

# THE ICARS MODEL OF INTERVENTION AND IMPLEMENTATION RESEARCH TO MITIGATE AMR IN LMICs

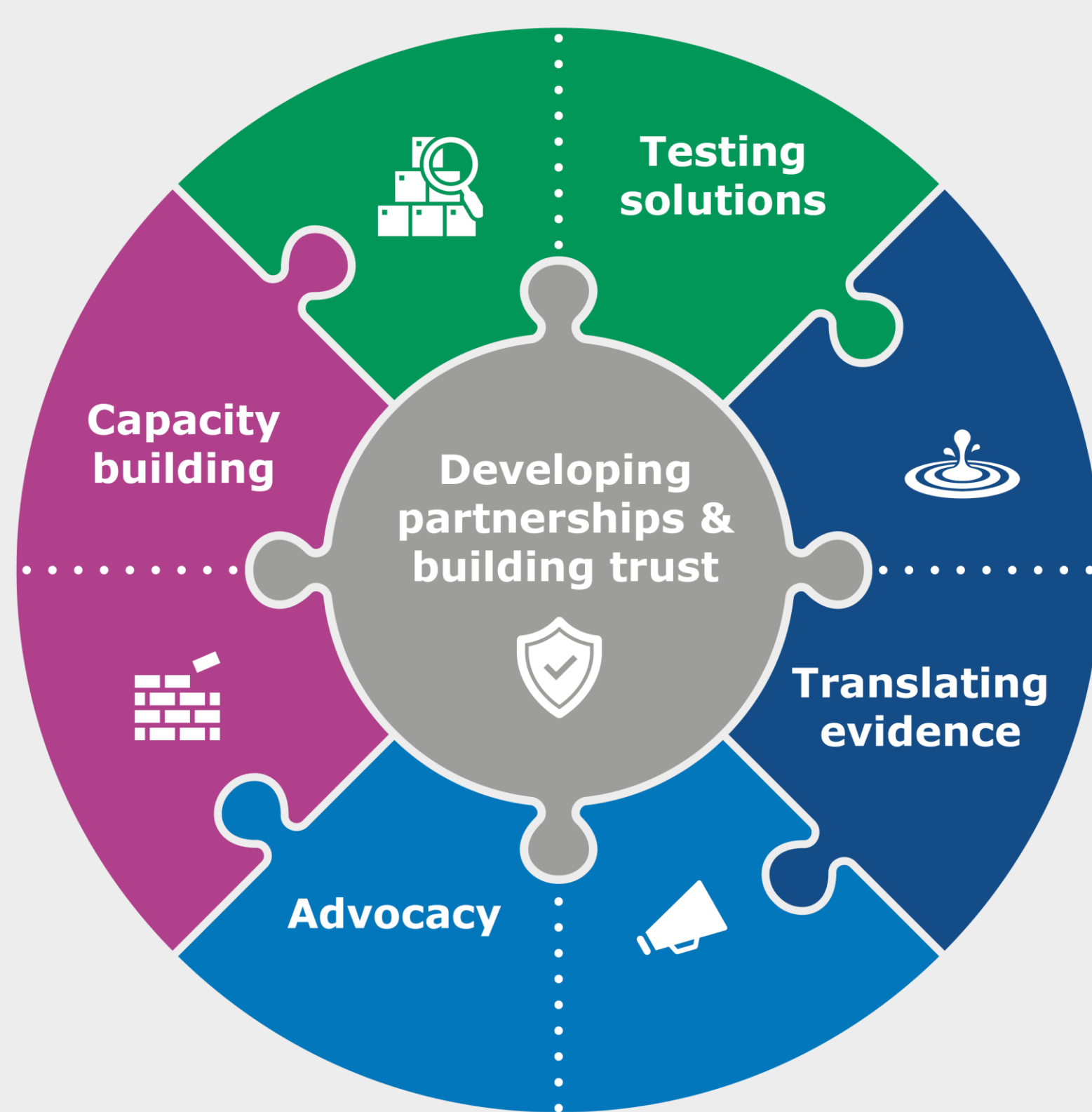
K. Osbjer<sup>1\*</sup>, A. Dalsgaard<sup>1,2</sup>, N. Sreenivasan<sup>1</sup>, M. Martinus<sup>1</sup>, E. Westwood<sup>1</sup>, A. Lenglet<sup>1</sup>, G. Cordoba<sup>1</sup>, S. Essack<sup>1,3</sup>, G. Zoubiane<sup>1</sup>, H.D. Chu<sup>4</sup>, F. Rojas<sup>5</sup>, M. Perez<sup>5</sup>, M. Vargas<sup>5</sup>, R. Mgedela<sup>6</sup>, H.T.T Truong<sup>7</sup> & R. Skov<sup>1</sup>

