

ANNUAL REPORT

2023



INTERNATIONAL
CENTRE FOR
ANTIMICROBIAL
RESISTANCE
SOLUTIONS

2023 YEAR IN REVIEW

In 2023, ICARS underwent significant organisational maturation, building upon the groundwork laid in preceding years. As our Executive Director took office, our expansion continued through collaborations with partners to implement and develop projects and activities, while also enhancing evidence generation to inform policy. We initiated new partnerships and strengthened existing ones nationally, regionally, and globally to advocate for country-owned antimicrobial resistance (AMR) solutions, alongside efforts to reinforce capacity and capabilities in Low- and Middle-Income Countries (LMICs). Additionally, we successfully attracted new donors to support our mission and activities.

Our global presence expanded notably, with a growing network of partners expressing interest in ICARS' engagement model. This increase in demand occurred on a national, regional, and global scale, driven by LMIC ministries and various stakeholders. This growth of ICARS has facilitated the approval of six new projects spanning continents. Through the newly introduced submission portal on our website, we have effectively streamlined the process for supporting LMIC in their proposal submission. Furthermore, we've reviewed and improved our procedures and methods for project co-development to ensure a standardised approach across all participating countries.

Throughout 2023, we concluded multiple initiatives focusing on gender and equity, social inclusion, and strengthening community engagement and capacity building in partnering countries. These efforts produced valuable resource documents accessible to stakeholders globally, including researchers and policymakers, providing a stronger basis for effective AMR mitigation research and initiatives in the future.

Aligned with our strategic vision for 2022-26, we increased our outreach efforts and forged strategic partnerships with a range of implementing partners. Notably, we initiated collaborations with new partners such as the Global Antibiotic Research and Development Partnership (GARDP) and the Quadripartite AMR Multi-Stakeholder Partnership Platform (MSPP), expanding our global reach and impact.

In welcoming Zimbabwe, Pakistan, and Kosovo as new Mission Partners, ICARS reaffirmed its commitment to mitigating AMR nationally and regionally. We actively engaged in advocacy activities, participating in conferences, campaigns, webinars, and other events to raise awareness of our work and advocate for country-owned and country-led solutions to support NAP (National Action Plan) implementation in LMICs.

Looking ahead to 2024, ICARS is anticipating further expansion. The upcoming year holds significant importance for both AMR and advocacy endeavours, particularly with the convening of the UNGA 2024 High-level Meeting on AMR. With a growing team and increasing interest from LMICs, we are committed to bridging the gap between science and policy to address AMR effectively. As the initial ICARS projects yield results, the upcoming years promise significant strides in translating evidence into action.

ACKNOWLEDGMENTS

ICARS would like to extend its thanks to all of our staff, partners, donors and collaborators around the world, whose time and support are instrumental to ICARS' ongoing success.

For questions or enquiries, please contact ICARS at contact@icars-global.org

Cover photo: Dairy farm, Kenya, 2023

Back photo: ICARS' team photos, 2023

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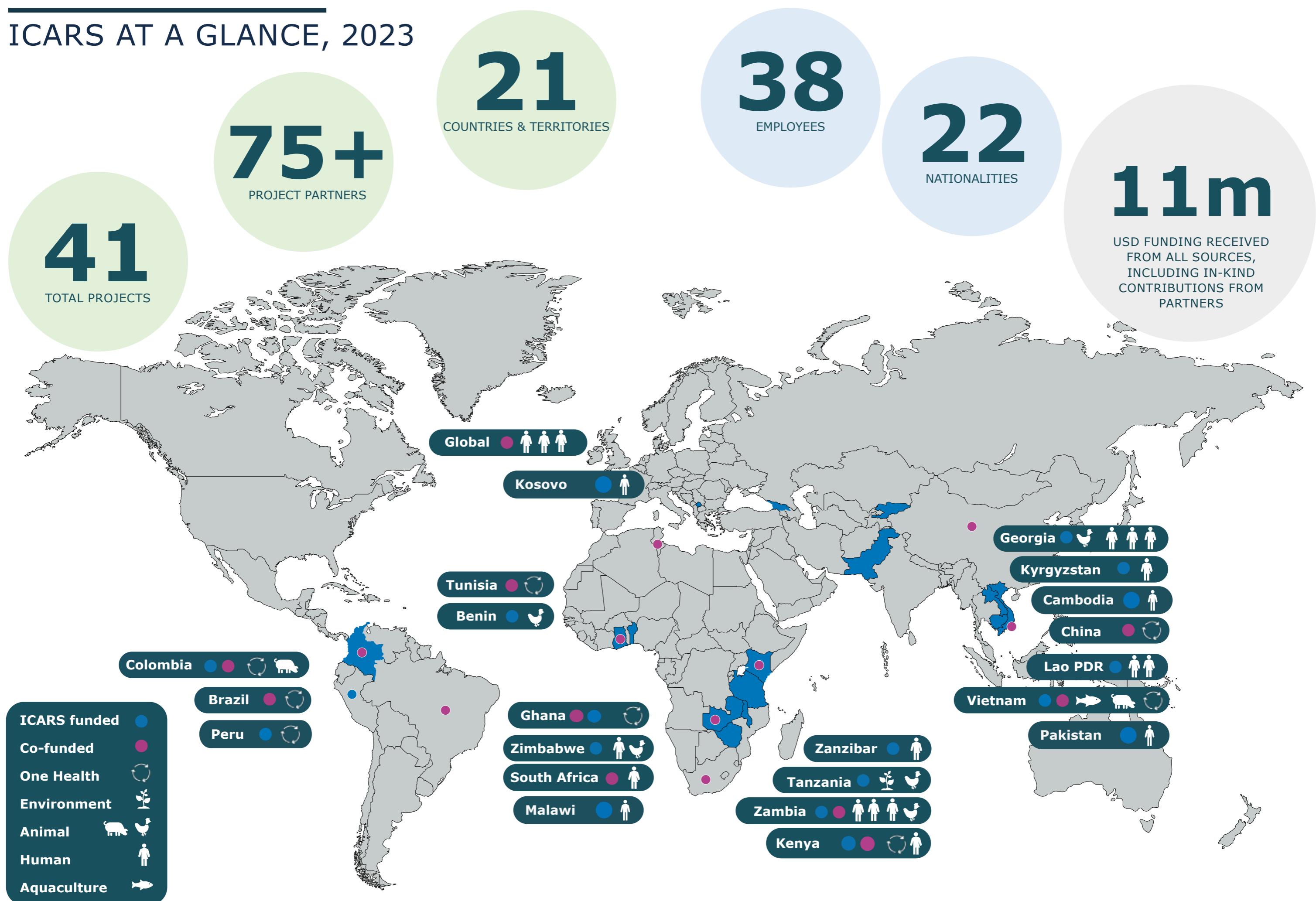


HENRIK WEGENER,
Chair, Board of Directors



SUJITH J. CHANDY,
Executive Director

ICARS AT A GLANCE, 2023



ABOUT ICARS

VISION

We envisage a world where drug-resistant infections no longer pose a threat to the health of humans and animals, the environment, global food security and economic prosperity.

MISSION

To partner with Low- and Middle-Income Countries' ministries and research institutions to co-develop and test cost-effective, context-specific AMR solutions with potential for scale-up across the One Health spectrum, building on National Action Plans, and informed by intervention and implementation research.

WHY?

Although extensive research has revealed successful solutions for mitigating antimicrobial resistance (AMR), there is a critical gap in translating these evidence-based solutions into action. Many countries have developed AMR NAPs, but in low-resource settings the challenge remains of how to best prioritise and implement solutions to mitigate AMR. ICARS specifically addresses the challenge of AMR NAP implementation in LMICs by its unique value proposition of working with government ministries and in-country research institutions using the intervention and implementation research continuum and ensuring comprehensive stakeholder engagement.

HOW?

Using top-down and bottom-up approaches, ICARS provides funding and technical expertise to co-develop and adapt context-specific, evidence-based, and cost-effective solutions with potential for sustainable scale-up and transferability of findings within and across countries and regions. ICARS works top-down with governments and policymakers and bottom-up with practitioners and stakeholders to identify and address AMR priorities. This is accompanied by capacity-building to deliver projects at a country level. ICARS not only partners with LMIC governments but works together with public and private, national, and regional stakeholders to avoid duplication and support uptake of the evidence generated.



OUR STRATEGY

The ICARS strategy is based on the following interconnected pillars:

Pillar 1: Develop and test context-specific solutions for AMR mitigation

Pillar 2: Support the translation and uptake of existing evidence and innovation into policies, programmes, and practice

Pillar 3: Advocate for context-specific, country-owned AMR mitigation solutions

Pillar 4: Support targeted capacity and capability building

Cross-cutting pillar: Remain a trustworthy partner and platform for delivering context-specific and country-owned AMR solutions



The ICARS team on the World AMR Awareness Week 2023.

OUR ACTIVITIES

1 Develop and Test Context-Specific Solutions for AMR Mitigation

In partnership with LMICs ministries and national research organisations, ICARS co-develops research projects that test AMR solutions and support countries' AMR NAP implementation. ICARS is involved across the entire project lifespan: from the initial interaction with the relevant ministry to identify an AMR challenge, the co-development of an intervention and/or implementation research project, during the implementation and testing of solutions, and through the dissemination of evidence and practice for uptake and scale-up. All ICARS projects include behavioural, economic and policy components to enhance proof-of-concept and inform scale-up. ICARS works towards channelling evidence from its projects into LMIC systems, policies, programmes, or practices both within the countries conducting the projects as well as to other countries.

OUTPUT 1.1 PRODUCE NEW EVIDENCE-BASED AND CONTEXT-SPECIFIC SOLUTIONS FOR AMR MITIGATION IN LMICS VIA A PORTFOLIO OF PROJECTS

In 2023 we approved six new projects...



Ghana - 674,393 USD, 2024 - 2027

Reducing the incidence of Surgical Site Infections (SSI) and improving appropriate antimicrobial use (AMU) by addressing challenges associated with Surgical Antimicrobial Prophylaxis (SAP) and Infection Prevention and Control (IPC) practices in surgery.



Malawi - 650,000 USD, 2023 - 2027

Implementing an Antimicrobial Stewardship programme (AMS) in select national healthcare care facilities for patients with Bloodstream Infections (BSIs) and Urinary Tract Infections (UTIs).



Lao PDR - 668,058 USD, 2024 - 2027

Improving the appropriate management and dispensing of antimicrobials in private pharmacies using Good Pharmacy Practices in Lao PDR.

