



INTERNATIONAL  
CENTRE FOR  
**ANTIMICROBIAL  
RESISTANCE**  
SOLUTIONS



# ICARS Concept Note

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## Background on AMR

Effective antimicrobials, particularly antibiotics, are an essential cornerstone of modern health systems and societies. Antimicrobial resistance (AMR) is therefore one of the greatest threats to health, society, and economies worldwide and the WHO has classified it in the top 10 threats to global health. AMR directly and indirectly jeopardises the achievement of the Sustainable Development Goals (SDGs), and without sufficient action on AMR, progress made will be lost. The Independent O'Neill Review estimated that over 700,000 people died in 2016 due to AMR, and projected this to rise to 10 million by 2050 – more deaths than cancer and diabetes today combined. A 2017 report from the World Bank<sup>1</sup> has predicted the economic impact to be bigger than the financial crisis of 2008/9 as it will last longer, increase inequalities within countries and impact low- and middle-income countries (LMICs) the most. International trade could be affected, with livestock and livestock products being particularly vulnerable. Without urgent action, by 2050 global GDP will drop by 1.1-3.8%, by 2030 the global GDP shortfall will be 1-3.4 trillion US\$, and by 2030 an additional 24 million people will be pushed into extreme poverty. The World Bank report also showed that investing in AMR mitigation constitutes one of today's highest yield investments, regardless of income status.

International awareness has increased in recent years with the publication of the Global Action Plan in 2015, Resolutions at the UN General Assembly in 2016, the United Nations (UN) Environment Assembly in 2017, the World Health Assembly, the World Organisation for Animal Health (OIE) and the Food and Agricultural Organisation (FAO) in 2019. These set out the high-level policy agenda and demonstrate the significant consensus that exists globally on the high-level policies and interventions needed. In response, over 170 countries now have a national action plan developed or in development, and several AMR research and international development initiatives have been established internationally and nationally.

Yet, as urgently highlighted in April 2019 in the final report of the UN Inter-Agency Co-ordination Group (IACG) on Antimicrobial Resistance, the global response does not sufficiently match the scale and scope of the issue and challenges remain in implementation, particularly in LMICs.

## 1. About ICARS

### 1.1. Introduction to ICARS

Based on the above reasons, and the vision of a world where AMR no longer poses a threat to the health of humans and animals, global food security and economic prosperity, the Danish government has, with support from the World Bank, initiated the establishment of the International Centre for Antimicrobial Resistance Solutions - ICARS.

Denmark has a long history of working in "One Health" monitoring antimicrobials usage and AMR in human and veterinary bacteria, and recently Denmark has merged the National Veterinary and Public Health Laboratories providing a harmonised way at approaching AMR<sup>2</sup>. In addition, Denmark has experience in AMR projects in LMICs with a high degree of local involvement.

With AMR being a global challenge that respects no boundaries, the intention of ICARS is to work through multiple partners and countries to create evidence-based solutions addressing problems identified in the AMR National Action Plans (NAPs) of LMICs and support the global efforts to tackle AMR. It is envisaged that ICARS will be an international One Health knowledge, intervention and implementation research partnership; a platform for generating, assessing, and using evidence to support the development and implementation of cost-effective and context-specific solutions to AMR in LMICs. Doing so, ICARS will expedite action by translating policy into practice.

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<sup>1</sup> World Bank (2017): *Drug-resistant infections: a threat to our economic future*

<sup>2</sup> <https://www.danmap.org/>



## 1.2. ICARS' Vision and Mission

**Vision:** We envisage a world where resistance to antimicrobial drugs no longer poses a threat to the health of humans and animals, the environment, global food security and economic prosperity.

**Mission:** ICARS will be a leading international One Health knowledge, intervention and implementation research partnership, generating, assessing, and using evidence to support the development and implementation of cost-effective and context-specific solutions to mitigate antimicrobial resistance, particularly in low- and middle- income countries.

## 1.3. ICARS' Core Principles

ICARS has five core principles that will be adhered to in developing and delivering all activities. ICARS will work with partners and collaborators all over the world who align and commit to implementing these principles.

