



ICARS

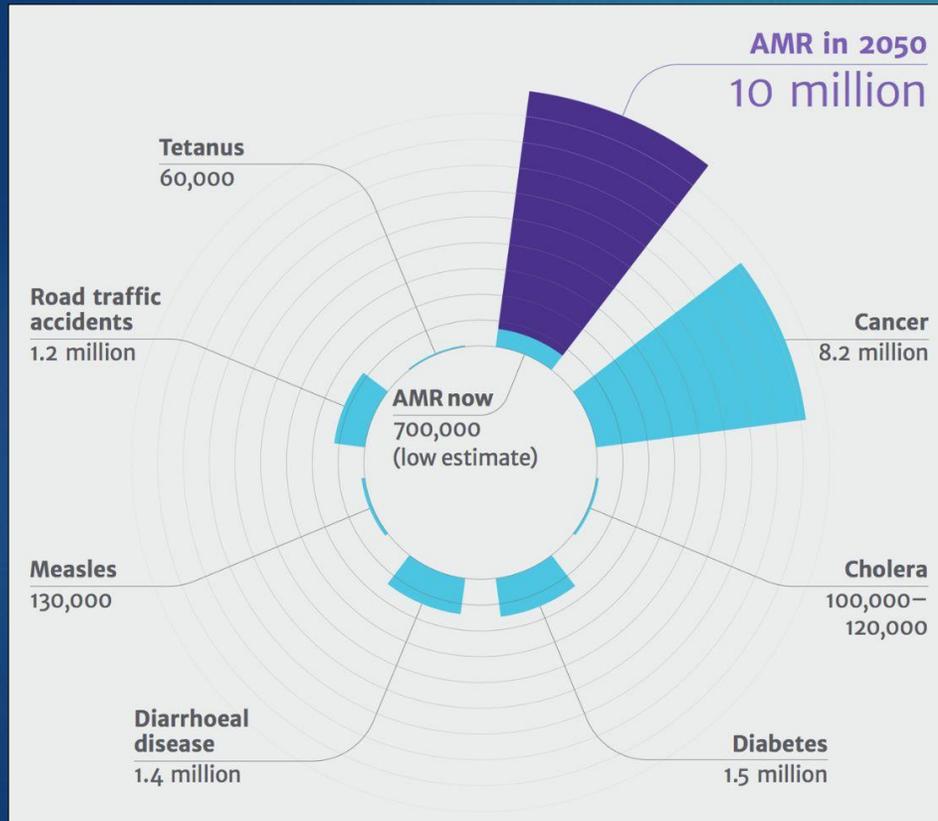
International Centre for Antimicrobial Resistance Solutions

Robert Skov, MD, Senior Consultant

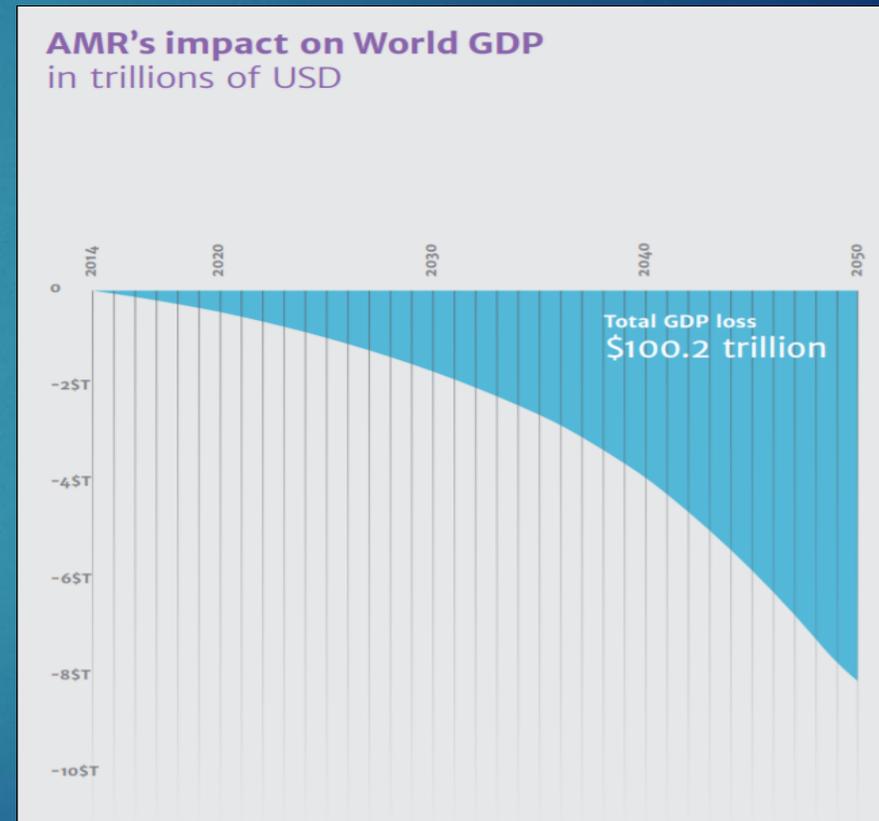
National AMR Coordinator, Lead of ICARS project team

