



INTERNATIONAL
CENTRE FOR
**ANTIMICROBIAL
RESISTANCE**
SOLUTIONS

Annual Report 2020

2020 Year in Review

The year 2020 needs no introduction. COVID-19 took the global community by surprise and changed most aspects of our lives overnight. The challenges, hardships and suffering it caused will have a long-lasting impact. But 2020 also brought to the surface the ability of the global community to collaborate on developing vaccines at an unprecedented speed and endure and adapt to the changes brought by the pandemic.

At ICARS, the restrictions brought by COVID-19 delayed and challenged the achievement of our ambitions for the year. Yet when we look back at 2020 it is primarily with a sense of pride of what we managed to achieve. Despite the pandemic, 2020 was an important year for ICARS. It was the year where we formulated our strategy, "opened for business", initiated our first partnerships with low- and middle-income countries (LMICs) and other key players in the international AMR landscape and paved the way for the launch of ICARS as an independent self-governing organisation in 2021.

While the topic of drug-resistant infections lost some of its global momentum in 2020 due to COVID-19, ICARS kept promoting the AMR agenda through its interactions at national and international level. This was particularly important as COVID-19 accelerated the spread of AMR, due to overcrowded hospitals and the increase of intravenous treatments which make people more vulnerable to infections. We worked with international partners to raise the voice of those who most need support in implementing solutions for AMR mitigation.

Needless to say, COVID-19 has proven that health crises often know no national boundaries and can only be overcome through inclusive international cooperation. It is our hope that the world will learn from the COVID-19 experience and come together to address AMR.

With the foundation for ICARS in place, we enter 2021 ready to take on the challenges that lie ahead. One of them being to bring on board other countries and foundations to join ICARS and take co-ownership of our mission. This will be paramount to the success of ICARS in the long run and our ability to meet the needs of LMICs.

2020 was the "Year 0" for ICARS, marking our transition from concept to reality. As such, this is the first time we are publicly sharing an annual report, and we look forward to repeating this exercise over the years to come to showcase our achievements, contributions and added value to the global efforts to reduce drug-resistant infections.



Robert Skov
Scientific Director

Robert Skov



Helle Krarup
Director of
Operations

Helle E. Krarup

THIS IS 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

Our mission is to support low- and middle-income countries (LMICs) in their efforts to reduce drug-resistant infections.

We do this by working closely with LMICs to co-create and co-develop AMR interventions that provide evidence for context-specific and cost-effective solutions for sustainable scale-up. ICARS provides funding as well as the expertise needed to support intervention and implementation research projects across the One Health spectrum, that build on the country's National Action Plan.

Why we do what we do

Many countries and researchers have developed approaches and solutions to tackle AMR. However, there is a critical gap in translating this evidence into policies fit for the LMIC context. There is an implementation gap and an urgent need for country-specific, practical and cost-effective solutions that are sustainable in LMICs. ICARS works with LMIC ministries and the local research communities to identify a specific challenge and then develop interventions that have potential to be scaled up, leading to long term behaviour change and thereby reduced resistance.

A look back...

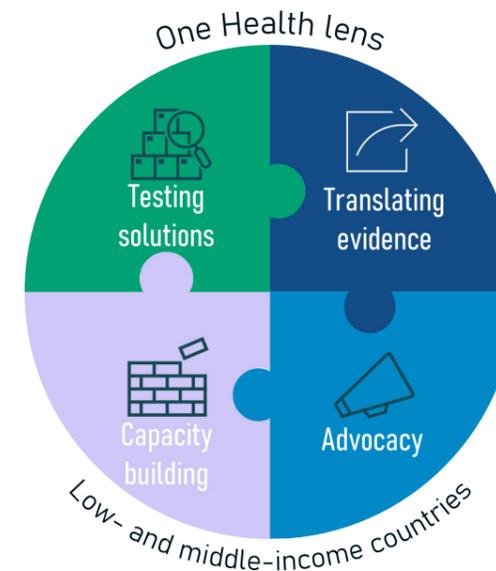
The idea of ICARS was fostered through talks between the government of Denmark and the World Bank during fall 2017 and spring 2018 and further conceptualized in dialogue with other global stakeholders in the summer of 2018. The process highlighted a gap in the existing efforts to move from evidence to action in LMICs, a missing link in the global response to AMR. For LMICs to effectively and sustainably move their AMR National Action Plans into practice, there is a need for evidence-based, context-specific and cost-effective solutions developed using intervention and implementation research.