**TABLE 1. ICARS' CORE PRINCIPLES**

<b>Country Ownership</b>	<ul style="list-style-type: none"> <li>Country led</li> <li>Priorities defined by individual countries based on country NAPs, needs and challenges at national and local levels</li> <li>Integrated top down (e.g. government, local authorities) and bottom up (e.g. professionals, academia, community representatives) approach in country</li> </ul>
<b>One Health</b>	<ul style="list-style-type: none"> <li>A collaborative, multisector and holistic approach</li> <li>Actions relevant to human and animal health, the environment, global food security and economic prosperity</li> <li>AMR specific and AMR sensitive activities</li> </ul>
<b>Partnership</b>	<ul style="list-style-type: none"> <li>A solution development partnership - delivering in partnership with key stakeholders at various levels (international, regional, national, and/or local)</li> <li>Alignment and collaboration across public, private, and philanthropic sectors and various disciplines</li> <li>Maximising the use of limited resources, building on existing work for an effective approach and to avoid duplication</li> <li>Participatory cross-disciplinary research approach</li> </ul>
<b>Solution-Focused</b>	<ul style="list-style-type: none"> <li>Focusing on providing policy relevant evidence-based solutions</li> <li>Translation of country NAPs and international policies, standards and frameworks into practice on the ground</li> <li>Identifying causes and barriers to implementation of existing solutions</li> <li>Combining immediate action with long-term vision</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>Cost-effective solutions (economically feasible and practical for the country)</li> <li>Laying the foundations for change and supporting initial implementation</li> <li>Integrating into existing resources, systems and infrastructure, where possible</li> <li>Capacity and capability building in country – supporting leaders and local champions, utilising and expanding expertise of existing capacity and training the next generation</li> <li>Alignment to other global and country agendas and priorities (e.g. SDGs, Universal Health Coverage)</li> </ul>

## 1.4. ICARS' Strategic Themes

ICARS will support the translation of policies into evidence-based practices, and will conduct its work using the following strategic themes:

- Deliver evidence for solutions:** working closely with policy makers within countries to deliver impactful policy-relevant evidence to support the implementation of NAPs and provide AMR solutions;
- Build capacity and capability:** collaborating with and increasing existing capacity in LMICs and supporting local AMR champions and the next generation of AMR leaders;



- **Bridge the gap:** bridging the gap between science and policy at global, national and local levels by translating NAPs into cost-effective actions;
- **Share knowledge:** collecting and sharing knowledge on evidence-based AMR solutions. ICARS will work with national and international stakeholders to make evidence accessible in open repositories;
- **Advocate for awareness:** communicating knowledge and evidence driving action and advocating for implementation of solutions;
- **Learn and adapt:** developing into a learning organisation that continuously monitors, evaluates and adapts to meet dynamic needs.

## 2.5. ICARS Role at a National Level

ICARS will contribute to national efforts to tackle AMR by partnering with LMICs to conduct intervention and implementation research and provide support in translating policies and One Health NAPs into practice; building on existing research and international development efforts while expanding the scale and scope of the response; and increasing investment and collaboration across sectors.

### **What ICARS will do**

Upon request from LMICs, ICARS will work closely with national and local stakeholders to identify priorities and to develop evidence based, context-specific and cost-effective solutions to mitigate AMR in LMICs.

### **How ICARS will operate**

Based on LMIC government's request and a commitment to act, ICARS will work with the country's AMR Coordinating Committees and other stakeholders<sup>3</sup> to identify and prioritize activities using global and NAPs as the foundation. When developing specific projects and solutions, ICARS will take a participatory research approach and work with national and local policymakers, academics, professionals, businesses, communities, and wider stakeholders (the Tripartite, UNEP, NGOs, developing programs etc.) as appropriate (see figure 1). By close consultation, collaboration and alignment with existing activities, ICARS will avoid duplication, build on, and strengthen the essential wider efforts to address AMR within the country.

ICARS will utilise existing expertise within the country and build further capacity and capability so these efforts can be sustained and scaled up at national and international levels. Projects will include economic evaluations to inform of the cost-benefit of the identified solutions. Projects can be executed by ICARS internally or can be commissioned. The individual country together with ICARS owns the data generated within each project. ICARS will work with countries to make data as accessible as possible to the wider global community.

Projects will be regularly reviewed, adapted, and evaluated throughout the project and after completion. The knowledge, evidence, and solutions identified will feed into ICARS global communication work and aim to be on open access repositories (new and existing).