Statens Serum Institut, Copenhagen, Denmark

Human Cost of AMR – Lives Lost



Economic Cost – Global GDP Loss





IMPLICATIONS FOR POVERTY ERADICATION AND STABILITY

Final Report

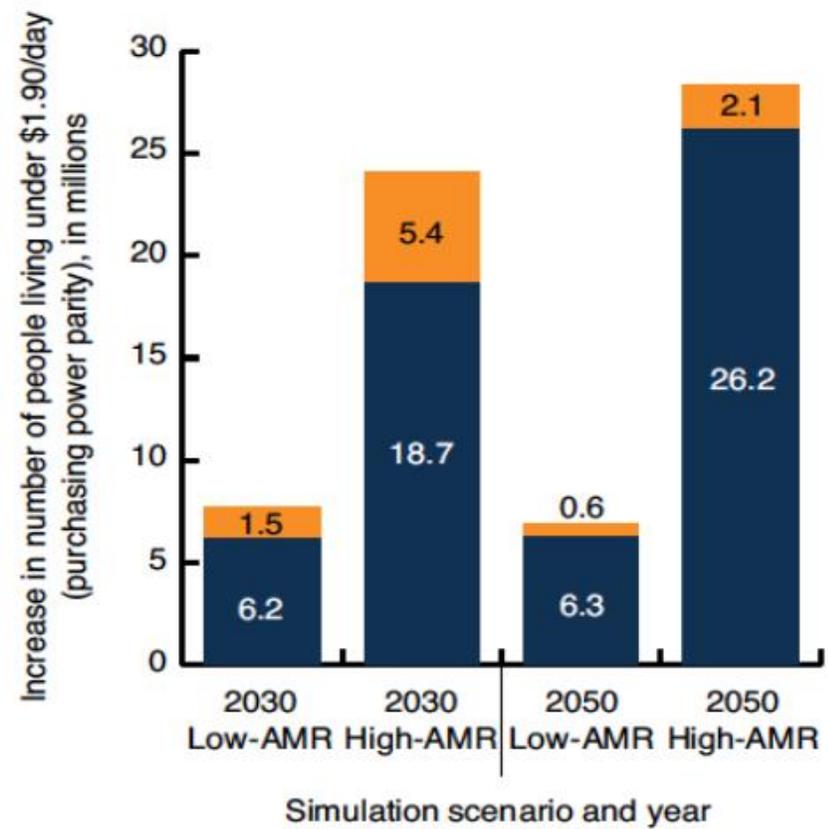
DRUG-RESISTANT INFECTIONS

A Threat to Our Economic Future

Low AMR: global GDP falls short by 1.1 percent annually by 2050, shortfall exceeds \$1 trillion annually after 2030

High AMR: global GDP falls short by 3.8 percent annually by 2050, shortfall reaches \$3.4 trillion annually after 2030

Additional people falling into extreme poverty: nearly 8 million by 2030 in the low-AMR case; more than 28 million by 2050 in the high-AMR case



