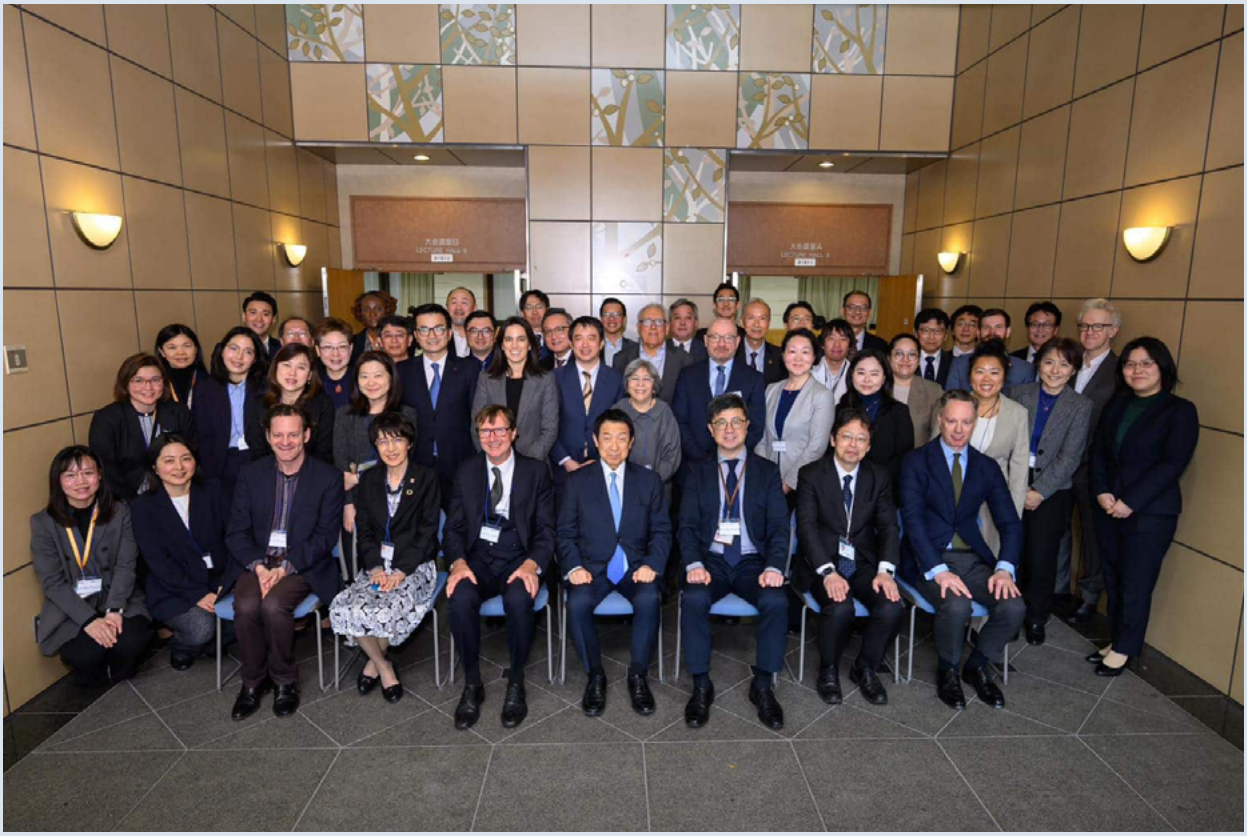
BUILDING A NEW INNOVATION ECOSYSTEM FOR ANTIMICROBIAL RESEARCH & DEVELOPMENT

CONFERENCE REPORT

TOKYO, 4–5 MARCH 2026

LEAD

LEADERSHIP IN ENHANCING ANTIMICROBIAL DISCOVERY



AMR Tokyo Conference March 2026

The Sir Howard Dalton Centre, University of Warwick, alongside the Japan Institute for Health Security (JIHS); the AMR Clinical Reference Centre, and the Academic Research Organizations Alliance for Southeast & East Asia (ARISE), convened this conference to examine how the global antimicrobial innovation ecosystem could become more resilient and better aligned with long-term public health needs. Held under the framework of LEAD (Leadership in Enhancing Antimicrobial Discovery)[1], the meeting brought together scientific institutions, public health agencies, ministries of health, industry partners, philanthropic organisations, and international research networks. Discussions focused on how system-centred approaches can address structural challenges in antimicrobial R&D and broaden meaningful participation across diverse research and health-system environments.