Kosovo - 589,904 USD, 2024 - 2027

Implementing an Antimicrobial Stewardship programme (AMS) in primary care in Kosovo for acute Upper Respiratory Tract Infections (URTIs).

Cambodia - 99,999 USD, 2024

Undertaking a preliminary health system analysis (policy and economics included) to understand the drivers and enablers in the healthcare system, from the healthcare facility level (micro level) to the national policy level (macro level), to support an Antimicrobial Stewardship programme (AMS) ecosystem.



Pakistan - 662,186 USD, 2023 - 2026

Developing contextualised interventions for the Rural Health Centre (RHC) staff to prescribe antibiotics appropriately. Engaging patients and families in responsible and safe consumption of antibiotics.

...and strengthened its co-development process

The ICARS Science team supported 12 co-development processes during the year. This included workshops to identify and prioritise the main AMR problem to be tackled, understanding causes and consequences of that problem, conducting extensive stakeholder mapping, identifying relevant interventions to test and the most appropriate study designs required to elucidate intervention outcomes and implementation research outcomes. Additionally, with the support of the Monitoring, Evaluation and Learning team, each co-development process included the formulation of outcomes, outputs, and activities to help build the project's Theory of Change. In December, ICARS hosted two webinars specifically for government officials and researchers in LMICs, focusing on the submission of Expressions of Interest (EoIs). These interactive [webinars](#) were attended by over 100 people and aimed to help participants craft compelling applications for collaborative research projects with ICARS.



Pakistan



Lao PDR

OUTPUT 1.2 GENERATE SUPPORT FOR THE UPTAKE, IMPLEMENTATION AND SCALE-UP OF SOLUTIONS IN LMICS

In 2023, ICARS maintained close ties with its country partners...

The ICARS Science team conducted field visits to over ten country partners for scoping, co-development, and project implementation purposes. A few examples are mentioned below:

In Colombia, ICARS science advisors visited a pig farm participating in an ICARS-supported project to provide insights for project recommendations and gather evidence. The farm is testing the provision of colostrum and other improved environmental conditions for piglets to strengthen their immunity immediately after birth. This initiative has led to reduced use of antimicrobials in piglets. In Tanzania, advisors reviewed baseline data, refined research protocols, and engaged with stakeholders for the two projects related to improving biosecurity in poultry farms and reducing use of antimicrobials in poultry through vaccination. In Zambia, teams discussed ongoing efforts to measure the impact of antibiotic stewardship interventions for patients with bloodstream and urinary tract infections in hospitals.

Additionally, some scoping visits aimed to gain a better understanding of each country's AMR situation and to frame potential projects. For example, in Kosovo, discussions with healthcare professionals provided insights into nuances in the diagnosis and treatment of respiratory disease at primary care level. In Zimbabwe, ICARS visited Farmer Field Schools which are targeted at improving poultry farmers' understanding and application of biosecurity measures and antimicrobials used on their farms. In Cambodia, members of the ICARS Science team visited hospitals to understand their existing treatment guidelines and antimicrobial stewardship efforts to explore how these could be strengthened through an ICARS intervention and implementation research project.

... started generating results for projects in implementation...

In 2023, the ICARS projects started gathering evidence, yielding concrete results, and informing policy. Here are some examples:



Kyrgyzstan / Facilitating appropriate antibiotic use in respiratory tract infections in children

The project assesses the effectiveness, feasibility, acceptability, and cost of using a point-of-care test for measuring C-reactive protein (CRP) to guide antibiotic use in children with respiratory tract infections. The RCT was completed in April 2023 and included a total of 1204 children enrolled from 14 healthcare facilities. Data analysis and manuscript development are currently underway for all studies. Initial findings are encouraging; preliminary results were presented at both national and international meetings. Furthermore, two papers were published: one outlining the [RCT methodology](#) and another detailing the [pilot study's feasibility](#).



Georgia / Optimising use of antibiotics for Surgical Antibiotic Prophylaxis (SAP)

The project aims at curbing the inappropriate use of antibiotics for surgical prophylaxis, through the introduction of an antimicrobial stewardship programme. Seven hospitals have completed a year of full implementation of the programme. Compliance with the guidelines has surpassed the anticipated 60%, and a point prevalence survey conducted six months after completing the quality improvement cycle has indicated sustained adherence to the guidelines for the first three hospitals. The positive results of the project have led to the inclusion of antimicrobial stewardship as a monitoring measure in the newly revised National Action Plan for AMR.

...continued implementation efforts for ongoing projects

In 2023, ICARS committed resources and leveraged its expertise to ensure the successful implementation of ongoing projects. Certain projects were enhanced and expanded with the addition of new work packages. For instance, given the encouraging preliminary findings in Kyrgyzstan, the project has been expanded and extended to assess the effectiveness of using CRP POCT in treating upper respiratory tract infections in adults, and to evaluate the effect of various implementation strategies on enhancing and improving uptake among healthcare workers and patients.

...and strengthened its monitoring & evaluation framework

ICARS recognises the critical role of monitoring and evaluation (M&E) in its projects. Beyond ensuring accountability, M&E is crucial for achieving and demonstrating success and fostering a culture of learning conducive to potentially scaling up its AMR solutions. ICARS has implemented a systematic quarterly reporting process wherein partners, the grant recipients, submit both progress and financial reports. These reports not only aid in tracking project spending but also offer insights into the technical aspects of project implementation, ensuring alignment with objectives. However, ICARS' M&E processes go beyond mere compliance and result tracking; they emphasise learning, reflection, and continuous improvement. The organisation's evaluation framework, currently under development, is tailored to facilitate this aspect of project management and implementation. Through active engagement in learning and reflection, ICARS aims to enhance the impact and effectiveness of its projects, thereby advancing its mission of combating antimicrobial resistance.



A Lab in Kyrgyzstan, June 2023.

OUR ACTIVITIES

2 Support the Translation and Uptake of Existing Evidence and Innovation into Policies, Programmes, and Practice

While a wealth of tools and methodologies have proved successful in mitigating AMR, such evidence is primarily produced in high-income settings with limited adaptability to LMICs and minimal engagement from practitioners and policymakers. ICARS works to translate existing evidence into action and supports the uptake of innovations and evidence in partnership with LMIC government ministries and other in-country stakeholders. By analysing and reviewing reports of previous efforts and publications from completed research, we assess the suitability of interventions to meet national and regional needs, including cost-effectiveness. Our projects aim to identify enablers and barriers to uptake, build mutual trust between stakeholders, and create the additional evidence needed to close the gap between evidence and its practical implementation in LMICs.

OUTPUT 2.1: IDENTIFY EXISTING EVIDENCE AND ENGAGE SCIENTISTS AND STAKEHOLDERS IN THE DEVELOPMENT OF PROJECTS TO SUPPORT UPTAKE OF EXISTING EVIDENCE IN LMICS

In 2023, ICARS kickstarted the implementation of 11 projects, here are some highlights...

Latin America, Peru / Scoping AMR Interventions in the LAC region

Scoping AMR interventions in the Latin America and Caribbean (LAC) region to inform the prioritisation of future research areas.

Cross-country / Strengthening gender equality and social inclusion in LMICs across the AMR research continuum

The recently concluded project explored the interconnectivity of AMR, gender, and equity by reviewing existing evidence on these topics and identifying key knowledge gaps from both human and animal health perspectives. In December 2023, ICARS and the International Development Research Centre (IDRC), in collaboration with the Human Sciences Research Council (HSRC), the Mahidol Oxford Tropical Medicine Research Unit (MORU) and Jive Media Africa, released a resource document designed to help integrate gender and equity considerations into AMR innovation, intervention, and implementation research. Practical Pathways to Integrating Gender and Equity Considerations in Antimicrobial Resistance Research functions as an accessible resource and was developed in collaboration with AMR researchers and global experts, drawing on practical examples and real-world

experiences to ensure maximum relevance and user-friendliness. The resource guides AMR research teams in integrating a gender and equity lens, emphasising the necessity of such considerations in innovation, intervention, and implementation research. It equips AMR research teams to navigate intersectional gender complexities throughout the research cycle, providing practical and clearly articulated strategies.

...and concluded several cross-cutting projects.

Cross-country / Development of guidelines to facilitate Responsive Dialogues to tackle AMR in LMIC settings

ICARS and Wellcome have collaborated on two projects building on the 'Responsive Dialogues on Drug Resistant Infections' approach developed by Wellcome to support public engagement and community leadership. The first, with Eden University in Zambia, carried out Responsive Dialogues to find practical solutions to address AMR related to Urinary Tract Infections (UTIs). This effort enhanced public and stakeholder understanding of antibiotics and AMR, particularly concerning UTIs. It also facilitated the co-creation of interventions to address the issue, with broad dissemination of the outcomes.

The second project, in partnership with the University of the Western Cape School of Public Health, aimed to strengthen ICARS' bottom-up approach in projects across LMICs. As the project concluded in December 2023, ICARS published a [new resource document](#) containing guidelines and training modules for conducting Responsive Dialogues on AMR. These guidelines clarify and streamline the process of facilitating 'Conversation Events', a central aspect of the Responsive Dialogues approach, making it more accessible and relevant to various stakeholders in LMIC settings. These guidelines will be applied in at least two ICARS projects in Lao and Zimbabwe during 2024-2025, with ongoing engagement with partners to integrate community engagement into ICARS' project work.

Colombia / Tackling Antimicrobial Resistance in Colombia via diagnostic uptake in pig farming

The project co-funded by ICARS in partnership with the UK Department of Health and Social Care's Global AMR Innovation Fund (GAMRIF) and Porkcolombia employed a combination of research methods within the framework of implementation research to enhance understanding of the barriers and enablers to adopting a laboratory network aimed at promoting more responsible AMU in Colombian pig farming. Several key areas emerged for developing effective policies and procedures to support the implementation of this network:

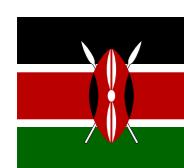
- Targeted training, knowledge accessibility, and socialisation of the diagnostic network.
- Improved coordination and communication among national stakeholders and local actors.
- Streamlined workflow, including adjustments to decision-making processes, logistics, and result analysis.

Additionally, initial findings from the cost-benefit analysis indicated that the benefits of utilising disease diagnostics for the eight most common pig diseases outweighed the associated costs for producers. Conversely, conventional management of pig diseases and antibiotic use proved to be the least beneficial scenario, with negative spillover effects on producers, society, and the environment. Ongoing analysis includes extended modelling to assess return on investment by farm.

