries and those organisations making policy decisions is imperative to the development of robust evidence-based health policies.

Florey policy engagement has been a longstanding priority and was a key part of the pandemic response, where translating research findings was imperative to mould and inform public health policy.

Examples included:

* Identification of sequence changes in SARS-CoV-2 ,which had the potential to increase transmission, informing IPC policy in real time, heightening of the STH IPC response and rapid prioritisation for vaccination of staff working in those areas to limit transmission.
* Investigated rapid sequencing to inform IPC measures in cases of hospital-acquired COVID-19 (HOCI). This research has informed the potential for genomic surveillance as an NHS outbreak management and control tool.
* Characterised within-hospital transmission events by integrating >2000 epidemiological and viral genomic datasets to understand directionality of transmission chains between staff and patients. Policy engagement involved presentation to the New and Emerging Respiratory Virus Threats Advisory Group, and dissemination to the Public Health England Infection Prevention and Control (IPC) group to shape NHS guidance.
* Development of key immunology assays, correlates of protection and involvement in studies which gathered an evidence base in understanding immunity of healthcare workers and highly vulnerable patients. This work led to involvement in advisory groups to the UK Department of Health and Social Care about prioritisation for therapeutics and informing vaccination strategies.
* Various Florey members had key leadership roles on government committees representing clinical virology, vaccinology and immunology. Examples include British Society of Immunology (BSI) COVID-19 Taskforce, the Ada Lovelace Foundation and their research into the use of vaccine passports for COVID-19, policy engagement activities included presentations to the House of Commons Science and Technology Committee session on the same subject, presentations to the 4 Nations Chief Medical Officers and participation in numerous UKHSA subcommittees.

Members of the Florey Institute are also active in shaping policy within Global Health. Given our expertise in disease measurement and surveillance, routine health data strengthening and use, mathematical modelling, and intervention evaluation, we will continue to provide direct expert advice to normative agencies, including WHO, UNAIDS, and the Global Fund.

Members will be supported in initiating new engagements, cultivating existing relationships and expanding existing collaborations with policy makers via roles on committees, working groups and other policy/NHS/UKHSA forums.

In addition, by focusing on expanding our communication and KE activities to highlight and publicise significant research discoveries, we will ensure we have the potential to impact future policy development. As we look ahead, we will also foster a bidirectional aspect to engagement with policy stakeholders, to help inform us as researchers to shift or focus our research perspective.

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# **Mission Statement**

The primary purpose of the Florey Institute of Infection is to provide a cross-Faculty, multi-disciplinary, research-led, inclusive environment focused on an integrated approach to accelerating the prevention and treatment of pathogenic microorganisms and reducing their impact on human health. To achieve its mission, the Florey Institute is centred around the following strategic objectives:

**Grant Capture through Innovative Research**:

Our goal is to establish the Florey Institute as a dynamic and interdisciplinary hub for successful grant acquisition. By uniting investigators from across the University of Sheffield and the NHS, we aim to effectively respond to grant opportunities that align with our expertise, forming a cross-Faculty collective that is greater than the sum of its parts. A key component of this objective includes augmenting current facilities and equipment through successful bids, thereby elevating our research capabilities in the field of infection.

**Industry Collaboration and Funding Enhancement**:

We strive to cultivate strategic partnerships with industry leaders that align with our mission and amplify our research and training initiatives. These collaborations are envisioned not only to enhance funding opportunities but also to provide expedited pathways to tangible impacts on clinical care and public health.

**Post-Graduate Training and Research Culture**:

The Florey Institute is committed to providing an enriching training environment for post-graduate infection researchers. Central to this is fostering a positive research culture for all staff (academic, PDRA, PGR, technical or other), underpinned by robust support and mentorship in an inclusive environment that promotes diversity and positivity. This includes guiding and assisting in training and career development fellowship applications, thereby nurturing the next generation of infection research leaders.

**Maximising Research Impact**:

We aim to ensure that the research undertaken by Florey Institute investigators achieves maximum impact at individual, societal, and global levels. This involves actively influencing health guidance and policy, based on our cutting-edge infection research, to effect meaningful change in public health outcomes.

**Effective Public Engagement and Communication**:

A crucial aspect of our mission is to communicate the findings of Florey researchers to the public in an effective and engaging manner. We aim to enhance public understanding and appreciation of scientific endeavours through robust scientific communication, public engagement initiatives, and educational outreach, including partnerships with schools. This approach is designed to foster a more scientifically informed and engaged community.

# **Vision Statement**

The Florey institute has the long-term vision of understanding the life of pathogenic microorganisms, interactions with their host, their ultimate impact on human health and disease, and how this can be manipulated to improve individual and public health. This aligns perfectly with the UK government’s 20-year vision for AMR of “contained and controlled”, as well as the University of Sheffield’s vision of promoting world-leading and world-changing research.

**Our ambitions for year 1-3 of our vision period:**

* Revamp our board of management structure to encompass and integrate diverse disciplines, allowing for a truly interdisciplinary approach to tackle infection.
* Put strategies in place to enable rapid identification and response to funding calls, eg NIHR infrastructure grants.
* Improve communication and collaboration between infection experts at UoS, towards the establishment of the University as a world-leading infectious disease Institute with significant critical mass.
* Provide an enriching training environment for the next generation of infectious disease researchers through the establishment of a PGR program, attracting funding from a variety of academic and charitable sources. Our medium to long term aim is to attract significant funds for a Doctoral Training Partnership (DTP) focused around the Florey Institute themes.
* Capitalise on our current fellowship attainment success to attract future fellowship candidates and propel our existing early and mid-career researchers along successful fellowship-funded career paths at the University.
* Develop equitable partnerships with researchers and clinicians in low- and middle-income settings to build collaborative research programmes.
* Refresh our Florey website portfolio to facilitate communication with the wider public.
* Restart our very successful public engagement programme.
* Promote wider engagement with industry and facilitate knowledge exchange.
* Through all the above, enhance our external branding and recognition as an Institute of Infection nationally and internationally.

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