ICARS was created to fill that gap, in partnership with LMIC governments. It was initiated by Denmark with the clear ambition to have other countries to join in order to create an independent international organisation with the commitment that this agenda requires. Since the announcement of the Danish government's commitment to initiate ICARS in November 2018 and the establishment of the ICARS office in summer 2019, the need for such solutions has become increasingly evident. The interest from LMICs to work with ICARS is already widespread.

OUR STRATEGY

At the beginning of 2020, ICARS' Executive Management and Steering Committee had set milestones for the first half of the year. While COVID-19 affected our operations and those of our partners, the vast majority of milestones were achieved – among them, the expansion of our partnerships and the development of a long-term strategy. For the rest of the year, the goal was to deliver on the new strategy, expand the ICARS Secretariat, and make progress in becoming an independent self-governing organisation in 2021.

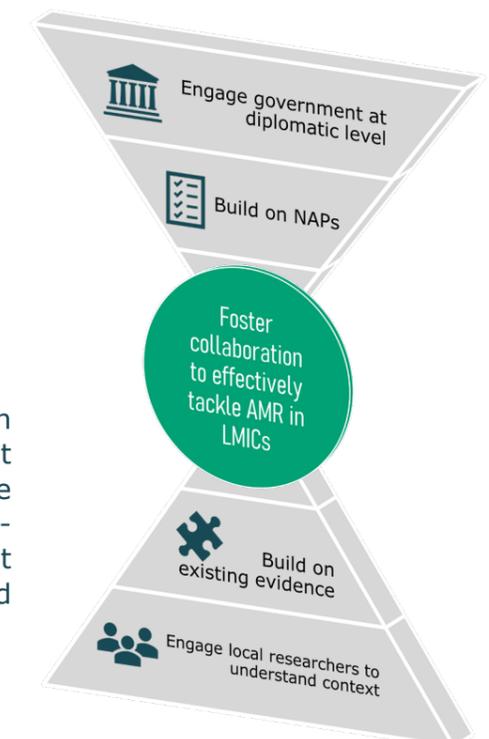
The new strategy is a translation of ICARS' conceptual foundation, core principles, and collaborative approach and consists of **four interconnected pillars**:



- 1 Develop and test context-specific solutions for AMR mitigation
- 2 Translate existing evidence into action
- 3 Advocate for Implementation Research as an important tool to tackle AMR
- 4 Support targeted capacity and capability building of AMR champions in LMICs

OUR APPROACH

Each country is different both in its approach to tackling AMR and in the type of issues that accelerate AMR at a local level. At ICARS, we simultaneously use top-down and bottom-up approaches, engaging with government ministries while involving scientists and practitioners throughout the process.



OUR ACHIEVEMENTS



PILLAR 1

Develop and test context-specific solutions for AMR mitigation

This pillar covers our main area of activity - partnering with governments of LMICs to implement their AMR National Action Plans. To do so, we co-develop research projects to test solutions and implementation strategies, generating new evidence that can be sustainably implemented at large scale and have real impact.

In 2020 we have...

...LAUNCHED THE FRAMEWORK FOR ICARS DEMONSTRATION PROJECTS



Our approach to project development materialized into a framework for demonstration projects, based on the core principles of ICARS. Demonstration projects are developing and implementing interventions that test AMR solutions at a smaller scale in LMICs. Knowledge from demonstration projects is used for scaling-up the solutions at national level. The framework facilitates close partnership between the country and ICARS, through a step-wise co-development and application process beginning at the early stages of concept development. The phases are: Expression of Interest, Concept Note, Project Proposal and Optimization and Finalization.

...INITIATED THE CO-DEVELOPMENT OF EIGHT DEMONSTRATION PROJECTS



We received Expressions of Interest (EoI) from Ministries in Georgia, Zambia, Malawi and Uganda, after having signed a Memorandum of Understanding with the Ministry of Agriculture and Rural Development of Vietnam in 2019. On the basis on these EoI's, we have initiated the co-development of eight demonstration projects covering both animal and human health, out of which two projects are in Vietnam and two in Georgia and one in each of the other countries. In addition, five more countries have reached out to us and we anticipate to start co-developing demonstration projects with them in 2021.