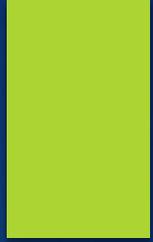
AMR is not just as a public health or agricultural challenge, but an adaptive development challenge (problem of development)

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- AMR is a development challenge that will disproportionately affect low- and middle- income countries from an economic and social perspective
- Failure to address AMR will negatively affect some SDGs; also, the pursuit of some SDGs will help combating AMR

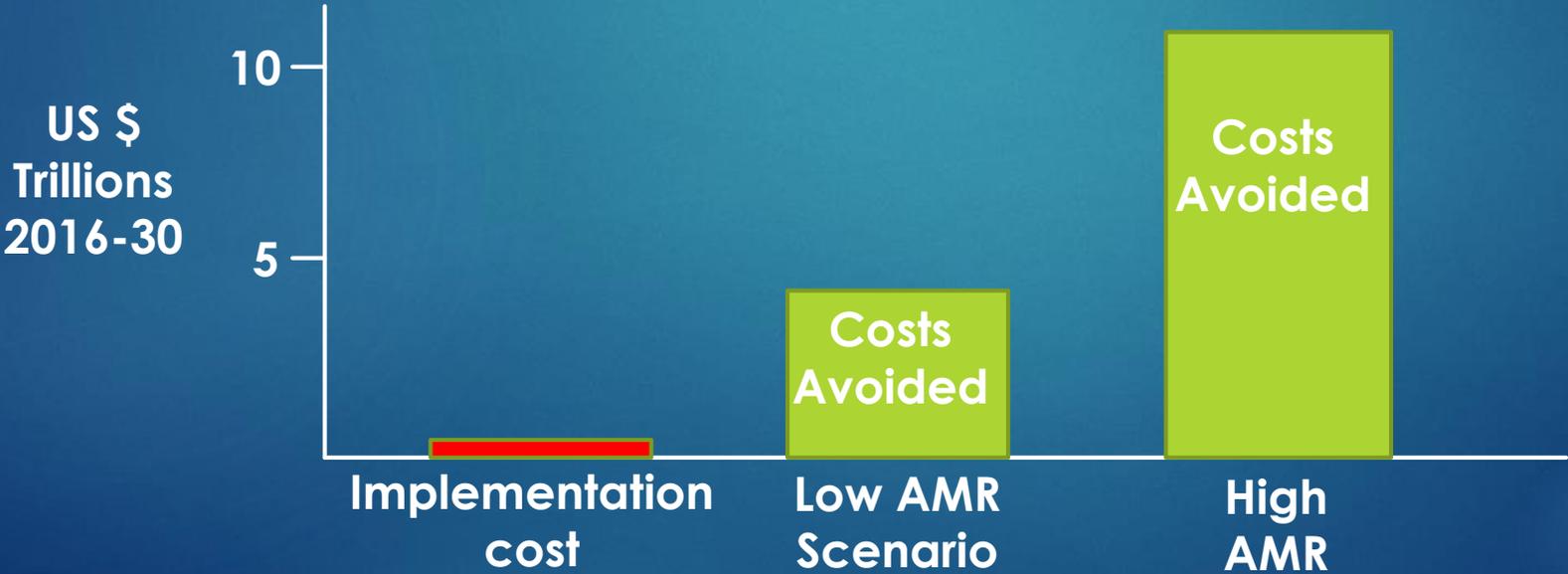


Final Report
**DRUG-RESISTANT
INFECTIONS**
A Threat to Our Economic Future



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Cumulative savings of extra health care costs to 2030 are \$4 trillion if “low-AMR” case is avoided and \$11 trillion if “high-AMR” case is avoided



Investment in AMR containment gives high economic rate of return

- Test of expected economic rate of return is unambiguously satisfied (31% - 88%)
- Even a partial containment of AMR is a highly productive investment. Reducing AMR by just 10% (from 'low AMR' case) generates cumulative expected benefits of \$2 trillion (3.5% discount rate), which more than justifies the \$200 billion investment.
- These investments should be the highest priority among public sector investments

	Expected Annual Rate of Return
Low-AMR Impact Scenario	
10% containment achieved	31%
25% containment achieved	45%
50% containment achieved	58%
75% containment achieved	66%
High-AMR Impact Scenario	
10% containment achieved	47%
Reach low-AMR scenario	84%
75% containment achieved	88%

Source: Simulation results and authors' calculations.