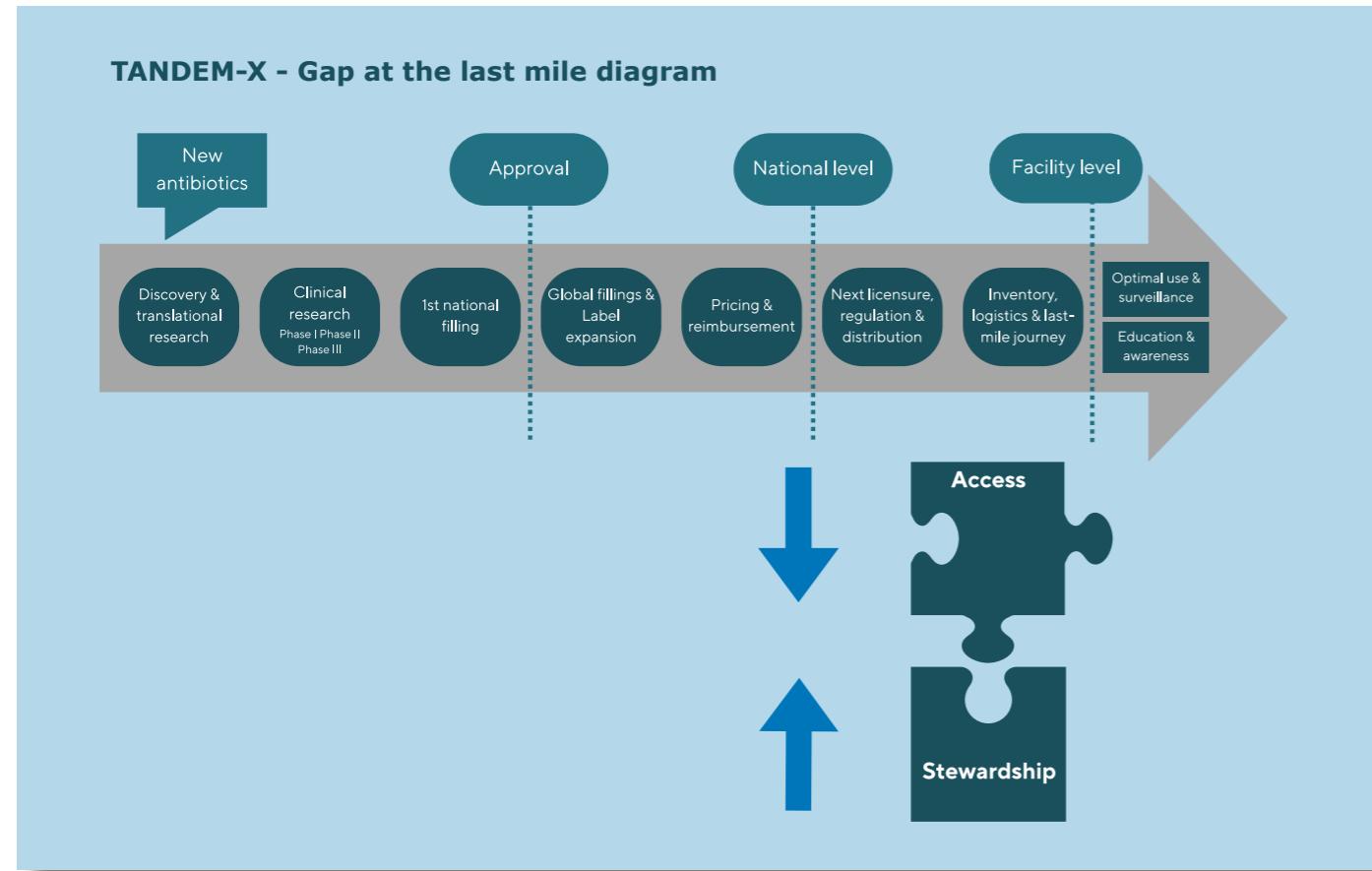
OUTPUT 2.2: PARTNER WITH LMIC STAKEHOLDERS ON PROJECTS TO SUPPORT ADAPTATION AND UPTAKE OF SOLUTIONS

In 2023, ICARS developed and got funding for a new critical project...

India & Kenya / Planning grant Towards an Antibiotic Roadmap for the sustainable Entry and Management of Antibiotic X (TANDEM-ABX) in Low- and middle-income countries



TANDEM-ABX aims to provide a framework for sustainable implementation and use of novel antibiotics in LMICs. The project was developed in dialogue with and is supported by the Novo Nordisk Foundation. This involves establishing partnerships at the national and regional levels and collaborating with global, regional, and local stakeholders in the mitigation of antimicrobial resistance. Preparatory activities will occur in India and Kenya. Leveraging existing collaborations with the Global Antibiotic Research and Development Partnership (GARDP), ReAct Africa Network (RAN), and other stakeholders, ICARS aims to advocate for the integration of access and stewardship in LMICs, establishing an enabling environment for stewardship practices and identifying key stakeholders crucial for the roadmap's implementation. Moreover, the aim of this project is to develop a blueprint that would be implemented in the coming years.



OUR ACTIVITIES

3 Advocate for Context-Specific, Country-Owned AMR Mitigation Solutions

Aside from engaging with national and international players to identify gaps and scope opportunities to develop and test context-specific AMR solutions, ICARS also works to raise awareness of and mobilise international commitment for solutions informed by intervention and implementation research to deliver on AMR NAPs. Through strategic outreach and participation in events and conferences, ICARS aims to influence funders and policymakers to prioritise and increase their investment in this area of research, especially in LMICs where the burden of AMR is greatest.

OUTPUT 3.1: ADVOCATE AND HELP MOBILISE POLITICAL COMMITMENT FOR LMIC GOVERNMENTS TO PRIORITISE CONTEXT-SPECIFIC SOLUTIONS INFORMED BY INTERVENTION AND IMPLEMENTATION RESEARCH TO MITIGATE AMR

ICARS at the 76th World Health Assembly

In May 2023, the World Health Assembly met in Geneva as the principal decision-making body of the World Health Organization, addressing critical global health concerns. ICARS collaborated with the Danish Ministry for the Interior and Health, the Novo Nordisk Foundation, and the AMR Action Fund to host a side-event on antimicrobial access and stewardship. The roundtable brought together government officials and stakeholders to emphasise the interdependence of these efforts in addressing AMR. Participants, including ICARS' Executive Director Dr Sujith J Chandy, highlighted the need for integrated, global collaboration, stressing that stewardship and access are interconnected.



Quadrupartite One Health Research Agenda

The One Health Priority Research Agenda, launched in June 2023, plays a pivotal role in the global effort to address AMR by fostering collaboration across sectors. Developed by the Quadrupartite organisations with support from ICARS, this agenda aims to prevent and reduce AMR in LMICs. Through the secondment of a Senior Advisor to the Quadrupartite secretariat and the active participation in the work, ICARS emphasised a collaborative and holistic approach to implementation research, reaffirming its commitment to addressing AMR across the One Health spectrum. The webinars held for the launch of these agendas facilitated valuable comments and reflections from experts, highlighting the importance of a multi-stakeholder approach to mitigate AMR globally.



Annual Partners Meeting

On October 3rd, 2023, ICARS hosted its first Annual Partners Meeting. This event brought together LMIC Partners, Funding Partners, Mission Partners, and Implementation Partners for an insightful exchange on topics of key importance to prevent and mitigate AMR. Moving forward, this event will take place annually to provide a platform for the collective sharing of experiences and perspectives in mitigating AMR among ICARS partners. The meeting highlighted the importance of intensifying global partnerships and collaboration, creating political incentives, and advocating for intervention and implementation research as the go-to methodology. Participants articulated the need to bridge the gap between evidence, policy, and practice – reflecting the important role ICARS plays as a global AMR actor and how pandemics like COVID-19 increased the awareness among decision-makers of the necessity to prepare for future pandemics by building on existing knowledge. These learnings, messages, and experiences will be conveyed in the United Nations General Assembly 2024 high-level meeting on AMR with the ambition to solidify the commitment to implement the NAPs.

Strategic Funding Partners <ul style="list-style-type: none">• 3+ year commitment• Significant financial contribution	Funding Partners <ul style="list-style-type: none">• 1+ year commitment• Earmarked funding	Mission Partners <ul style="list-style-type: none">• Commit to ICARS' mission• In-kind support	Implementation Partners <ul style="list-style-type: none">• Project co-funding, coordination of activities, and/or advocacy efforts
Invited to nominate a member to the Board of Directors.	All partners are invited to participate in the ICARS Annual Partners Meeting and regional seminars to facilitate knowledge exchange and establish communities of practices to realise effective AMR policies.		

ReAct Africa-South Centre Conference 2023

In August 2023, ICARS co-hosted and co-sponsored The ReAct Africa-South Centre annual conference. This was an opportunity for ICARS projects to show their pioneering work in addressing AMR NAP implementation in their respective countries. ICARS representatives participated in a range of sessions leading on discussions covering important topics such as AMR and Gender, Health System Strengthening, Community Engagement as well as framing AMR as a societal challenge. With more than 100 participants online and in person, the conference engaged key stakeholders and project partners to exchange learnings to support countries' NAP implementation. On the side of the conference, ICARS hosted two parallel sessions to stimulate exchange between ICARS-supported projects in Africa in both the human health (Zambia, Zanzibar, Zimbabwe) and the animal sector (Zimbabwe, Zambia, Tanzania, Tunisia, Benin).



From left to right: Dr Sujith J Chandy (ICARS), Prof Roma Chilengi (Zambia National Public Health Institute), Anna Karin Sjöblom (ReAct Europe), Dr George Sinyangwe (Ministry of Health, Zambia), and Dr Mirfin Mpundu (ReAct Africa) at the React Africa-South Centre Conference 2023.

LMIC voices featured on the ICARS website and social media channels

ICARS' external outreach is expanding alongside the increasing number of news pieces from the ICARS team. Notably, the ICARS LinkedIn channel has seen a significant surge, now gathering over 10,000 followers with more than a third from LMICs and has engaged more people than ever before. This growing audience provides a platform for amplifying LMIC voices and advocating for ICARS solutions. The audience of ICARS' social media channels is comprised mainly of governments and ministry officials, research institutions, and funding organisations. As a result, ICARS' unique model of context-specific solutions is gaining widespread visibility among relevant stakeholders. During country visits by ICARS staff, over a dozen stories from LMIC project partners were curated and shared on the ICARS website and social media platforms. At this year's ReAct Africa Conference, videos featuring ICARS' project leads were produced and promoted on all external channels.