1 Leadership in Enhancing Antimicrobial Discovery

A SYSTEM-STRENGTHENING VISION FOR ANTIMICROBIAL INNOVATION

Participants agreed that long-standing structural issues continue to limit antimicrobial innovation: contraction of discovery capacity including instability in early-stage research, erosion of the scientific workforce, and persistent gaps between discovery, development, and deployment. These challenges are reinforced by an unattractive market and investment ecosystem, which over recent decades has been unable to sustain antimicrobial R&D on a reliable and long-term basis. Whilst the current approach of combining market-based pull incentives with push funding to developers has enabled some progress, discussions highlighted that these challenges also reflect broader system-level weaknesses in the antimicrobial R&D ecosystem that current financial incentives alone may not fully address.

Insights from LEAD fellows' fieldwork in the UK and Japan reinforced a shared understanding that including antimicrobial innovation as part of wider system-centred capabilities in health research, and regulatory infrastructure is an important and complementary foundation with industry to help sustainable antimicrobial innovation. These capabilities include:

- Robust clinical research networks able to generate high-quality evidence
- Sustained early-stage discovery and translational science capacity.
- Integrated data systems connecting laboratories, hospitals, and regulators.
- Surveillance platforms that inform R&D priorities.
- Chemistry, Manufacturing and Controls (CMC) and regulatory capacity to advance candidates through late-stage development and secure approvals.

This perspective encouraged participants to view antimicrobial innovation as part of a system-centred capability, where improved governance, coordination, and public leadership, alongside appropriate market changes, can help ensure a healthy and sustainable antimicrobial pipeline. In this report, "system-centred approaches" refers to strategies that focus on building, sustaining, and coordinating the shared institutional capabilities on which antimicrobial R&D depends — including discovery platforms, clinical research networks, surveillance and data infrastructure, regulatory capacity, and workforce development — and treating these as ongoing public functions that will need to work effectively together, with industry. The term is used to emphasise the importance of these foundational capabilities alongside existing product level and market-based mechanisms.

EXPANDING THE INNOVATION MAP: A MORE INCLUSIVE GLOBAL ECOSYSTEM

A consistent theme in the discussions was that innovation is no longer confined to a small number of traditional players. Many countries possess scientific, clinical, and epidemiological strengths vital to antimicrobial work, including:

- Diverse pathogen landscapes and clinical expertise.
- Expanding translational research capacity.
- Experienced infectious-disease trial centres.
- Laboratories skilled in surveillance, molecular typing, and data governance.
- Manufacturing sites capable of high-quality production with targeted support.

Recognising these capabilities positions countries often labelled as low- and middle-income countries (LMICs) as coproducers of knowledge and innovation, contributing to discovery, evidence generation, and manufacturing.

THE NAKAMA MODEL SIMULATION: EXPLORING A SYSTEM-CENTRED APPROACH

The meeting used the **Nakama Model**[2] as a practical illustration of how antimicrobial R&D can work as an integrated system-centred health function. Public research institutes and academic groups can undertake early discovery and translational research; clinical networks generate surveillance data, identify unmet needs, and inform priority setting; and government agencies coordinate public good investment, regulation, stewardship, and lifecycle planning across the system. Downstream technical functions—such as formulation, scale up, manufacturing readiness, quality assurance, and regulatory dossier preparation—are delivered through contracted partnerships or risk sharing with industry, including SMEs and other specialised providers, remunerated for defined services under public direction. Philanthropic organisations help support these shared platforms, open science, and capability strengthening. To operationalise this approach, the meeting conducted a simulation in which participants assumed roles based on functions they already perform in practice, allowing them to explore how clinical data and real-world evidence can drive needs-based R&D and how stewardship-aligned innovation can be embedded across health, research, and regulatory systems without complete reliance on profit-driven market dynamics.