When considering activities and engagement, ICARS will take into account:

- Political, policy and technical engagement at all levels including willingness to uptake and sustain identified value adding solutions
- Evidence from the government that they wish to address AMR through a One Health approach
- Existing human resources and research infrastructure to co-execute the research projects
- Alignment with other global and national initiatives.

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<sup>3</sup> Other stakeholders include the UN international organisations, governments and other publicly funded AMR international development and R&D initiatives, philanthropic and Civil Society Organisations (CSOs), Professional organisations and the private sector



See [link](#) for an example of a process that ICARS could take to implement projects at national and local levels in LMICs.

## 2.6. ICARS Role at an International Level

Anchored by hubs with projects and activities in various locations around the world, ICARS will play a key role in the delivery of the UN General Assembly AMR Resolution agreed in September 2016, the Global Action Plan and international strategies and agendas. ICARS will do so by filling some of the gaps highlighted in the IACG recommendations from April 2019 calling for independent evidence synthesis, reports on the science and evidence related to AMR, its impacts and future risks, and recommendations for adaptation and mitigation, as well as the newly published report from the World Bank<sup>4</sup> calling for implementation research to bridge knowledge and actions in LMIC.

### What ICARS will do

ICARS will work with policy-makers and international experts to feed into the wider international efforts by producing independent evidence synthesis, assessments, and reports. Output may highlight gaps, provide recommendations, practical knowledge and case studies including process and impact evaluations and the results will add to the existing global efforts on AMR. ICARS will aim at making the knowledge, evidence, and solutions generated from ICARS projects openly accessible and available in open global repositories. Outputs will be communicated to different stakeholders to increase awareness, and advocate for action to implement the solutions identified.

### How ICARS will operate

ICARS will actively engage with other stakeholders including the Tripartite (WHO, FAO, OIE), UNEP and other UN/international organisations, governments, organisations and research institutions to determine analyses needed to support policy decision making. Working in partnership, ICARS will execute such analyses internally or commission the work. Conducting its research, ICARS will create evidence-based solutions that will feed into the efforts and activities of the Tripartite.

ICARS will actively engage internationally and will make available, through its website ([www.ICARS-global.org](http://www.ICARS-global.org)), information about how ICARS support can be requested as well as output from the projects. A transparent governance structure will be in place with input from donors as well as recipients.

**FIGURE 1: STAKEHOLDERS THAT ICARS WANTS TO WORK WITH**



4 World Bank (2019): *Pulling Together to Beat Superbugs, Knowledge and Implementation Gaps in Addressing Antimicrobial Resistance*



## 2.7. Where ICARS Fits in Existing Global and National Efforts

Interaction with different relevant organizations and stakeholders to ensure complementarity and identify opportunities for collaboration is essential for the success of ICARS. ICARS will work in synergy with other initiatives and programmes, and will identify opportunities to add value, and expand the scale and scope of the response (Figure 2).

ICARS will work with and across the public, private and philanthropic sectors. Potentially, ICARS may act as a:

### **Solution Developer**

ICARS *is* a solution development partnership that through applied research projects and activities on the ground addresses gaps in generating and implementing evidence-based solutions. ICARS will work through partnerships, cooperate and collaborate with governments, taking new and existing AMR initiatives, and projects at global, regional, national, and local levels into account. Projects at local or national level will be led by LMICs priorities. ICARS *will not* focus on the development of new antimicrobials or vaccines.

### **Technical Expertise**

ICARS *will* build up an international network of technical and interdisciplinary expertise and partnerships that will be available to support and advice national, local and international bodies, including the private sector, working to mitigate AMR.

### **Policy**

ICARS *will* work closely with policy makers to ensure projects are policy relevant, based on country priorities, translate existing policies into practice, and inform future policy decisions. ICARS will support global policy makers' efforts to tackle AMR.