Watch the videos [here](#).



Screenshot from a video of the ICARS-supported project in Benin.

Collaborating with the International Vaccine Institute (IVI)

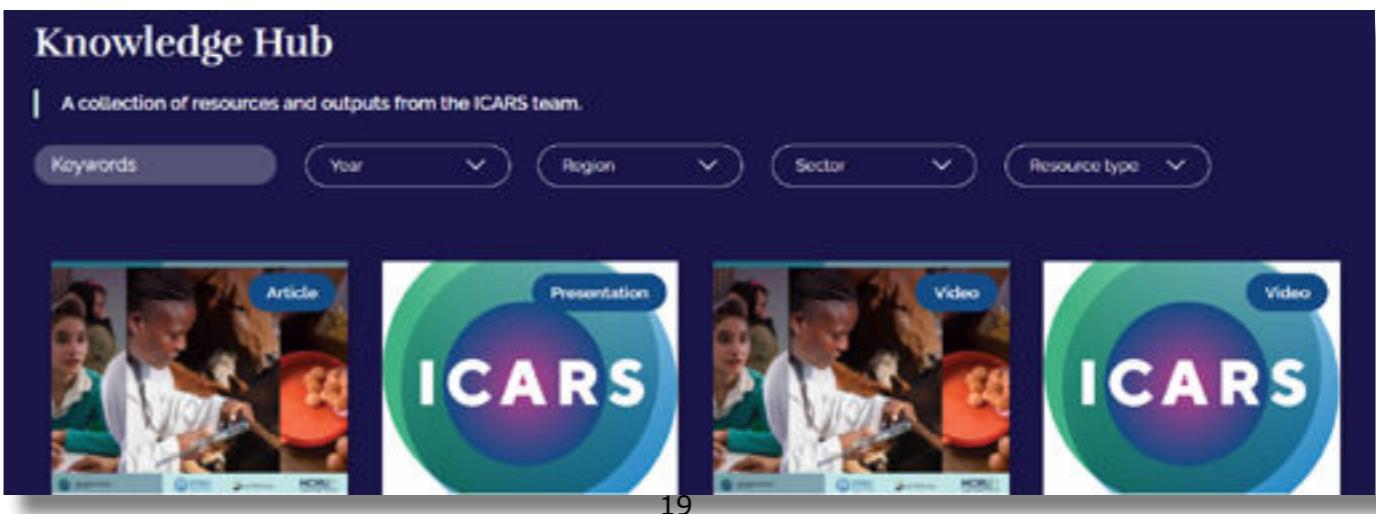
In 2023, ICARS had the privilege of hosting the International Vaccine Institute (IVI) at its Copenhagen headquarters, as well as co-hosting a webinar on the intersection of vaccines, AMR and specific contexts in LMICs. The ongoing dialogue between ICARS and IVI is part of ICARS' efforts to align across stakeholders regarding AMR-specific and AMR-sensitive policies and actions. This collaboration and conversation recognise the parallels between immunisation and AMR and the need to bridge this gap further.



The ICARS team together with Dr Satyajit Sarkar and Dr Nimesh Poudyal from IVI.

Publishing the Knowledge Hub on the ICARS website

In late 2023, the [Knowledge Hub](#) went live on the ICARS website. This new section of the website stores guidelines, courses, reports, and resources generated by ICARS and its supported projects, accessible for all. The aim of the Knowledge Hub is to facilitate the exchange of experiences and learnings among researchers, policymakers, and other relevant stakeholders worldwide. The Knowledge Hub will be continuously updated and expanded as ICARS continues to produce additional outputs and engage in further activities.



OUTPUT 3.2: ENCOURAGE INVESTMENTS AND INFLUENCE RESEARCH FUNDERS, UN AGENCIES AND OTHER STAKEHOLDERS TO SUPPORT CONTEXT-SPECIFIC SOLUTIONS USING INTERVENTION AND IMPLEMENTATION RESEARCH FOR THE MITIGATION OF AMR

World Bank Spring Meeting

ICARS attended the World Bank Spring Meetings in Washington DC to participate in a high-level ministerial roundtable hosted by the Minister for Development Cooperation and Global Climate Policy of Denmark, Dan Jørgensen. The event called for One Health Solutions to mitigate AMR. Ministers, senior-level government officials, philanthropic foundations, and representatives from the World Bank and the UN Quadripartite shared their experiences and challenges of addressing AMR at the national and global levels. ICARS' model of context-specific solutions using intervention and implementation research was highly regarded and recognised by key stakeholders, such as the Danish government and the World Bank.



"For almost 20 years the World Bank has been working in the AMR space and been aware of a critical gap – pharmaceutical companies around the world working hard to produce new antibiotics are not keeping pace with what is being lost to antimicrobial resistance. We recognised the need for a research facility that investigates the most effective AMR interventions to prioritise and finance – and welcome the ongoing work of ICARS to tackle this deadly pandemic. Denmark saw the need, funded ICARS, and now the organisation is rapidly growing – if you haven't already, everyone should connect with and support the important work of ICARS."

- Juergen Voegele, Vice President for Sustainable Development at the World Bank.



World AMR Congress

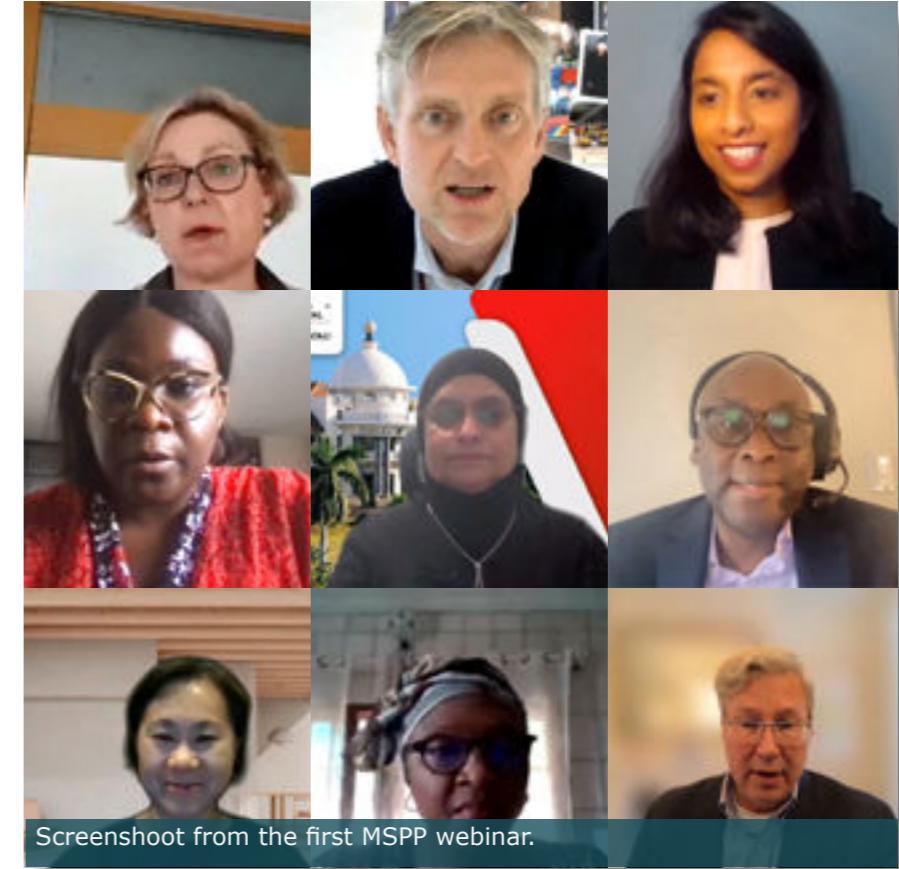
ICARS participated in the World AMR Congress 2023 in Philadelphia, addressing the various challenges in mitigating AMR with a focus on LMICs. The Congress provided a unique opportunity to engage with key stakeholders in North America, such as policymakers, researchers, civil society organisations, and the private sector. ICARS' approach to developing AMR solutions was prominent at the different panels, roundtables, and discussions during the two-day congress.



Dr Robert Skov, ICARS' Science Director at the World AMR Congress 2023.

Advocating for Resource Mobilisation for Impact as part of the Quadripartite Multi-Stakeholder Partnership Platform Action Group

During the November launch event at the FAO headquarters, ICARS officiated its active engagement and participation in the Multi-Stakeholder Partnership Platform (MSPP). The MSPP, a platform initiated by the UN Quadripartite, brings together actors within the AMR sphere to catalyse global action in the mitigation of AMR at all levels across the One Health spectrum. To address the specific challenges in LMICs, ICARS established the '*Advocacy for Impact - Strengthening Sustainable Resource Mobilisation in LMICs*' Action Group in partnership with Gesellschaft für Internationale Zusammenarbeit (GIZ), Joint Programming Initiative on AMR (JPIAMR), Global AMR R&D Hub and ReAct. The Action Group aims to raise awareness of current funding models and programmes for AMR and reflect on impact of AMR resource mobilisation in LMICs.



Screenshot from the first MSPP webinar.

OUR ACTIVITIES

4 Support Targeted Capacity and Capability Building

Capacity and capability building is essential to the process of creating a critical mass of governments, central agencies, and research personnel equipped with the knowledge, skills, and competencies to implement AMR solutions that advance NAP implementation. Under this pillar, ICARS facilitates capacity and capability building of project teams including LMIC policymakers, champions, prescribers, dispensers, consumers, and users of antimicrobials, amongst others, through relevant training and engagement as well as strengthening of human, veterinary and environmental health systems to address AMR.

OUTPUT 4.1: PROVIDE TRAINING AND SHARE KNOWLEDGE ON BEST PRACTICES TO LOCAL RESEARCHERS AND POLICYMAKERS IN PARTNER COUNTRIES TO SUPPORT NAP IMPLEMENTATION THROUGH INTERVENTION AND IMPLEMENTATION RESEARCH

ICARS and Radboudumc Launched the DRIVE-AMS Course in Tanzania

Radboudumc, Kilimanjaro Christian Medical University College, and ICARS collaborated in launching a course, bringing together multidisciplinary teams from ten hospitals across Tanzania, Rwanda, Zimbabwe, and Uganda, to define the antimicrobial stewardship (AMS) challenges they experience in their hospitals and design a quality improvement plan to address them. This was the first of 4 DRIVE-AMS courses that will provide training and teaching tools adapted to LMIC contexts, transposing best practices from resource-rich to resource-constrained settings for AMS.