AMR – a wicked problem!



The ever growing human population as well as the livestock production increases the demand for antibiotics

In several countries lack of access to antibiotics causes more deaths than infections due to AMR bacteria

AMR respects neither sectors nor borders

Actions against AMR



WHO, FAO, OIE, UNEP (Tripartite+) together with key organizations are developing the necessary policy frameworks for action globally.

The global policy frameworks are translated into the national action plans in the majority of countries

Several initiatives by the Tripartite+, countries, NGOs and research institutions are ongoing or initiated these years

Relevance of Implementation Research to the AMR Challenge

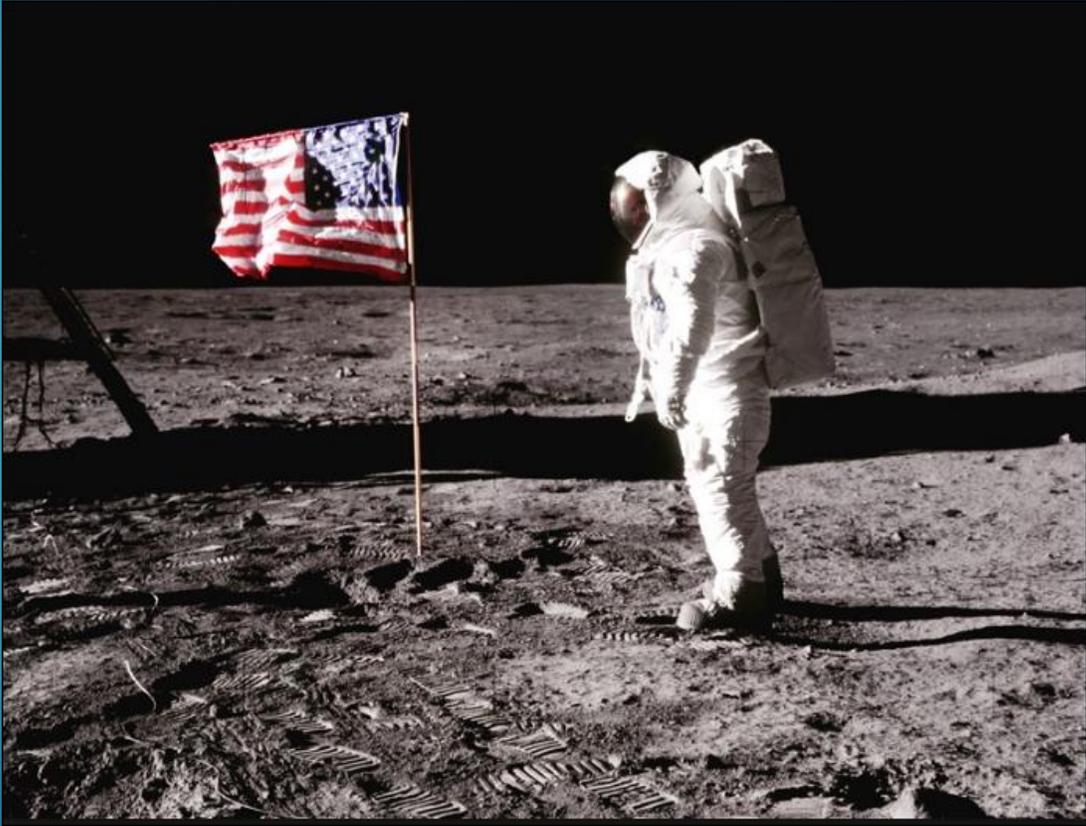
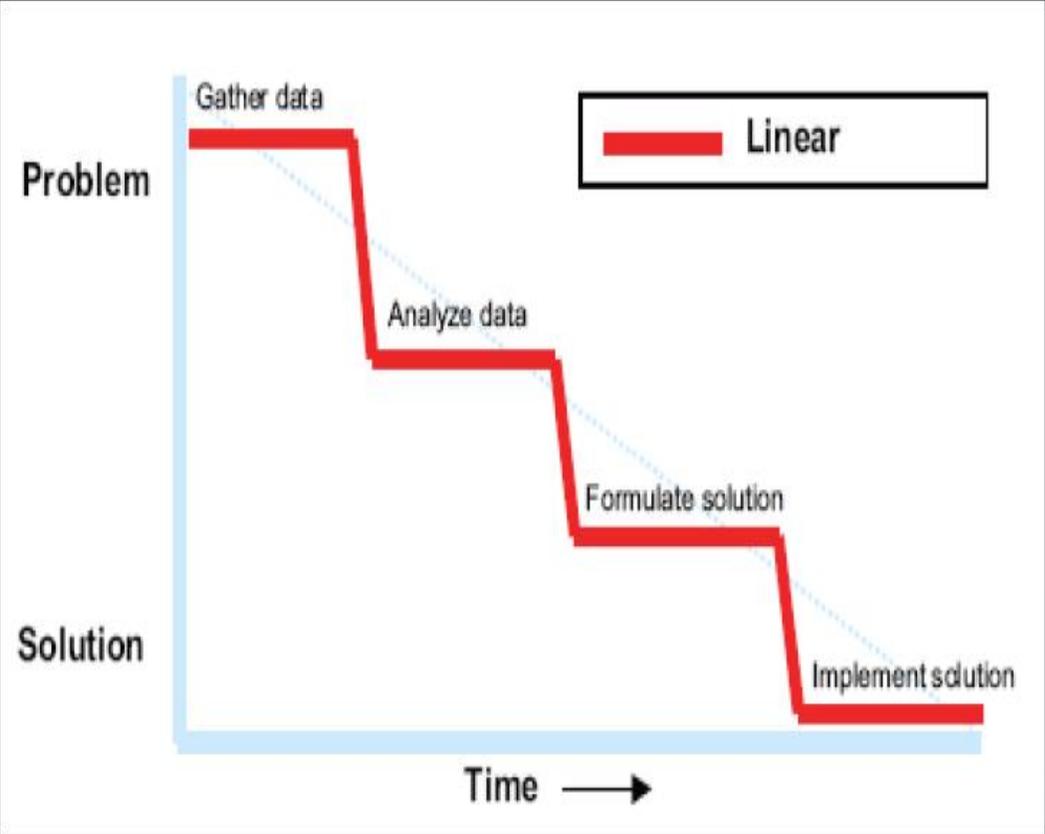