1. International Centre for Antimicrobial Resistance Solutions, Copenhagen, Denmark 2. Department of Veterinary and Animal Sciences, University of Copenhagen, Frederiksberg, Denmark 3. Antimicrobial Research Unit, University of KwaZulu-Natal, Durban, South Africa 4. Department of Animal Health, Ministry of Agriculture and Rural Development, Hanoi, Vietnam 5. Pork Research Center (Ceniporcino), Porkcolombia Association, Bogota, Colombia 6. Department of Veterinary Medicine and Public Health, Sokoine University of Agriculture, Morogoro, Tanzania 7. Research Institute for Aquaculture N01, Bac Ninh, Vietnam

## INTRODUCTION

Expedited implementation of National Action Plans (NAPs) on Antimicrobial Resistance (AMR) is key to the global AMR response. This remains a challenge, particularly in Low-and-Middle-Income Countries (LMICs), due to competing priorities but also the limited resources and technical expertise to advance actions.

The International Centre for Antimicrobial Resistance Solutions (ICARS; [www.icars-global.org](http://www.icars-global.org)) takes a One Health approach in partnering with ministries, academia, and livestock producers in LMICs to mitigate AMR through locally adapted interventions and scalable solutions. ICARS funds partnerships and capacity building to co-develop interventions and test tailored solutions. The unique model of ICARS is the use of a top-down and bottom-up approach informed by implementation research that adjusts interventions to local contexts to identify and sustain solutions with proven impact for scaling up.



## TANZANIA

In Tanzania, ICARS is working on two projects with the Ministry of Livestock and Fisheries, Sokoine University of Agriculture, Zanzibar Livestock Research Institute, and other local partners.

One of the projects is focusing on mitigating the spread of antimicrobials and resistant microbes through treatment of poultry manure before it is used as fertilizer in food crops. Intervention research is conducted with adapted heap/pile manure composting technology that is proven to improve fertilizer safety. The project is also aiming to improve business opportunities for poultry farmers by providing safer and highly nutritious natural fertilizers for local horticulture.



## COLOMBIA



In 2022, ICARS concluded a co-funded project with the UK Department of Health and Social Care's Global AMR Innovation Fund (GAMRIF) together with Porkcolombia, an industrial organization representing the majority of Colombia's pig producers. The project used qualitative and quantitative research methodologies to understand barriers and enablers for pig producers in accessing and utilizing diagnostic services and networks. The project found that the subsidized private diagnostic network is cost-effective, but infrastructure and logistics make the price variable across regions. In addition, the project showed that stakeholder engagements that bring farmers closer to decision-making is key. ICARS is also co-funding a project via the Joint Programming Initiative on AMR (JPIAMR), that aims to reduce stress among piglets which is a major driver for disease, which in turn contributes to AMU and AMR spread within farms. The project will test the effect of limiting the common practice of mixing and re-mixing of piglets to reduce stress.



## VIETNAM

In Vietnam, ICARS is working with the Ministry of Agriculture and Rural Development, local pig and fish producers, and researchers. In one of the projects, with a focus on improving the uptake of alternatives to colistin use in pigs, teams are determining the amounts and drivers of colistin use at baseline and assess potential interventions, such as the effectiveness of vaccination and the use of less critical antimicrobials for the sustainable and cost-effective control of piglet diarrhoea.

In another project with the aim to reduce the use of antimicrobials by optimizing the uptake of vaccines and better management in farmed fish, the focus is on assessing the effectiveness, feasibility, cost-effectiveness, and uptake bottlenecks of a commercially available vaccine for bacterial infections in farmed striped catfish (*Pangasius*), as well as testing how intensive production systems, such as in-pond race ways systems, reduce disease problems and the need to use antimicrobials in farmed Tilapia.



## CONCLUSIONS

ICARS provides a unique value proposition in LMICs to co-develop evidence-based, context specific, cost-effective, and sustainable solutions to combat AMR and advance the implementation of NAPs on AMR. The unique model of ICARS is the partnerships with both ministries and researchers to support solutions informed by intervention and implementation research using multidisciplinary approaches, including insights from behavioural science and economics.



INTERNATIONAL CENTRE FOR  
ANTIMICROBIAL RESISTANCE  
SOLUTIONS

[icars-global.org](http://icars-global.org)

@ICARS\_global