The simulation also demonstrated how countries can contribute complementary functional strengths— pathogen surveillance and characterisation, discovery and preclinical research, clinical trial capacity, bioinformatics and data infrastructure, regulatory capability, manufacturing and access. Working through

2 The word "Nakama" is the name of the fictional county used for the Simulation Exercise (SIMEX). "Nakama" means "community of trusted collaborators, comradeship" in Japanese.

these components helped participants visualise how distributed capabilities could form a sustainable, interconnected innovation ecosystem grounded in public good principles.

Insights from the exercise included:

- Function based cooperation is technically feasible and aligns with familiar global health coordination models (e.g. CEPI's coordination of vaccine R&D, manufacturing readiness, and the conditions for equitable access across the innovation lifecycle)
- Distributed contributions expand participation, enabling companies, academic groups, and regional institutions to play well-defined roles that are likely to vary by capabilities across regions and varying depth of industry risk sharing.
- Collaboration need not rely on pooled budgets or pricing agreements between countries, but does depend on agreement around priorities and coordinated commitments to finance different stages and functions of antimicrobial R&D.

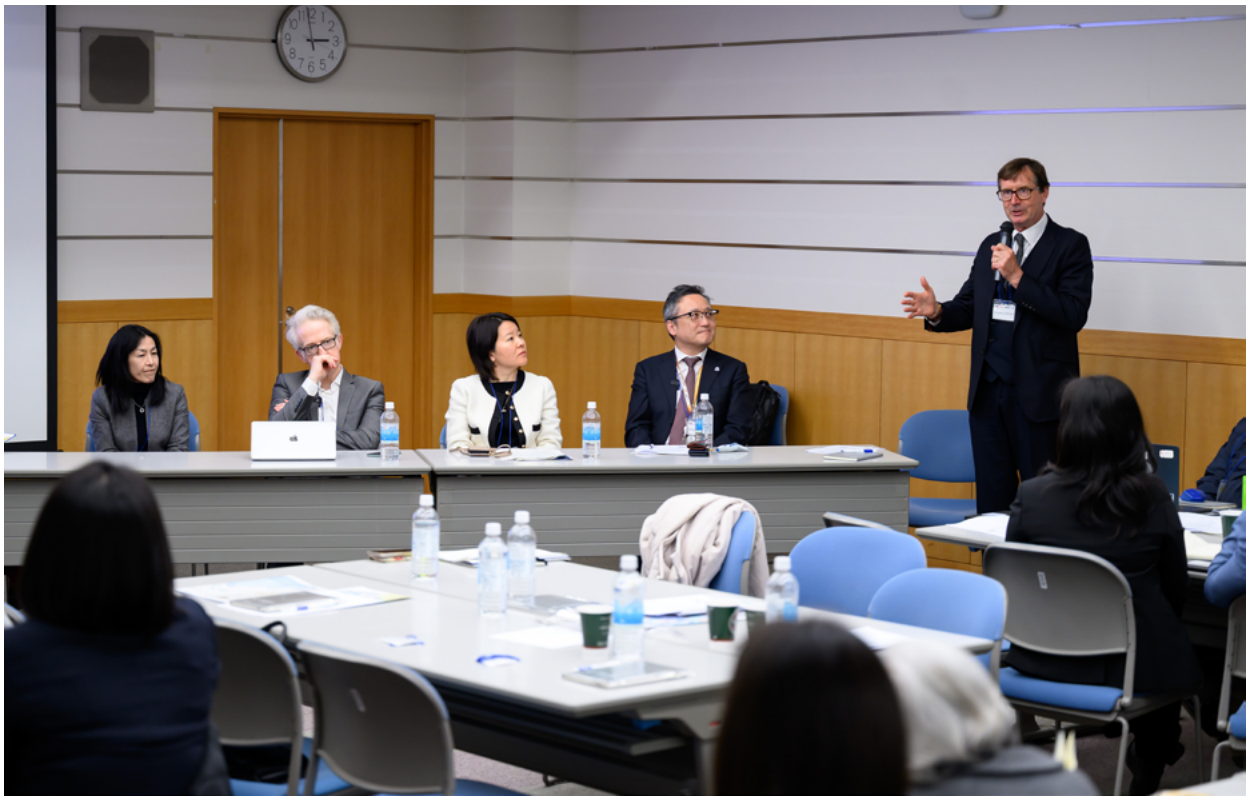
Overall, the Nakama Model provided a practical illustration of a possible systems-centred framework for antimicrobial innovation, which could be further explored and developed in future work.