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- ▶ Despite growing evidence of the efficacy of numerous AMR interventions, there is little understanding of how to deliver those interventions effectively in **diverse settings and within the wide range of existing health systems.**
- ▶ Implementation issues often arise as a result of **contextual factors** that policy-makers and health system managers may not even have considered.
- ▶ Implementation research is crucial for improving our understanding of the challenges we face in confronting the **real world** by broadening and deepening our understanding of these **real-world factors and how they impact implementation.**
- ▶ Implementation research is of immense value in shining a light on the often bumpy interface between **what can be achieved in theory and what happens in practice.**



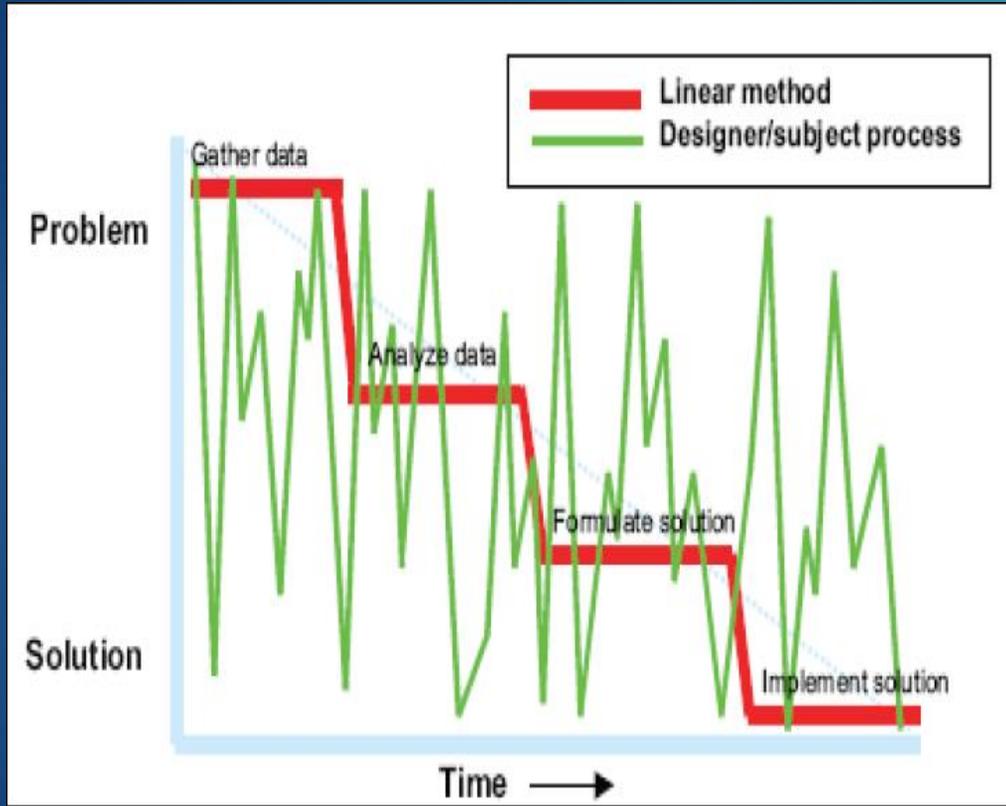
Traditional wisdom for solving complex problems: the 'waterfall'



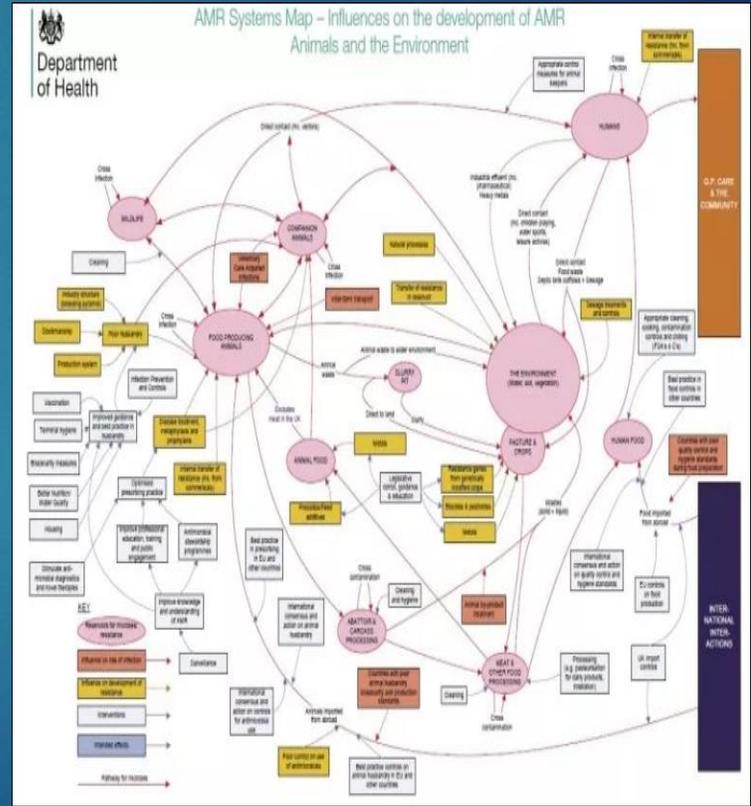
Tame problems



Opportunity-driven problem solving: the “jagged line of learning”



Wicked problems



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Several low- and middle income countries (LMIC) struggle with implementation of their AMR action plans as well as to find feasible solutions to mitigate the problems of AMR

There is a need for an international research centre focusing on **implementation and solutions** in LMIC

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Why Denmark

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Denmark has worked “One Health” for 25 years with monitoring of AMU and AMR in human and veterinary bacteria since 1995

- Merged the National Vet Institute and the Statens Serum Institut



Denmark has a large livestock production with experience in the cooperation of authorities with farmers, vets and companies leading to a fairly low AMU and AMR

Denmark has experiences in AMR projects in LMICs with a high degree of local involvement

ICARS Mission

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The ICARS centre will act as an independent global knowledge node for generating, aggregating and disseminating evidence on antimicrobial drug resistance and support the development **of feasible context-specific solutions** for its containment.