Economic Analysis Training for the Animal Health Project Teams

In July 2023, ICARS facilitated two economic analysis webinars in collaboration with the University of Liverpool. Dr Sara Martins and João Afonso introduced over 40 participants to the theme of Animal Health economics, namely, key concepts and tools with hands-on exercises, allowing participants to plan and conduct assessments related to animal health interventions.

The British Society for Antimicrobial Chemotherapy-ICARS Joint Course Launch

In partnership with The British Society for Antimicrobial Chemotherapy (BSAC), ICARS developed three online courses to support capacity building for healthcare professionals in Georgia and beyond. The first and third courses provide an in-depth analysis of the AMR landscape and the steps to implement an antimicrobial stewardship programme for surgical antibiotic prophylaxis in Georgia. The second course provides an overview of tools for setting up an AMS programme in LMICs. [They are available in both Georgian and English.](#)



OUTPUT 4.2: STRENGTHEN HUMAN, VETERINARY, AND ENVIRONMENTAL HEALTH SYSTEMS' CAPACITY TO DELIVER ON ICARS PROJECTS IN PARTNERSHIP WITH LMICS

Georgia poultry project team members attended training in Copenhagen

The team of the ICARS-supported project to reduce the use of antibiotic growth promoters (AGPs) on poultry farms in Georgia, attended a training in Denmark, organised by the University of Copenhagen. The training objectives were to enhance the knowledge and experience of the Georgian team in poultry farm management and antimicrobial use. With a focus on optimising rearing practices to phase out antimicrobials, the team attended lectures on poultry herd diseases, biosecurity, hygiene, and antimicrobial use in Denmark. Additionally, they delved into discussions on zoonosis control and investigations of foodborne disease outbreaks, while also learning about Danish monitoring programmes for antimicrobial use, which have been operational since 2000. The Georgian team also visited laboratories to learn about antimicrobial susceptibility testing (AST) and exchanged experiences and challenges with Danish farmers.

FAO Farmer's Field School in Kenya and Zimbabwe

ICARS advisors visited a Farmer Field School (FFS) established by the FAO in Zimbabwe. During the visit, they gathered insights into how an FFS operates and functions. Farmers taking part in this programme shared their experience from implementing this intervention and expressed several positive outcomes. Thanks to the FFS intervention, farmers managed to enhance production both on their farms and in the model farm, generating sufficient revenue to support their children and cover their school fees. The ICARS-supported project in Zimbabwe investigates employing the learnings from the visit and adopt FFS as an intervention strategy. The goal is to improve biosecurity measures and reduce antimicrobial use in small and medium-scale broiler farms in three specific districts.



From an ICARS visit to a Farmer Field School in Zimbabwe.

AST Workshop in Kenya

Eleven participants from ICARS-supported projects attended a workshop on AST at the International Livestock Research Institute (ILRI) in Nairobi, Kenya. The workshop was part of ICARS' collaborative project with ILRI and the EUCAST Development Laboratory (EDL) working to build a centre of excellence for AST at ILRI, which includes regular training on AST for clinical microbiologists and technicians from other laboratories as well as provision of technical support for troubleshooting on an ongoing basis. The training has contributed to a growing network of knowledge sharing with positive feedback from the participants from ICARS' projects in Benin, Ghana, Kenya, Tanzania, Zanzibar, and Zimbabwe.



ICARS' Science team in one of their visits to Kenya.

OUR ACTIVITIES



Cross
Cutting
Pillar

A Trustworthy Partner and Platform for Delivering Context-Specific and Country-Owned AMR Solutions

The work under this crucial pillar ensures that ICARS operates effectively as an organisation, attracting and retaining top talent, and gaining trust from partners and funders. The transition to independence in 2021, marked by the establishment of an international Board of Directors, laid essential groundwork for ICARS' organisational structure. In 2023, governance was enhanced by implementing new policies and expanding the team in science, partnership, and operations, resulting in changes to the organisational chart. The Board of Directors played a crucial role, contributing valuable knowledge and experience. Additionally, new Mission Partners were welcomed.

OUTPUT X.1. OPERATE AS A WELL-FUNCTIONING ORGANISATION WORKING AT AN INTERNATIONAL LEVEL, WITH THE ABILITY TO ATTRACT AND RETAIN THE BEST OF TALENT WHILE MAINTAINING AN AGILE STRUCTURE SEEKING PARTNERSHIPS WITH A RANGE OF STAKEHOLDERS.

In 2023, the ICARS Team has expanded...

During the year, ICARS welcomed 11 new full-time employees and 2 student assistants. The Science Team experienced significant growth to accommodate the expansion of ICARS' project portfolio and the increasing demand for the model. This expansion prompted internal transformations, including the establishment of the Resources and Compliance Team.

...the Board of Directors was reappointed.

In 2023, ICARS' Board of Directors continued to serve as a fount of knowledge and provided invaluable advice. The Board convened four times, conducting productive discussions under the guidance of Chair Henrik Wegener. In April 2023, the Board held an in-person meeting and visited ICARS' headquarters in Copenhagen for the first time. At the end of 2023, the ICARS Board of Directors was reappointed for another three years.

...new Mission Partners were welcomed.

To foster even closer and more strategic collaboration with country partners beyond specific research projects, ICARS welcomed Zimbabwe, Pakistan, and Kosovo as Mission Partners in 2023. As Mission Partners, they not only join as trusted collaborators but become part of a network of like-minded nations dedicated to mitigating AMR. In 2024, ICARS looks forward to expanding this network to include more close country partners and actively utilising it to facilitate cross-regional learning and the exchange of perspectives for the further development of ICARS.



ICARS' visit to Zimbabwe.



MoU signing ceremony in Kosovo.



MoU signing ceremony in Pakistan.

OUTPUT X.2. ENSURE THAT ICARS FULFILS A NICHE GAP IN AMR MITIGATION WORTHY OF INVESTMENT BY DONORS

In 2023 we attracted external funding from key partners...

In November 2023, ICARS secured a DKK 3.5 million (USD 520,000) planning grant from the Novo Nordisk Foundation for its project "Towards an Antibiotic Roadmap for the Sustainable Entry and Management of Antibiotic X (TANDEM-ABX) in Low- and Middle-Income Countries". This marks the beginning of a fruitful partnership.

In December 2023, ICARS secured a substantial grant of DKK 57.55 million (USD 8.53 million) from Wellcome to bolster its efforts in addressing AMR in the African region. This funding will be instrumental in supporting the implementation of AMR National Action Plans across various countries in Africa, fostering sustainable solutions tailored to local needs and driven by country-led initiatives in collaboration with ICARS. As such, Wellcome has joined forces with ICARS as a Strategic Funding Partner, supporting and strengthening ICARS' efforts to mitigate AMR in Africa. Together with ReAct Africa, this partnership aims to develop tailored, locally owned strategies to address AMR in LMICs, amplifying ICARS' global impact.

... reinforced its relationship with the Danish government

In 2023, ICARS received DKK 71 million (USD 10.53 million) in a core grant from the Danish government, underlining the strong partnership between Denmark and ICARS and the shared dedication to global AMR mitigation.

Additionally, the Danish government, ministries, and ICARS collectively developed and participated in high-level events such as the World Bank Spring Meetings in Washington DC and the World Health Organization's World Health Assembly in Geneva. During the World Health Assembly, a side event was co-organised by the Ministry of the Interior and Health, ICARS, the AMR Action Fund, and the Novo Nordisk Foundation.

While ICARS operates independently, Denmark serves as its host country and primary donor. As a result, ICARS frequently includes Danish representatives in international forums and meetings. This contributes to positioning Denmark as a global leader in both AMR mitigation, One Health initiatives, and international development efforts.

One such example is the European Commission's Team Europe Initiatives where ICARS is part of the Team Europe Initiative on Sustainable Health Security in Africa, invited by Denmark, and co-developing an AMR program and co-leading a technical working group with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The program focuses on strengthening Africa CDC and its AMR mitigation efforts, with a close dialogue with Denmark.

Moreover, in 2023, Denmark's national investment promotion agency, Invest in Denmark, reported a Foreign Direct Investment (FDI) in Denmark, citing ICARS as a significant factor. The investor mentioned Denmark being strategically selected for the company's Nordic headquarter due to its strong life science and food ecosystem, and because 'Denmark has a long history of working in One Health and is among other home to the International Centre for Antimicrobial Resistance Solutions (ICARS)'.



Dr Sujith J Chandy, ICARS' Executive Director speaking on behalf of ICARS at the World Bank Spring Meeting 2023.



ICARS' Executive Management at the World Health Assembly's side meeting with the Danish ambassador to Geneva, 2023.

GOAL ACHIEVEMENT 2023

The ICARS strategy spanning from 2022 to 2026 encompasses a structured framework of outputs, outcomes, and pivotal activities across each of ICARS pillars for this designated period.

Goals/Indicators	Target	Result	Status
Pillar 1			
co-development processes initiated	8	9	Green
Approved project proposals	6	6	Green
% of projects and supporting activities on track in implementation	75%	73%	Yellow
Pillar 2			
Supporting activities and projects developed with relevant scientists, ministries and stakeholders that enable uptake and scale-up of existing evidence	2	2	Green
Pillar 3			
Regional partnership events hosted	3	3	Green
Events and conferences where ICARS activities have been showcased	12	29	Green
Pillar 4			
Activities that strengthen capacity and capability to mitigate AMR in LMICs made available by ICARS for country teams	5	7	Green
% of ICARS projects or activities under pillars 1 and 2 where members of the country team have participated in capacity-building activities	75%	100%	Green
Pillar X			
Amount in million DKK attracted from partners other than the Danish government	71	66	Yellow
Staff satisfaction survey establishing baseline	1	1	Green

The following grading system is used: Green indicates that the goal has been achieved or is expected to be achieved, Yellow represents a deviation up to 10%, Orange signifies a deviation between 11-30%, Red indicates a deviation above 30%.



STATEMENT BY THE MANAGEMENT ON THE ANNUAL REPORT

The Executive Management and the Board of Directors have today considered and approved the annual report of the International Centre for Antimicrobial Resistance Solutions (ICARS) for the financial year 1 January – 31 December 2023. The annual report has been prepared in accordance with the State Accounting Rules and ICARS statutes.

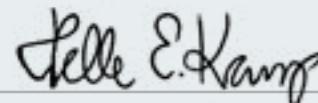
In our opinion, the annual report gives a true and fair view of ICARS's financial position as per 31 December 2023 and of the results of ICARS's operations and cash flows for 2023. Further, it is our opinion that the management's review includes a true and fair account of the development in the operations and financial circumstances of ICARS.