...LAUNCHED ICARS' INVITATION TO PARTNER

In the beginning of December, we officially put the 'open for business' sign on the door, launching a call for EoIs from LMICs. We simultaneously invited foundations and high-income countries to become Founding Members or Supporting Members of ICARS. The invitation to partner was launched at a successful webinar co-hosted by ICARS, the International Vaccine Institute (IVI) and the Danish Embassy in Seoul (see Pillar 3 for more information about the webinar), and promoted on ICARS' webpage and social media channels. The invitation was the first of three annual calls for EoIs, with the following deadlines: **15 February**, **15 June** and **15 October**.



...ENTERED INTO COLLABORATION WITH THE GOVERNMENT OF GEORGIA

In September, ICARS signed an MoU with the Ministry of Environmental Protection and Agriculture of Georgia and the Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia. The MoU sets the framework for the co-development of two demonstration projects: one project focusing on antimicrobial stewardship in hospitals, which will be implemented in collaboration with WHO Europe, and another project focusing on reducing antimicrobial use in poultry production.



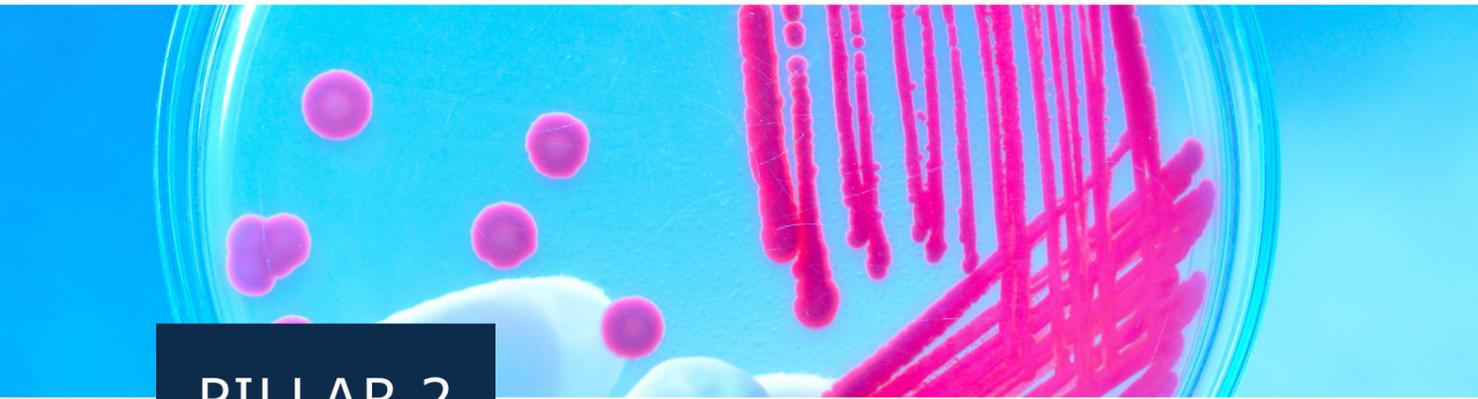
... APPROVED THE FIRST ICARS DEMONSTRATION PROJECT

The approval of funding for the first project proposal in December 2020 marked the achievement of an important milestone for ICARS. The project "Reduction of colistin in Vietnamese pig production" is co-developed with the Ministry of Agriculture and Rural Development in Vietnam and responds to recent national legislation aiming to ban the use of colistin as a growth promoter and for disease prevention in pig production. As part of the project, local researchers will implement and document alternative solutions that can be used to support sustainable pig production with reduced use of colistin, while involving industry stakeholders and consumers to create lasting behaviour change.



"We would like to test the impact of both vaccination and the use of a revised list of antibiotics in aquaculture. This is a key point for MARD's cooperation with ICARS"

- Dr. Nguyen Thu Thuy, Deputy Director General, Dep. of Animal Health, Ministry of Agriculture and Rural Development of Vietnam



PILLAR 2

PILLAR 3

Translate existing evidence into action

Advocate for intervention and implementation research as important tools to tackle AMR

There is a wealth of research evidence as well as tools and methodologies that have shown impact on AMR, reducing drug-resistant infections. However, such evidence has been produced by academic researchers with very little input from ministries and policymakers and is often primarily developed in high income settings, thereby not being directly applicable to LMICs. This pillar covers our actions to support the translation of existing evidence on AMR into country policies, programmes and practices in LMICs.