EMERGING EXAMPLES OF SYSTEM-CENTRED INNOVATION

Participants noted that core system-centred innovation approaches—such as the Nakama Model—differ in emphasis from prevailing push- and pull-based incentive models in antimicrobial R&D. Instead of concentrating mainly on product level rewards or firm specific incentives, system centred approaches focus on strengthening shared functions that enable antimicrobial R&D: high quality surveillance, coordinated priority setting, discovery platforms, and clinical and regulatory infrastructure. There are already initiatives that illustrate how more distributed and collaborative models can operate in practice. One example is ARISE[3], a multinational clinical research and clinical trial network focused on strengthening the evidence base for infectious-disease products and building durable trial capacity. Beyond individual studies, ARISE functions as a platform for infectious-disease clinical research by bringing countries together to design and conduct clinical studies, harmonise methods, and generate comparable data. It also undertakes surveillance and preparatory studies to create baseline data for future trials, while contributing to regional preparedness for future pandemics through training, infrastructure development, and operational support.

Participants noted that this model maps closely onto the types of clinical and evidence-generation networks envisaged in system-centred approaches such as Nakama model, demonstrating how coordinated clinical infrastructure can enable countries to contribute complementary capabilities to shared R&D goals. While such initiatives address only part of the antimicrobial R&D lifecycle, they show that key elements of a capability-based, system-centred approach are already emerging in real-world collaborations.

3 ARISE (ARO Alliance for Southeast & East Asia)



AMR Tokyo Conference March 2026

CHALLENGES HIGHLIGHTED IN THE DISCUSSIONS

While the Nakama model demonstrated the value of a system-centred approach, discussions highlighted practical challenges that must be addressed for real world implementation.

Financial Models: A key issue that emerged was uncertainty around how a system-centred model would be financed, particularly because funding R&D functions—rather than primarily individual products—remains unfamiliar to many stakeholders. Participants noted that relevant funding streams already exist within major government and philanthropic research programmes, especially for early discovery, clinical research, surveillance, and capacity building. However, these resources are currently fragmented and insufficient on their own, and would need to be expanded, better aligned, and more deliberately coordinated behind shared priorities.

Participants emphasised that the central challenge is therefore not only the scale of resources, but also how funding can be sequenced and organised across interconnected functions of the R&D lifecycle. In particular, discussions pointed to the need to better understand how different funding streams interact at key interfaces; for example, the transition from basic discovery into translational and early preclinical development, where academic research funding typically ends before product-focused investment begins, and where promising candidates are frequently lost. At the same time, it was recognised that certain activities, including CMC execution itself, as well as pharmacokinetic and pharmacodynamic studies—are inherently product specific and will continue to require dedicated, case-by-case funding. How industry and academia

engage may well vary across research intensive companies versus those with more of a CRO or sales function. As with other aspects of the model, both financing design and governance arrangements will shape how these system level and product-level funding requirements across such partnerships can be managed coherently in practice.

Governance and Coordination: Another recurring theme concerned the need for governance arrangements capable of coordinating the wide range of functions and institutions that a system-centred model requires. While technical cooperation is demonstrably achievable—as seen in platforms such as CEPI—the central issue is who would take responsibility for orchestrating the full lifecycle of activities and what capacities they would need to have.