Copenhagen, 22 April 2024

Executive Management:



Sujith J Chandy,
Executive Director



Helle Englund Krarup,
Director of Operations

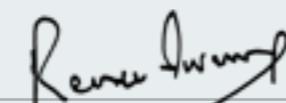
Board of Directors:



Henrik Wegener, Chair



Jimmy Smith, Member



Renu Swarup, Vice-Chair



Isatou Jallow, Member



INDEPENDENT AUDITOR'S REPORT

To the Board of Directors of International Centre for Antimicrobial Resistance Solutions (ICARS) Audit report on the financial statements

**This is an English translation of the Danish Auditor's report. The Danish language version shall prevail on any question of interpretation or otherwise.*

Audit report on the financial statements

Opinion

We have audited the financial statements of ICARS for the financial year 1 January to 31 December 2023 which include the accounting practices applied, profit and loss account, balance sheet, statement of movements in equity and notes to the accounts. The financial statements are prepared according to the State accounting rules.

In our opinion, the financial statements are, in all material respects, prepared in accordance with the State accounting rules.

Basis for opinion

We conducted our audit in accordance with international standards on auditing and the additional requirements applicable in Denmark as well as the standards for public audits, the audit being carried out the basis of the provisions of the Danish Auditor General Act, Section 2 (1) (3). Our responsibilities under these standards and requirements are described in more detail in the 'Auditor's responsibilities for the audit of the annual financial statements' section of the audit report. We are independent of ICARS in accordance with the International Ethics Standards Board for Accountants' International Guidelines on Ethical Conduct of Auditors (IESBA Code) and the additional ethical requirements applicable in Denmark, and we have fulfilled our other ethical obligations in accordance with these requirements and the IESBA Code. We believe that the audit evidence obtained is sufficient and appropriate to provide a basis for our opinion.

Highlighting of matters relating to the audit

We draw attention to the fact that budget figures and amounts in USD have been included as comparative figures in the profit and loss account. These figures have not been audited, as the accounts show, and therefore we do not express any assurance with regard to them.

Management's responsibility for the financial statements

The management is responsible for the preparation and fair presentation of these financial statements in accordance with the State accounting rules. The management is also responsible for such internal control as it deems necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing ICARS' ability to continue as a going concern, disclosing, where applicable, matters related to going concern and preparing the financial statements on a going concern basis, except where management either intends to liquidate ICARS, to cease operations, or has no realistic alternative but to do so.

Auditor's responsibility for the audit of the financial statements

Our goal is to gain a high level of assurance that the financial statements as a whole are free from material misstatements, regardless of whether these are due to fraud or error, and to submit an audit report with an opinion. A high level of assurance is a high level of assurance, but is not a guarantee that an audit performed in accordance with international standards on auditing and the additional requirements applicable in Denmark, as well as the

standards for public audits, as the audit is performed on the basis of the provisions of the Danish Auditor General Act, Section 2 (1) (3), will always detect a material misstatement when it exists. Misstatements can occur due to either fraud or errors and can be considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit conducted in accordance with international standards on auditing and the additional requirements applicable in Denmark, as well as the standards for public audits, as the audit is performed on the basis of the provisions of the Danish Auditor General Act, Section 2 (1) (3), we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risk of material misstatements in the financial statements regardless of whether these are due to fraud or error, and we structure and carry out audit actions in response to these risks and procure audit evidence that is sufficient and appropriate to form the basis for our opinion. The risk of not discovering material misstatements caused by fraud is higher than it is for material misstatements due to errors, as fraud may involve conspiracies, document forgery, intentional omissions, misdirection or the overriding of internal controls.
- Gain an understanding of the internal controls relevant to the audit in order to prepare audit actions that are appropriate to the circumstances, but we do not use this understanding to express an opinion on the effectiveness of ICARS' internal controls.
- Examine whether the accounting practices that are used by the management are appropriate and if the accounting-related estimates and associated information prepared by the management are reasonable.
- Form an opinion on whether the management's preparation of the financial statements on the basis of the going concern accounting principle is appropriate and whether on the basis of the gained audit evidence there is significant uncertainty associated with events or circumstances that can create reasonable doubt about ICARS' ability to continue operations. If we decide that there are significant uncertainties, then in our audit report we must point to such uncertainties in the financial statements or if such information is insufficient, we must modify our opinion. Our opinions are based on the audit evidence that has been collected up until the date of our audit report. Future events or circumstances may, however result in ICARS no longer being able to continue operations.

We communicate with the top management team about things such as the planned scope and time of the audit and significant accounting-related observations, including observations about material deficiencies in internal control that we identify during the audit.

Opinion on management's review

The management is responsible for the management's review.

Our opinion on the financial statements does not cover the management's review, and we express no form of assurance when it comes to our opinion on it.

In connection with our audit of the financial statements, it is our responsibility to read the management's review and in that context consider whether it is significantly inconsistent

with the financial statements or the knowledge we have gained during the audit or if it otherwise seems to contain material misstatements.

Our responsibility is also to consider whether the management's review contains the information required pursuant to the State accounting rules. Based on the work performed, it is our opinion that the management's review is consistent with the financial statements and has been prepared in accordance with the requirements of the State accounting rules. We have not found any material misstatement in the management's review.

Declaration under other legislation and regulations

Statement on critical legal audit and performance audit

The management is responsible for ensuring that the transactions covered by the financial statements are in accordance with notified appropriations, statutes and other regulations, as well as with agreements entered into and common practice. The management is also responsible for ensuring that due financial considerations are taken in terms of managing the funds and for the operation of the companies covered by the financial statements. In that connection, the management is responsible for establishing systems and processes that support frugality, productivity and efficiency.

As part of our audit of the financial statements, it is also our responsibility to carry out a critical legal audit and performance audit for certain areas in accordance with the standards for public audits. In our critical legal audit, we test whether there is a high degree of assurance that the selected areas and the examined transactions covered by the submission of the financial statements are in accordance with the relevant provisions of appropriations, statutes and other regulations in addition to whether they are in accordance with agreements entered into and common practice. In our performance audit, we determine whether there is a high degree of assurance that the selected systems, processes or transactions support due financial considerations when managing the funds and operations covered by the financial statements.

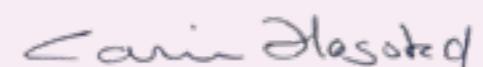
If, on the basis of the work performed, we conclude that there are grounds for significant criticism, we will report this in this opinion.

We have no significant critical observations to report in this respect.

Copenhagen, 22 April 2024

Rigsrevisionen

CVR no. 77 80 61 13



Carina Høgsted,
Office Manager



Nanna Langkilde,
Administrative Officer

FINANCIAL RESULTS 2023

The year 2023 is marked by the significant achievements highlighted here and in the above sections of this annual report. It has been the year of ICARS' growth as an organisation and as a trusted partner. The year of securing significant grants from other funders, the year of maturity and further establishment of ICARS in the global arena of AMR research. The year 2023 ended on a strong note for ICARS, strengthening further the established foundation and laying the basis for future developments. Despite the challenges that presented themselves in the world economy, ICARS continued its development and growth as an independent organisation.

In 2023 ICARS continued its activities in AMR worldwide. This is reflected in the financial results presented here. ICARS continued development of new projects, while the existing projects continued implementation throughout the year. The details of the achieved results are found in the above sections of this annual report.

The 2023 Financial Statements of ICARS are prepared in accordance with the State Accounting Act, Order No 116 of 19 February 2018 on State Accounting and the Ministry of Finance's Financial Administrative Guidelines, hereinafter jointly referred to as State's accounting rules, and consist of the following elements:

- i) Statement of Financial Performance for the period ended 31 December 2023 (Table 1)
- ii) Statement of Financial Position as at 31 December 2023 (Table 2)
- iii) Notes to the Financial Statements.

In addition, we present here Statement of Comparison of Budget with the Actual Amounts for the period ended 31 December 2023 (Table 3) that shows our financial results of our core funding received from the Danish Ministry of the Interior and Health. The 2023 Financial statements are prepared based on ICARS being an going concern, based on ICARS grant and budget plans for 2022-26 in the Danish finance law.

Highlights of 2023 Financial Results

ICARS' 2023 core budget, based on the funding from the Government of Denmark, amounted to DKK 75.9m, including the transfer of 2022 surplus funding in the amount of DKK 4.9 m.

The total 2023 spending before interest amounted to DKK 68.2 m, representing 90% of the annual budgeted amount.

The unspent balance in the amount of DKK 12.2m is recognized in the 2023 accounts as deferred income and transferred to the financial year 2024 as a surplus revenue. More detailed information on this and other funding is provided in the Notes to the financial statements found below.

In 2023 ICARS committed grants and made other provisions for the total amount of DKK 39.9 m, which is within the budgeted amount of DKK 40.3 m. The total amount of grant commitments is comparable with the grants issued in 2021-2022 and is a representation of a steady development of ICARS as an important player in the global work on AMR-mitigation in Low- and Middle-Income Countries using implementation and intervention research.

Our 2023 grants comprise of the following:

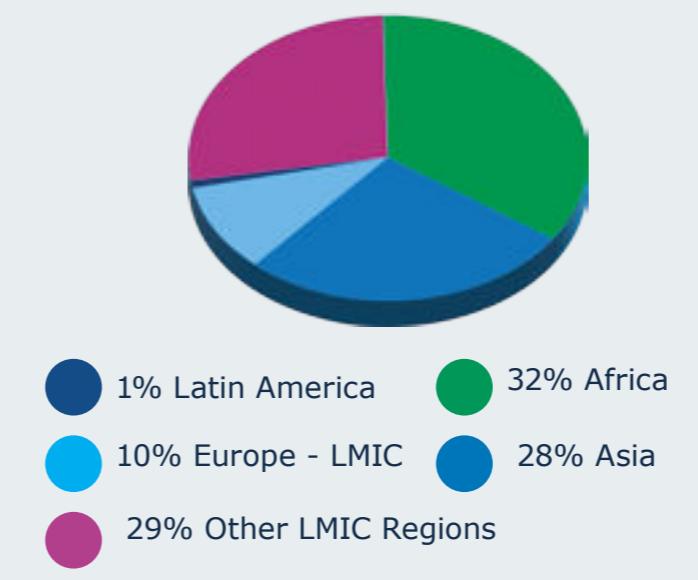
- 6 new projects were funded in the total amount of DKK 22.6m.
- Additional funding in the amount of DKK 6m was added to the budgets of existing projects and activities.
- Grants in the amount of DKK 360K were issued to support projects co-development in ICARS' partnering countries.