This pillar covers our efforts to raise awareness of and promote the need for and mobilise national and international commitment for intervention and implementation research as a means to deliver on AMR National Action Plans, while advocating for more investment in this area of research.

At ICARS we are currently identifying areas of opportunity to translate evidence into action, in partnership with LMIC ministries. We do this by analysing and reviewing reports of previous efforts, completed research and scientific publications, while evaluating which solutions could be potentially suitable for a specific LMIC. There is no one-size fits all. Where appropriate, we will engage with and facilitate dialogue between the research community and the relevant government ministries to identify barriers and enablers for the implementation of such existing, evidence-based solutions.

2020 WAS THE YEAR ICARS BEGAN ADVOCATING nationally and internationally for intervention and implementation research to alleviate AMR globally, and especially in LMICs. Due to the COVID-19 pandemic, most of our advocacy activities took place online, through social media or participation in virtual events such as conferences and webinars. We were pleased to see the interest in our approach grow and our online network expand both in size and diversity, now including LinkedIn followers from over 30 countries. The virtual launch of our invitation to partner was definitely one of the highlights of the year, with over 500 people participating in the Evidence to Action webinar we hosted together with the International Vaccine Institute and the Danish Embassy in Korea. Alongside the online presence, we were pleased to be featured in several publications such as The Korea Times, the APUA newsletter and others.



"AMR is an urgent issue. While generating new evidence is often necessary, it is also important to translate existing solutions where possible and accelerate large-scale implementation. We will explore such options with our LMIC partners."
– **Robert Skov, Scientific Director**



"ICARS and ReAct share the same mission of reducing drug-resistant infections. We are excited about the prospect of our collaboration on the ReAct toolbox and other projects in LMICs."
– **Dr. Anna Zorzet, ReAct Europe**



In 2020 we partnered with...



...THE WORLD HEALTH ORGANIZATION (WHO)

In November, the WHO and ICARS signed a Memorandum of Understanding (MoU) paving the way for joint efforts to strengthen One Health implementation and operational research. Within the framework of the MoU, ICARS is seconding an expert from our team to the AMR Global Coordination Department. Over the next two years, the secondee will lead and coordinate the development and prioritization of a One Health implementation and operational research agenda for AMR.



...REACT

In December, ReAct and ICARS kicked-off their collaboration with an MoU sealed with a virtual elbow-bump. Our joint efforts will focus on AMR mitigation in LMICs through an interdisciplinary approach that inspires action. ICARS also aims to use the ReAct Toolbox as a resource in its advocacy and project development efforts.



...JPIAMR, CO-DEVELOPING A CALL TO MOBILISE SUPPORT FOR INTERVENTION RESEARCH IN LMICS

In 2020 we partnered with the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR) and over 27 countries to fund researchers from LMICs in the transnational call for "One Health interventions to prevent or reduce the development and transmission of AMR". With LMICs being in need of sustainable interventions, it is crucial that local researchers have the opportunity to participate in and benefit from the knowledge gained through such consortia. ICARS is contributing up to one million Euro for LMIC-based researchers responding to this call.



Spotlight on events

Throughout the year ICARS participated in a number of online events organised by some of our partners and key stakeholders such as ReAct, ILRI, IVI, JPIAMR, FAO and the AMR Action Fund, Danish embassies and others – a few of which are highlighted below.

THE TTA SUMMER MEETING

This year's Turning the Tide of Antimicrobial resistance (TTA) summer meeting was held online and focused on antimicrobial resistance from a One Health perspective. Dr Ghada Zoubiane, Head of Partnerships and Stakeholder Engagement at ICARS, introduced ICARS as a new model of working with LMIC-ministries, taking a One Health approach across human and animal health, the environment, global food security and economic prosperity.



Replying to @FAONorthAmerica

Solutions to tackle #AMR need to be:

- ◆ Evidence-based
- ◆ Cost-effective
- ◆ Context-specific

Closing the gap between technical solutions and practice through a holistic and cross-sector approach.