ICARS' scope



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Implementation and solution driven research are key objectives for ICARS

- Multidisciplinary as well as interdisciplinary
- Evidence based
- Work in a One Health approach cutting across human, livestock and plants, as well as the environment
- Will serve as an independent global knowledge node collecting existing and novel experiences gained from implementation research across scientific disciplines

Focus on low- and middle-income countries

AMR Specific as well as AMR Sensitive issues

ICARS scope

Support the translation of policies into evidence-based practices

Will work with strong local participation to secure development of contextual and feasible solutions for the individual country/region

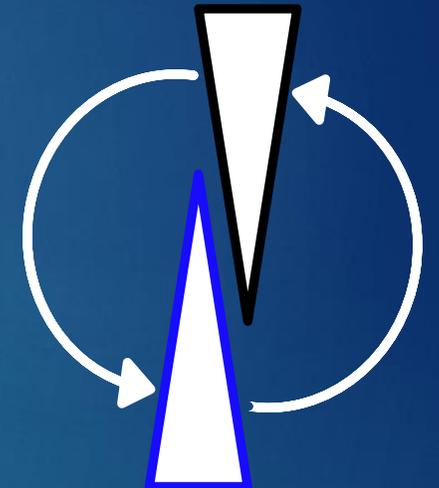
- Bottom up approach

Will be a learning organization and will evaluate processes and impact of interventions

- Failure in interventions, may be due to the process rather than the rationale



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Organization



ICARS will be an independent centre managed by a Board of Trustees composed of representatives of donors and partner countries

In addition 2 advisory forums is envisaged

- A strategic Advisory Forum composed of key stakeholders such as representatives of Triparte+, NGOs and other key stakeholders
- A multidisciplinary Scientific Advisory Forum
 - Advice on the Centre's scientific strategy and assist in conducting reviews of project proposals and deliverables

Organization – and finance



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- ICARS will work using the hub and spoke model
 - To the extent possible use existing facilities in LMIC i.e. the facilities at ILRI in Nairobi
- Is stipulated to employ 3-400 scientists covering all relevant disciplines including biological, engineering, anthropology, social science and economics
- have an annual budget of 45 mio. \$

Organization – and finance



ICARS

- The transformation from idea to the independent international centre is lead by Denmark
 - Denmark has allocated the seed money and will continue to support the centre
- Denmark is now seeking strategic partners to join them in ICARS
 - ICARS has signed a MoU with the CGIAR system on mutual collaboration
- Transformation to the independent international centre will start as soon as the Board of Trustees is in place

ICARS' formation



- Nov 2017 Initial contact between Denmark and the World Bank on AMR
- April 2018 WB visits Denmark
- July 2018: Initial Workshop on creating an AMR centre for implementation research
- Fall 2018: Denmark decides to take the initiative for establishing ICARS, Concept Note developed,
- November 2018: MoU between Denmark and CGIAR
- December- February 2019: Development of a draft for an Indicative Work Program (IWP)
- February 2019: Participation in opening of the CGIAR-AMR Hub
- ICARS will be part of the managing board of the CGIAR-AMR Hub
- February 2019: ICARS Workshop on the IWP in Washington
- April 2019: Presentation of ICARS at the margin of the WB Spring Meeting

Road ahead



March – June 2019: Adjustment of IWP, Development of the business plan, Identification of strategic funding partners (countries, foundations)

Autumn 2019: ICARS transforms from an idea to an international centre

- Establishment of an international board
- Hiring a managing director
- ICARS goes live

Acknowledgements



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Participants in the initial workshop leading to the concept note:

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Thank you for your attention

We look forward to continuing the Journey
with you