In addition to the grants issued to the research projects, provisions were made to earmark funding for the initiatives that ICARS actively participated in in the course of the year. These reserved funds amounted to DKK 11m and were reserved to co-fund projects and activities in connection with upcoming work in collaboration with the Team Europe Initiative on Health Security in Africa (in collaboration with the European Commission and EU member states) and a project under development with the International Development Research Centre in Canada (IDRC).

Spending on the co-development activities is consistently high throughout the years reflecting the high demand for the AMR focused projects and the increasing role that ICARS plays in AMR intervention and implementation research.

Figure 1 shows the distribution of the created grants between different regions.

FIGURE 1: GEOGRAPHICAL DISTRIBUTION OF SPENDING



ICARS' planned activities in 2024 and beyond, and risk related to them:

In 2024 ICARS will receive a grant from the Danish Ministry of Interior and Health in the amount of DKK 74.5 m. The 2024 ICARS budget based on this amount was approved by the Board of Directors in December 2023. This amount will be increased by the unspent balance from 2023 and based on this addition, a revised 2024 budget will be submitted for approval of the BOD in April 2024. Overall, according to the Danish Finance Law for 2024 the Danish government is planning to contribute DKK 181m to ICARS in 2024-26. At the end of 2023, the unspent funds from the MOH amounted to DKK 12.3 m, out of which, the amount of DKK 2.4 m has been committed in the beginning of January 2024 for a research project in Kenya which was approved in 2023.

In addition to the core funding, in 2023 ICARS reached a significant milestone by securing grants from other donors in the amount of DKK 61.06 m. The importance of this achievement is discussed in the above sections of this report.

Further information and the details on the available 2024 funding are included in the Notes to the Financial Statement section below.

While we look with confidence into the future, based on the positive interest toward ICARS from partners both in LMICs and HICs, we do recognise that we still face uncertainty and risks. The rising prices and inflation affected the whole world economy in the last few years, and LMICs, where our projects are located, were affected the most. These economic factors have an impact on our projects, and we are ready to face these

risks by making strategic plans on how to handle this impact within our budget without jeopardising the purpose and goals of our projects. In particular, we allow our projects to include the contingency buffer within the project budgets to cover such fluctuations and to mitigate other risks that the projects may face in the period of implementation.

Furthermore, the volatility of the currency market and the rapid fluctuations of USD rates against the DKK has an impact on our accounts, as most of our grants are in USD, while the funding we receive from Danish government and now, other significant funders, is in DKK. This impact is mitigated by the established processes of currency revaluation, including the fact that we recognise the grant commitments in full in our books as soon as the projects and supporting activities are approved (please refer Note 2 below). The revaluation of existing grant commitments allows us to earmark all the needed funding to cover our obligations at any given moment. As ICARS' total grant commitments increase this will be an increasingly important risk for ICARS, and we will continue following this closely to consider if there can be further mitigation measures put in place.

In addition to the economic crisis unfolding in many countries of the world, including Europe, erupting wars in different parts of the world demonstrates that the level of uncertainty when it comes to international collaboration has grown which may also affect ICARS possibilities to build its activities in the future. ICARS will work closely with all partners, and especially with the Danish ministries and embassies to remedy these risks.

Finally, as illustrated by the above figure 1, ICARS' current activities are to a high degree focused on countries in Africa and Asia. According to our mission, ICARS partners with Low- and Middle-Income Countries, and this in itself entails an inherent risk due to low local capacity, for instance in terms of monitoring, evaluation and financial reporting and controls. ICARS works to mitigate these risks by partnering with the local institutions throughout both co-development and implementation process, and the established quarterly reporting and payment procedures are in place to ensure that problems are identified and handled as early as possible. Also, ICARS Finance and M&E teams works to ensure good due diligence processes ahead of ICARS entering into commitments and to build capacity in local teams by webinars, meetings, and continued dialogue.

TABLE 1: STATEMENT OF FINANCIAL PERFORMANCE
FOR THE PERIOD ENDING 31 DECEMBER 2023

	Reference	2023		2022	
		000 DKK	000 USD*	000 DKK	000 USD
Funding Received		77,809	11,536	61,075	8,760
Funding: received from Government of Denmark (core funding)	Note 1	71,000	10,526.78	60,000	8,606
Funding: received from external donors	Note 1	1,209	179.23	3,320	476
Core funding: Prior year surplus refund to MoH	Note 1	-	-	-2,246	-322
Prior year surplus brought forward	Note 1	5,600	830		
Pillar 1-2. Develop and translate evidence		53,774	7,973	41,943	6,016
Grants - research projects		27,337	4,053	31,931	4,580
Grants - co-development activities		360	53	781	112
Other grants/Co-funding provisions		10,953	1,624	-	-
Employee salaries and emoluments		9,926	1,472	5,925	850
Technical Advisory Forum		118	17	59	8
Operational costs		5,081	753	3,246	466
Pillar 3. Advocate for context-specific, country-owned AMR mitigation solutions		6,530	968	3,752	538
Grants - international cooperation		481	71	197	28
Communication and participation in international events		324	48	386	55
Employee salaries and emoluments		3,266	484	1,788	256
Operational costs		2,460	365	1,381	198
Pillar 4. Capacity and capability building of AMR champions in LMICs		2,601	386	3,386	486
Grants - collaborations		792	113	2,394	343
Employee salaries and emoluments		1,246	185	769	110
Operational costs		593	88	224	32
Pillar 5. Governance and Administration		5,370	796	7,195	1,032
Employee salaries and emoluments		2,710	402	3,238	464
Supporting services		1,814	269	3,320	476
Board of Directors		413	61	346	50
Other operational costs		433	64	291	42
Change in prior years grant commitment value		-103	-15	246	35
Exchange gain / loss on grant commitments		-103	-15	246	35
TOTAL EXPENSES		68,172	10,107	56,523	8,107
Financial items		-2604	-386	-289	-41
Interest earned and bank charges	Note 2	-2604	-386	-289	-41
Transferrable funding to next period	Note 2	12,241	1,815	4,840	694

NOTE: *DKK/USD EXCHANGE RATE OF 6.7447 (6.9722) WAS USED FOR THE CONVERSION PURPOSES IN 2023 (2022)

TABLE 2: STATEMENT OF FINANCIAL POSITION AS OF 31 DECEMBER 2022

	Reference	2023		2022	
		000 DKK	000 USD*	000 DKK	000 USD
ASSETS					
Non-current assets				370	55
Non-current assets				370	55
Current assets				92,498	13,714
Receivable from DK MOH (core funding)	Note 1			4,785	709
Projects receivable (other funders)	Note 1			643	95
Other accounts receivable				298	44
Pre-payments and accrued income				110	16
Cash and cash equivalents				86,662	12,849
TOTAL ASSETS				92,868	13,769
LIABILITIES					
Non-current liabilities				52,576	7,795
Non-current liabilities: Grant commitments				45,274	6,713
Non-current liabilities: Provisions				7,302	1,083
Current Liabilities				40,292	5,974
Current liabilities: Grant commitments				31,725	4,704
Current liabilities: Provisions				3,651	541
Accounts payable				2,886	428
Deferred revenue	Note 1			-	-
Employee liabilities short-term				1,466	217
Other short-term liabilities (Accruals)				565	84
Transferrable balance to the funding of the future period	Note 2			-	5,600
TOTAL LIABILITIES				92,868	13,769

NOTE: *DKK/USD EXCHANGE RATE OF 6.7447 (6.9722) WAS USED FOR THE CONVERSION PURPOSES IN 2023 (2022)

NOTES TO FINANCIAL STATEMENTS

NOTE 1

In 2023, the majority of ICARS' operations and projects were funded by the Government of Denmark, representing core funding of ICARS.

As mentioned above, based on the core funding, ICARS 2023 budget amounted to DKK 75.9m, that included the transferred 2022 unspent balance of DKK 4.9 m. The unspent balance of DKK 12.2m at the end of 2023 mentioned above include the interest earned on the cash reserves held in the bank in the amount of DKK 2.6m. According to the 2023 agreement with the Danish Government, the cumulative residual balance will be transferred to the available funding for 2024. This transferrable amount will be reflected in a budget revision that will be presented for approval to ICARS Board of Directors. These additional funds will enhance ICARS operations and will increase the portion of the budget dedicated to the research grants.

As mentioned above, in 2023 ICARS signed grant agreements with Wellcome and the Novo Nordisk Foundation (NNF) that will provide funding for the future periods in the total amount of DKK 61.1m (Table 1.1). The grant received from the Novo Nordisk Foundation (NNF) amounts to DKK 3.51m and is provided to support ICARS specific research activities in 2024. This funding is fully incorporated into the present ICARS 2024 budget.

The grant received from Wellcome amounts to DKK 57.55m and is provided to enhance ICARS' operations and support specific research activities for the next 5 years. The portion of this grant allocated to ICARS' 2024 budget amounts to DKK 11.9m based on the deliverables for 2024.

TABLE 1.1

Donor	Amount DKK	Purpose of Contribution
Grant from Wellcome UK**	57,550,631	Funding to support ICARS' operations and research activities for the 5 years starting 1 March 2024
Grant from Novo Nordisk Foundation	3,508,372	Funding to support ICARS specific research activities in 2024
Total	61,059,003	

In addition to the direct funding (Table 1.1), ICARS also received contributions in-kind from the partners involved in the implementation of projects and other activities of ICARS. These contributions amount to DKK amounting to DKK 7.44m bringing total 2023 funding from other sources to DKK 68.5m.

NOTE 2

At the end of 2023 ICARS had a significant cash reserve in the amount of about DKK 86.7 m (Table 2), which is due to the fact that while we recognised the grant commitments in 2023 and earlier years, disbursement of funds will take place in the future periods. This is according to the agreement with the Danish Ministry of Interior and Health, that the grant commitments are created and recognised as an expense in the Statement of Financial Performance when ICARS enters into the binding agreements to provide the funding for specific projects even if the actual activities and payments take place in the future periods. This allows ICARS to work with a multiple year perspective when developing projects. The cash reserve available at the end of 2023 will be disbursed within next 1-3 years based on ICARS' grant commitments of 2020 -2023.

In the statement of financial position, the surplus for the period in the amount of DKK 12.2 m was netted off against the receivables from the same sources.