- @RskSkov, Science Director @ICARS_global

COMBATING AMR AMID THE COVID-19 PANDEMIC

On 18 June ICARS participated in a webinar organized by FAO North America and the Embassy of Denmark in the US focusing on the potential impacts of the COVID-19 pandemic on efforts to prevent and manage the spread of AMR. ICARS highlighted how some practices may increase the use of antibiotics in healthcare settings while some habits introduced in our societies can have a positive impact on AMR.



Spotlight on events

4th AMR Conference
Delivered digitally | 24–28 August 2020

One Health
Why it is more important than ever to think cross-sectoral

24 August | 16:30–18:00 CEST




BIOCOM.

AMR CONFERENCE

The AMR Conference is a platform for SMEs, start-ups, big pharma, academia, investors and public institutions to discuss strategies and the specific challenges faced by SMEs in bringing new antimicrobial treatments and diagnostics to the market. The 2020 edition was an opportunity for us to present our approach to bridging science and policy in LMICs, while bringing forward details about antimicrobial stewardship, a topic of importance to this audience.



PILLAR 4

Support targeted capacity and capability building for AMR champions in LMICs

Capacity-building is essential to the process of creating sustainable behaviour change to address AMR. This pillar covers activities meant to support policy-makers and professionals in LMICs in their efforts to tackle AMR. We work with partners to nurture a critical mass of researchers and local stakeholders, sharing knowledge and skills that help them use intervention and implementation research in their efforts to reduce drug-resistant infections.

In the future we aim to extend access to information and training on intervention and implementation research through multimedia means such as certified MOOCs and online workshops. This would allow more researchers from LMICs to participate and improve their skills while being inspired to use this methodology in tackling AMR in their own country.

IN 2020 WE INITIATED the first activity under this pillar, by establishing an **antimicrobial susceptibility testing (AST) centre of excellence** based at the CGIAR AMR Hub in Nairobi, Kenya (led and hosted by the International Livestock Research Institute – ILRI). The hub is a partnership with the International Food Policy Research Institute (IFPRI), the International Water Management Institute (IWMI), and WorldFish. The AST centre of excellence was created in collaboration with the EUCAST Development Laboratory (EDL) Växjö, Sweden.

The centre will serve as a reference laboratory for the CGIAR system. In addition, the laboratory will act as a training center and will provide valuable training for laboratories participating in ICARS' demonstration projects. As AST is a critical function for good antimicrobial stewardship practices, this will strengthen ICARS' demonstration projects as well as build expertise in LMICs.



"At ICARS, our approach goes beyond one-time projects. We acknowledge that capacity-building is key to ensure long-lasting change, and we look forward to seeing how the AST Lab based at the CGIAR AMR Hub in Keya will support the researchers in the region."

– Robert Skov, Scientific Director

WORLD ONE HEALTH CONGRESS

In November, at the 6th World One Health Congress, ICARS chaired a session on challenges for AMR action, including the bottlenecks precluding the implementation of successful interventions at large scale and ICARS' approach to tackle such bottlenecks.

#WOHC2020

Session programme



 Ashley Bersani The Ohio State University Global One Health Initiative Topic: Using Information communication technology (ICT) for AMR	 Violet Barasa and Nichola Jones Institute of Development Studies and University of Leeds (UK) Topic: Gendered approaches to antimicrobial resistance	 Joanna Susan McKenzie School of Veterinary Science, Massey University (NZ) Topic: FF Initiative on Optimising AMR surveillance resource allocation	 Robert Skov International Centre for AMR Solutions (DK) Topic: Intervention and implementation research as a driver for AMR mitigation in LMICs
---	---	---	--



EVIDENCE TO ACTION WEBINAR

In December, ICARS co-hosted a webinar with the International Vaccine Institute (IVI) and the Embassy of Denmark in Korea. The webinar fostered strategic reflections and insights for advancing the implementation of policies and plans for the mitigation of AMR and featured high-level speakers and leading voices from around the world. The event rallied the interest of major stakeholders and attracted more than 500 participants from all over the world.