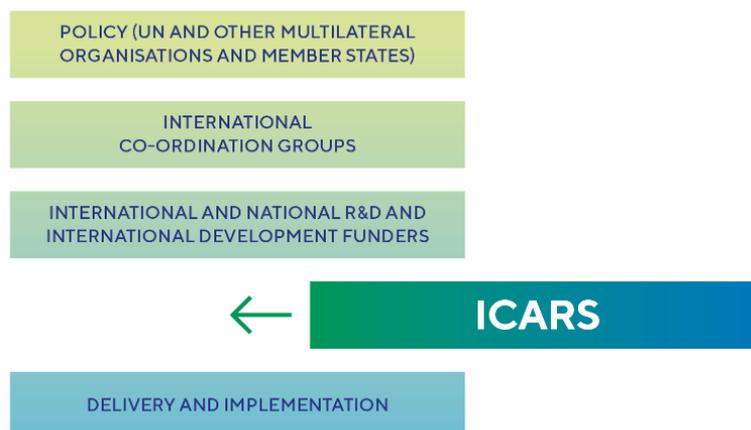
### **Coordination**

ICARS *will* feed into the existing international co-ordinating mechanisms (policy and research) that have been established and participate in discussions for the generation of new or expansion of existing initiatives to meet the global needs. ICARS is not a co-ordinator of the wider international policy and research efforts. ICARS will co-ordinate its own portfolio and activities in LMICs, and will ensure projects and activities funded by ICARS feed into the existing international co-ordinating mechanisms.

### **Donor and Funder**

ICARS *is not* a research funder and will not be launching funding schemes. ICARS is a solution development partnership that relies on contributions from donors to implement its strategy. In response to LMICs requests and needs, ICARS can commission and execute projects and activities to address those needs.

**TABLE 2. WHERE ICARS FITS IN GLOBALLY**





## **2.8 Communication and Learning**

Information about ICARS and the support ICARS can provide internationally and to LMICs will be made widely available through several communication channels (the ICARS website, social media channels such as Twitter, videos, demonstration projects, meetings/conferences etc.). ICARS will communicate details of on-going projects, results, as well as increase awareness, and advocate for action to implement the solutions identified.

ICARS will be a learning organisation, where experiences are collected, and these experiences will have an impact on the methods and approaches, including the theory of change. ICARS will monitor and evaluate its own activities, its processes, and the individual projects it conducts at international and national level to adapt and improve along the way. In addition, ICARS will embed an independent evaluation which will be a central component of ICARS activities.

## **3. Next Steps for ICARS**

### **3.1. Development of ICARS as an International Organisation**

It is the strategic ambition to transform ICARS into an international organisation governed by international law. ICARS is currently anchored in the Danish government, but during 2020 ICARS will transition into an independent organisation with clear governance and structure.

The organisational structure and the governance model for the ICARS are currently in development with key words being; international, independent, not-for-profit, transparent, effective, efficient, innovative and partnerships. The governance model for ICARS is envisaged to be structured around a Board of Trustees and relevant advisory forums, including a Strategic Advisory Forum and a Scientific Advisory Forum. In addition, a Donor Forum is envisaged to ensure donor engagement.

To guide the transition to an independent international organisation, ICARS will compose an Initial Strategic Advisory Forum (stakeholders including the UN bodies, funders, policymakers and NGOs) and an Initial Scientific Advisory Board (to give cross disciplinary technical advice) early 2020.

### **3.2. Invitation to Participate**

Only in partnership, can we close the existing knowledge gap and mitigate AMR in LMICs. To fulfill ICARS' mission we need committed partners willing to show action and leadership alongside Denmark. The Danish Government has committed to the establishment of ICARS and will sustain its commitment over the next 6 years with the intention to attract additional donors and partners.

ICARS invites committed governmental bodies, policymakers, foundations and international organisations to partner with ICARS. A partnership with ICARS may take several forms, including political support and commitment, in-kind contributions and/or financial contributions.

### **3.3. Demonstration Projects and Timeline**

ICARS seeks LMIC partners that are committed to mitigating AMR and willing to show leadership to initiate a number of demonstration projects in 2020. ICARS will work in partnership with countries in identifying and implementing solutions to specific AMR-problems that the country seeks to solve. Projects will be continuously monitored, adapted, and evaluated while ICARS builds towards a larger and more long - term programme of work.

The first demonstration projects are currently being developed, one of them in partnership with the CGIAR AMR hub building on the Memorandum of Understanding signed between the Danish Government and CGIAR in November 2018.

ICARS welcomes support and engagement with all countries and partners to progress this work further together.

### **3.4. More Information**

If interested in learning more about ICARS and possible ways of collaboration, please visit the ICARS webpage: [www.ICARS-global.org](http://www.ICARS-global.org) or contact the ICARS Team at [contact@icars-global.org](mailto:contact@icars-global.org).