The Statement of Comparison of Budget with the Actual Amounts for the period ended 31 December 2023 (Table 3) shows expenditure and grant commitments exclusively related to the funding of Ministry of Health of Denmark (ICARS core funding).

The Statement of the Comparison of Budget with the Actual Amounts was prepared based on the same principles as the other elements of the financial statements without any exemptions and is fully aligned with them.

In addition to the above, it should be noted that ICARS has 6-month notice on its current rental contract.

TABLE 3: STATEMENT OF COMPARISON OF BUDGET WITH THE ACTUAL AMOUNTS FOR THE PERIOD ENDING 31 DECEMBER 2023 (DKK AND USD)

	Budget / Actual Spending	ICARS 2023 Budget as revised in December 2023	Salary	Operations	Grants	Total Spending		ICARS 2023 Budget as revised in December 2023	Salary*	Operations*	Grants*	Total Spending*	
		000 DKK	000 DKK	000 DKK	000 DKK	000 DKK		000 USD	000 USD	000 USD	000 USD	000 USD	% of Budget Spending
Pillar 1-2. Develop and translate evidence		58,476	9,833	4,623	37,869	52,326		8,670	1,458	685	5,615	7,758	89%
ICARS research projects		38,710			26,557	26,557		5,739	0	0	3,937	3,937	
ICARS co-funding commitments					10,953	10,953		0	0	0	1,624	1,624	
Co-development processes		900		242	360	602		133	0	36	53	89	
Develop scientific strategy, scientific coordination, project management		18,666	9,715	4,381		14,096		2,767	1,440	650	0	2,090	
Technical Advisory Forum		200	118			118		30	17	0	0	17	
Pillar 3. Advocate for Implementation Research as an important tool to tackle AMR		7,626	3,247	2,714	481	6,441		1,131	481	402	71	955	84%
Communicate knowledge and evidence		6,676	3,247	2,390	0	5,637		990	481	354	0	836	
ICARS participation in international AMR events and Strategic Communication		950		324	481	804		141	0	48	71	119	
Pillar 4. Capacity and capability building of AMR champions in LMICs		3,879	1,246	593	762	2,601		575	185	88	113	386	67%
Capacity and capability building of AMR champions		3,079	1,246	593		1,838		456	185	88	0	273	
Capacity building in ICARS partner countries		800			762	762		119	0	0	113	113	
Pillar 5. Governance and administration		5,949	3,068	2,302	0	5,370		882	455	341	0	796	90%
Supporting services		2,025	0	1,630	0	1,630		300	0	242	0	242	
Board of Directors		518	358	55	0	413		77	53	8	0	61	
Administration and supporting services to governing bodies		3,406	2,710	617	0	3,326		505	402	91	0	493	
Foreign exchange gain / Loss on prior year grant commitments		0	0	0	0	-103			0	-15	0	-15	
Exchange gain / Loss on grant commitments					-103				0	-15	0	-15	
Interest earned		0	0	-2604	0	-2604		0	0	-386	0	-386	
Bank charges/ interest earned				-2604		-2604		0	0	-386	0	-386	
Grand total		75,930	17,393	7,628	39,113	64,031		11,258	2,579	1,116	5,799	9,493	87%
% of Total			27%	12%	61%	100%			27%	12%	61%	100%	

NOTE: *DKK/USD Exchange Rate of 6.7447 was used for the conversion purposes in 2023

BOARD OF DIRECTORS 2024



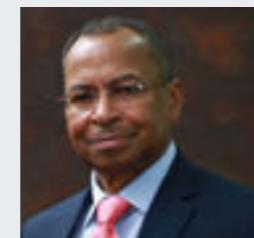
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VICE-CHAIR
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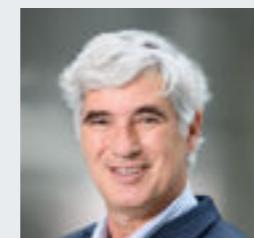
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Global Director, Health, Nutrition and Population, World Bank

ICARS STAFF HIGHLIGHTS



*In 2023, the Quadripartite and World Bank observers were Haileyesus Getahun and Martien van Nieuwkoop, respectively.

ANNEX I - INDEPENDENT AUDITORS REPORT - BDO

**This is an English translation of the Danish Independent Auditor's report. The Danish language version shall prevail on any question of interpretation or otherwise.*

REPORT ON THE ANNUAL FINANCIAL STATEMENTS

Opinion

We have audited the financial statements of ICARS for the financial year 1 January to 31 December 2023, which include the accounting practices applied (pp. 32-33), profit and loss account (p. 34, Table 1: Statement of Financial Performance), balance (p. 35, Table 2: Statement of Financial Position) and notes (pp. 36-37). The annual report is prepared in accordance with the State Accounting Act, Order No 116 of 19 February 2018 on State Accounting and the Ministry of Finance's Financial Administrative Guidelines, hereinafter jointly referred to as State accounting rules, and the accounting procedures used as described in the accounts.

In our opinion, the financial statements are, in all material respects, prepared in accordance with State accounting rules and the accounting practices applied in the financial statements.

Basis for opinion

We conducted our audit in accordance with international auditing standards and the additional requirements applicable in Denmark, as well as the standards for public audits, the audit being carried out on the basis of the provisions in the commitment letter dated 10 February 2022 to ICARS from the Ministry of Health. Our responsibilities under these standards and requirements are described in more detail in the 'Auditor's responsibilities for the audit of the annual financial statements' section of the audit report. We are independent of the institution in accordance with the International Ethics Standards Board for Accountants' International Code of Ethics for Accountants (IESBA Code) and the additional ethical requirements applicable in Denmark, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the IESBA Code. We believe that the audit evidence obtained is sufficient and appropriate to provide a basis for our opinion.

Highlighting of matters relating to the audit

We draw attention to the fact that budget figures/amounts in USD have been included as comparative figures in the profit and loss account. These budget figures/USD amounts have not been audited, as the accounts show, and we therefore do not express any assurance with regard to them.

Management's responsibility for the financial statements

The management is responsible for preparing annual financial statements that are reliable in all material respects, i.e. prepared in accordance with the State's accounting rules and the accounting practices applied in the financial statements. The management is also responsible for such internal control as it deems necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error. In preparing the annual financial statements, the management is responsible for assessing the institution's ability to continue as a going concern, disclosing, where applicable, matters related to going concern and preparing the financial statements on a going concern basis, except where the management either intends to liquidate the institution, to cease operations, or has no realistic alternative but to do so.

Auditor's responsibility for the audit of the financial statements

Our goal is to gain a high level of assurance that the financial statements as a whole are free from material misstatements, regardless of whether these are due to fraud or error, and to submit an audit report with an opinion. A high level of assurance is a high level of assurance, but is not a guarantee that

an audit performed in accordance with international auditing standards and the additional requirements applicable in Denmark, as well as the standards for public audits, as the audit is performed based on the provisions of the commitment letter dated 17 May 2023 to ICARS from the Ministry of Health, will always detect a material misstatement when it exists. Misstatements can occur due to either fraud or errors and can be considered material if it could be reasonably expected that, individually or in aggregate, they would have an impact on the financial decisions that the users of the financial statements make based on those statements.

As part of an audit conducted in accordance with international standards on auditing and the additional requirements applicable in Denmark, as well as the standards for public audits, the audit being conducted on the basis of the provisions of the commitment letter dated 10 February 2022 to ICARS from the Ministry of Health, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risk of material misstatements in the financial statements regardless of whether these are due to fraud or error, and we structure and carry out audit actions in response to these risks and procure audit evidence that is sufficient and appropriate to form the basis for our opinion. The risk of not discovering material misstatements caused by fraud is higher than it is for material misstatements due to errors, as fraud may involve conspiracies, document forgery, intentional omissions, misdirection or the overriding of internal controls.
- Gain an understanding of the internal controls relevant to the audit in order to prepare audit actions that are appropriate to the circumstances, but we do not use this understanding to express an opinion on the effectiveness of ICARS' internal controls.
- Examine whether the accounting practices used by the management are appropriate and if the accounting-related estimates and associated information prepared by the management are reasonable.
- Form an opinion on whether the management's preparation of the financial statements on the basis of the going concern accounting principle is appropriate and whether on the basis of the gained audit evidence there is material uncertainty associated with events or circumstances that could give rise to reasonable doubt about the institution's ability to continue operations. If we decide that there is material uncertainty, then in our audit report we must point to such uncertainties in the financial statements, or if such information is insufficient, we must modify our opinion. Our opinions are based on the audit evidence that has been collected up until the date of our audit report. Future events or circumstances may, however, result in the institution no longer being able to continue operations.

We communicate with the management about things such as the planned scope and time of the audit and significant accounting-related observations, including observations about material deficiencies in internal control that we identify during the audit.

Opinion on management's review

Management is responsible for the review.

Our opinion on the financial statements does not cover the management's review, and we express no form of assurance regarding our opinion on it.

In connection with our audit of the financial statements, it is our responsibility to read the review and in that context consider whether it is materially inconsistent with the financial statements or the knowledge we have gained during the audit or if it otherwise seems to contain material misstatements. Our responsibility is also to consider whether the review contains the information required pursuant to State accounting rules.

Based on the work performed, it is our opinion that the review is in conformity with the financial statements and has been prepared in compliance with the accounting rules of the State and the accounting practices applied in the financial statements. We have not found any material misstatement in the review.

DECLARATION UNDER OTHER LEGISLATION AND REGULATIONS

Statement on critical legal audit and performance audit

The management is responsible for ensuring that the transactions covered by the financial statements are in accordance with notified appropriations, statutes and other regulations, as well as with agreements entered into and accepted practice. The management is also responsible for ensuring that due financial considerations are taken in terms of managing the funds and the operation of the business activities covered by the financial statements. In that connection, the management is responsible for establishing systems and processes that support frugality, productivity and efficiency.

As part of our audit of the financial statements, it is our responsibility to carry out a critical legal audit and performance audit for certain areas in accordance with the standards for public audits. In our critical legal audit, we test whether there is a high degree of assurance that the selected areas and the examined transactions covered by the submission of the financial statements are in accordance with the relevant provisions of appropriations, statutes and other regulations, as well as whether they are in accordance with agreements entered into and accepted practice. In our performance audit, we determine whether there is a high degree of assurance that the selected systems, processes or transactions support due financial considerations when managing the funds and operations covered by the financial statements.

If, on the basis of the work performed, we conclude that there are grounds for significant criticism, we will report this in this opinion.

We have no significant critical observations to make in this respect.'



Per Lund,
Auditor, BDO



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