EVIDENCE TO ACTION
Advancing the Antimicrobial Resistance Agenda during a Pandemic
December 3, 2020 | 9:00–10:30 AM (CET); 5:00–6:30 PM (KST)

Co-hosted by:  International Vaccine Institute  Embassy of Denmark  ICARS

 Professor Sabiha Essack University of KwaZulu-Natal, South Africa	 H.E. Park Neung-hoo Minister for Health and Welfare, Korea	 H.E. Magnus Heunicke Minister for Health, Denmark	 Professor Dame Sally Davies UK Special Envoy on Antimicrobial Resistance	 Dr. Hanan H. Balkhy Assistant Director-General for the at the World Health Organization
 Dr. Jerome Kim Director General, IVI	 Dr. Marianne Holm Head of Epidemiology and Public Health Research at IVI	 Mr. Julhas Sujjan Bangladesh country coordinator for IVI	 Dr. Robert Skov Scientific Director, International Centre for Antimicrobial Resistance Solutions	 Dr. Nguyen Thu Thuy Deputy Director General at the Department of Animal Health, Ministry of Agriculture and Rural Development of Vietnam

ORGANISATIONAL DEVELOPMENT

The Danish government has taken the initiative to establish ICARS and has led the initial development of the organisation. However, our mission needs contributions and voices from around the world to succeed. It is therefore our ambition that ICARS will become established as an **international organisation**, with the support of other countries, foundations and organisations and with the credibility and commitment that is required to support LMICs in developing and implementing sustainable solutions to reduce drug-resistant infections.



Denmark's Minister of Health Magnus Heunicke, officially inviting other countries and foundations to become Founding Members of ICARS alongside Denmark, during the Evidence to Action webinar.

In order to reach this organisational goal, our governance will evolve over the next 2-4 years: from currently being embedded in the Danish Ministry of Health, to a transition-phase as an independent self-governing organisation with an international Board of Directors in 2021, and finally into an international organisation.

Invitation to partner

We wish to partner with countries and organizations that are committed to mitigating AMR through the development of interventions that inform action and advance NAP implementation.

In 2020 we have...

...LAUNCHED OUR LONG-TERM STRATEGY

In the autumn ICARS translated its conceptual foundation, cores principles and collaborative approach into a strategy consisting of the abovementioned four pillars which will guide ICARS' activities.

...SECURED MULTI-YEAR FUNDING FROM THE DANISH GOVERNMENT

The Danish government committed to funding ICARS with 49-59 million USD from 2021-2026 provided that ICARS also secures funding from other countries or foundations. In 2021 the Danish government has allocated 8 million USD to ICARS. Although this is a substantial amount, additional external funding is required to meet to the demand that ICARS is experiencing from LMICs.

...ESTABLISHED A TECHNICAL ADVISORY FORUM

In the autumn ICARS established a Technical Advisory Forum (TAF). The primary role of the TAF is to advise on the scientific quality of ICARS' research projects, but TAF members will also provide advice on other science-related matters. At its inception, the TAF comprised 10 renowned experts within human and animal health, One Health, economic, behavioral and environmental science, and health system strengthening together with experience from working in and with LMICs.

...MADE STEPS TOWARDS BECOMING A SELF-GOVERNING INSTITUTION

ICARS and its Interagency Steering Committee prepared the legal framework and governance structures for becoming an independent self-governing organisation in the beginning of 2021 with an international Board of Directors and an Executive Director.

...EXPANDED OUR TEAM

To become a well-functioning organisation able to deliver on its mission and expand its activities and engagements, ICARS grew from a group of 5 to a team of 15 skilled and dedicated employees, working either at ICARS' headquarters in Copenhagen or remotely across the globe as independent consultants. As our project portfolio expands and our work becomes increasingly visible in the global AMR landscape, the staff will continue to grow over the next couple of years.



"Despite the limitations caused by COVID-19 we made significant progress towards the launch of ICARS as an independent self-governing organisation with an ambitious strategy and goals."

- Helle Krarup, Director of Operations

FINANCIAL RESULTS

The year 2020 has been challenging but at the same time, very productive. Our spending amounted to DKK 23.3M out of which over DKK 20.7M (89% of total 2020 costs) were spent on scientific activities and building partnerships, including grant commitments of DKK 16.5M (Figures 1 and 2).

In 2020, we funded the first demonstration project in Vietnam, committed to fund researchers from LMICs participating in projects of the JPIAMR One Health Call, and advanced to the co-development phase of our collaboration in Georgia and Zambia with workshops being held in both countries. We also seconded one staff member to the WHO to coordinate the development of a One Health implementation and operational research agenda for AMR as part of the AMR Global Coordination Department.