System-centred R&D involves interconnected functions, and coordinating these requires a governance structure with clear authority, defined roles, and robust accountability mechanisms. The challenge is not conceptual but operational: while several existing actors partially fulfil coordinating roles across different stages of the R&D lifecycle, no single entity currently has the mandate, capacity, and legitimacy to manage cross-system coordination in an integrated and sustained manner. Identifying, adapting, or creating a mechanism able to bring these functions together coherently is therefore essential for real world implementation.

Political Feasibility: Discussions underscored the political considerations that shape antimicrobial R&D investment. It was noted that governments are willing to fund specific outcomes and services—including paying high prices for medicines, platforms, or technologies—and have demonstrated a capacity to make substantial transfers to companies in emergency contexts such as during the COVID-19 pandemic.

However, outside emergency settings, participants reflected that governments have generally struggled to obtain sufficiently large, long-term public commitments to late-stage antimicrobial development—particularly where this would require direct, coordinated support for individual products across multiple countries. With limited exceptions, such as selected BARDA programmes and the privately and philanthropically financed AMR Action Fund, such investments have not been pursued at scale, reflecting political cycles, fragmented budget authorities, and differing risk tolerances and the pace of public decision making, which is often too slow to meet the urgency of antimicrobial resistance. These observations were not intended as policy conclusions, but as reflections from the discussions, suggesting that approaches centred on developing shared capabilities across the antimicrobial R&D ecosystem and publicly governed functions may merit further exploration as a potentially politically tractable complement to existing, product-based and incentive-driven mechanisms.

Principles Emerging from the Meeting

- Sustainable antimicrobial innovation depends on long-term system capabilities rather than high-volume markets.
- Innovation is strengthened when diverse scientific and clinical environments participate as equal partners.
- Public–private–philanthropic collaboration may be more sustainable when focused on shared R&D functions—such as platforms, infrastructure, and clinical capabilities.
- Open science and shared infrastructure may accelerate discovery, reduce duplication, and widen participation.
- System-centred innovation efforts already underway demonstrate that coordinated capability-building is feasible.

CONCLUSION

The Tokyo meeting generated substantive shared understanding around how antimicrobial R&D could be strengthened through more coordinated use of existing scientific, clinical, regulatory, and health-system capabilities. Discussions advanced thinking on the practical challenges involved in system-centred approaches—including governance, financing, and the roles of different actors across the R&D lifecycle—highlighting their relevance in areas where conventional market-based models have struggled to sustain discovery and development.

While not intended to produce definitive policy prescriptions, the meeting explored how more coordinated, function-based approaches could complement existing incentive mechanisms. The Nakama simulation and other examples helped situate these approaches in practical terms, illustrating how different actors and capabilities might be aligned across the R&D lifecycle without displacing existing models.

Discussions also underscored the potential for system-centred approaches to broaden meaningful participation in antimicrobial innovation. Participants noted that countries across diverse settings can play substantive roles as co-producers of evidence and innovation, rather than being positioned primarily as downstream recipients, with networks such as ARISE demonstrating this in practice.

Participants further highlighted that long-term sustainability depends not only on financing mechanisms but on maintaining the scientific, clinical, and institutional capabilities that make innovation possible. System-centred approaches were seen as one way to support the continuity of expertise, infrastructure, and research careers that are difficult to sustain under market-dependent models.

Participants expressed strong interest in building on this work through continued engagement, deeper technical exploration, and dialogue with policymakers and funders. Viewed in this light, the Tokyo meeting represents a meaningful step toward shaping a more coherent and evidence-informed conversation on how antimicrobial innovation can be organised in ways that are scientifically robust, politically realistic, and grounded in more equitable participation across regions.

Cover photo: AMR Tokyo Conference March 2026

The LEAD: Leadership in Enhancing Antimicrobial Discovery coalition works to develop leadership and build collaboration to advance science and shape policy for action against antimicrobial resistance.

Contact LEAD: lead-amr@warwick.ac.uk

LEAD

JIHS Japan Institute for Health Security

AMR Clinical Reference Center

ARiSE Academic Research Organization (ARO) Alliance for Southeast & East Asia

UNIVERSITY OF WARWICK

funded by The Great Britain SASAKAWA FOUNDATION グレイトブリテン・ササカワ財団