Our 2020 budget amounted to DKK 34M. According to the agreement with the Government of Denmark, we will transfer DKK 10.7M of unspent funds to our 2021 budget. This will allow us to increase funding to scientific activities in order to meet our goals and strategic plans for the coming year.

In 2021, as our partnerships expand, we are planning to commit DKK 39.6M in project grants, more than doubling the amount of 2020. This financial commitment is in line with our current funding from the Government of Denmark. It is however apparent that the demand far exceeds our current resources, and we are thus working to attract additional donor funds to be able to meet the increasing interest from LMICs.

Figure 1

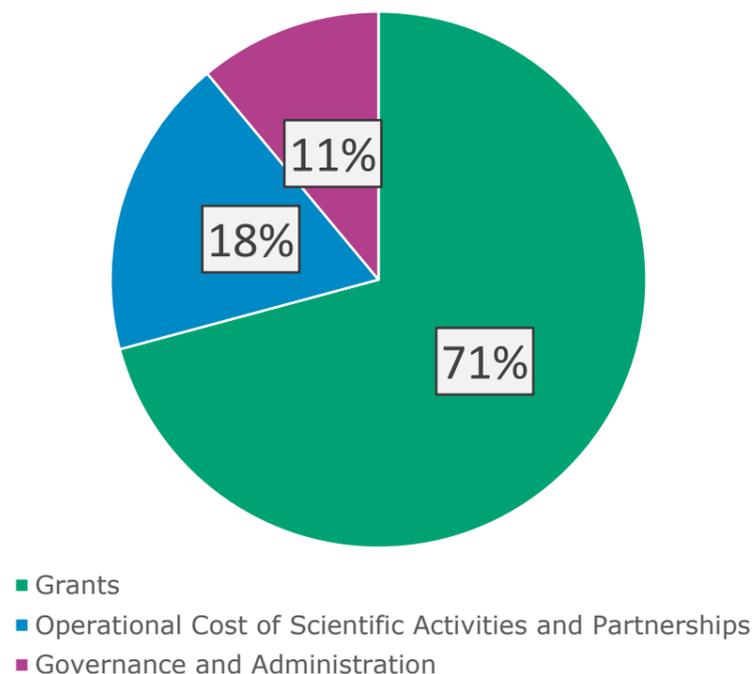


Figure 2

ICARS 2020 Financial Statement

	000 DKK	000 USD*
Funds Received	34,000	5,574
Expenses		
Scientific Activities and Partnerships	20,697	3,393
Grants	16,476	2,701
JPIAMR Co-Funding	7,440	1,224
Funding Project in Vietnam	3,701	605
WHO: AMR Global Coordination Department Secondment & Donor Contribution	5,184	848
Co-development activities in Georgia	150	25
Operational Cost	4,221	692
Employee Salaries and Benefits**	1,258	206
Consulting Fees and Services	2,731	448
Travel***	233	38
Governance and Administration	2,567	421
Employee Salaries and Benefits**	1,349	221
IT equipment	225	37
IT service	10	2
Consulting Fees and Services	282	46
Conference/ Seminars/ Meetings	22	4
Training	3	1
Furniture and Equipment	61	10
Office Rent	614	101
Total Expenses	23,264	3,814
Fund Balance	10,736	1,760

* DKK/USD exchange rate used for conversion purposes is equal to 6.1

**Employee cost was split between Scientific Activities and Administration according to the distribution of their time during the period

***All travels taken place in 2020 are related to Scientific Activities and establishment of Partnerships

Our Team



Robert Skov
Scientific Director



Helle Krarup
Director of Operations



Ghada Zoubiane
Head of Partnerships



Mirfin Mpundu
Partnerships Lead,
Africa



Sabiha Essack
Senior Implementation
Research Advisor



Erica Westwood
Implementation
Research Advisor



Nandini Sreenivasan
Implementation
Research Advisor



Gloria Cordoba
AMR Advisor



Anders Dalsgaard
Scientific Consultant



Per Henriksen
Senior Consultant



Tine Jørgensen*
Senior Scientific
Advisor



Karina Aglamazova
Finance and Grant
Manager



Lisa Bugge Nør Larsen
Programme Manager



Rodrigo Scotini**
Programme Manager



Georgiana Baciu
Communications
Officer



Hannah Sofie Aanonsen
Student Assistant

*Seconded to WHO from February 2021

**Left ICARS in January 2021

