APPENDIX 1.1: EXPRESSION OF INTEREST TEMPLATE

The Expression of Interest (EoI) consists of a cover letter from the Responsible Ministry (no template provided) and a brief description of the proposed intervention-implementation research project, using this template and two appendices. The description must not exceed 5 A4 pages using Verdana font size 10 and 1.5 spacing.

Date of submission: _____

Country: _____

Responsible Ministry (or Ministries):
[List name of the Responsible Ministry (or ministries) submitting the EoI and the department within the ministry responsible for the EoI.] Add more rows if necessary.

Ministry	Relevant Department/Unit

Point of contact at the Responsible Ministry (or Ministries):
[List name, job title, email-address, and phone number.] Add more rows if necessary.

Name	Job Title	Email	Phone Number

1. Describe priority antimicrobial resistance (AMR)-specific or AMR-sensitive challenges/problems.

[Describe a minimum of two AMR-specific or AMR-sensitive challenges/problems you would like to address with financial and technical support from ICARS. The aim of ICARS projects is to produce evidence-based, context-specific, cost-effective solutions to be used by the country to facilitate larger scale implementation to mitigate AMR. You can include problems from different One Health sectors. Be as specific as possible and explain why they are a priority.] Add more rows as needed with a maximum of 5 challenges.

	Challenge/Problem	Why Prioritized
1	Passive surveillance of AMR in several tertiary hospitals in country X has shown increases in resistance to 3rd generation cephalosporins, aminoglycosides and fluoroquinolones among Enterobacterales. These antibiotics are empirically prescribed with microbiological investigations undertaken mostly when there is evidence of treatment failure. An increase in carbapenem prescriptions has also been observed in these hospitals.	3rd generation cephalosporins, aminoglycosides, fluoroquinolones and carbapenems antibiotics are broad-spectrum antibiotics that fall into Watch and Reserve categories of the WHO AWaRe categorization and collectively constitute 55% of all antibiotics used in tertiary hospitals, contrary to the WHO target that 60% of all antibiotics consumed should be from the Access category.

2. Provide evidence in support of the identified AMR challenges/problems.

[Provide relevant technical and contextual evidence in support of the identified challenge/problem. Include data on AMR and antimicrobial use (AMU) relevant to this challenge. This could be from published/unpublished literature, government Ministry reports, annual reports to AMR funders such as the Fleming Fund/MPTF, submissions to WHO GLASS, WOAH AMU, FAO InFARM etc. Please include references where relevant.] Add more rows if necessary.

Challenge/ Problem	Evidence
1	Data from the Laboratory Information Systems/GLASS AMR submissions/Fleming Fund Reports show increases in resistance to 3rd generation cephalosporins (15-40%), aminoglycosides (10-20%) and fluoroquinolones (20-40%) from 2019 to 2023. Drug procurement data and/or GLASS AMC submissions show a 3 fold increase in the procurement/consumption of carbapenems in the same period

3. (Using the table on page 3) Describe two or more measurable interventions that can potentially address the AMR challenges/problems described above. Indicate how these align with existing or planned AMR interventions in your country. Indicate the strategic objective of the National Action Plan (NAP) on AMR that these interventions will address. Attach the NAP as appendix 1.

NB: All ICARS projects must be measurable using SMART[1] indicators

[List 2 or more interventions that are likely to address the AMR challenges/problems through intervention[2] and/or implementation research[3]. Include a list of up to five references in support of the proposed interventions. While ICARS subscribes to the One Health approach to mitigating AMR, we welcome projects that address AMR in ONE or more sectors, i.e. projects do not have to be cross-sectorial.] Add more rows if necessary.

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[1] SMART specific, measurable, achievable, realistic, time-bound

[2] Intervention research is designed to evaluate the direct impacts of treatment or preventive measures on disease in a [human or animal] study population. Study designs include randomized controlled trials, pre-post intervention study designs, non-randomized controlled trials, and quasi-experimental studies. (Reference: Thiese MS. (2014). Observational and interventional study design types; an overview. *Biochemia medica*, *24*(2), 199–210. https://doi.org/10.11613/BM.2014.022)

[3] Implementation Research is the scientific inquiry into questions concerning implementation—the act of carrying an intervention (policy, programme or practice) into effect in real world settings. Implementation research evaluates the acceptability, adaptability, adoption, appropriateness, costs, coverage, feasibility, and sustainability of interventions. (References: Peters DH, Adam T, Alonge O, Agyepong IA, Tran N. (2013). Implementation research: what it is and how to do it. *BMJ;* **347:** f6753. https://bjsm.bmj.com/lookup/doi/10.1136/bmj.f6753. + Bauer MS, Damschroder L, Hagedorn H, Smith J, Kilbourne AM. (2015). An introduction to implementation science for the non-specialist. *BMC Psychol*; **3**: 32. Available at: http://bmcpsychology.biomedcentral.com/articles/10.1186/s40359-015-0089-9.

	Challenge/Problem	Potential Intervention(s)	Alignment with Existing or Planned Interventions	Objective of NAP on AMR Addressed by Intervention
1	Increase in resistance to Watch and Reserve antibiotics. Increased use of carbapenem antibiotics	1.1 Diagnostic antimicrobial stewardship (AMS) + formulary restriction where Watch and Reserve antibiotics will be authorized for use by a medical microbiologist based on microbiological investigations	These interventions will leverage the AMR data generated from AMR and AMU surveillance system established with funding from the Fleming Fund and the Multi-Partner Trust Fund	Strategic objectives 2 and 4 of the NAP on monitoring AMR and optimizing AMU respectively
		1.2 Prospective audit and feedback + education and training to provide feedback on and optimize antibiotic prescribing respectively		Strategic objectives 1 and 4 of the NAP on education and training on AMR and AMU and optimizing AMU respectively

4. Describe how the Ministry will integrate learnings from each of the proposed interventions into country policies, programmes and practices to mitigate AMR.
[Describe how the Responsible Ministry envisions sustainable uptake and scale-up of successful interventions following completion of the project.]

Challenge/ Problem	Scale-Up Plan
1	The Ministry of Health will: • Approach the Ministry of Finance to allocate dedicated funding/increase the laboratory and pharmacy budgets for diagnostic stewardship and AMS in hospitals. • Task the AMS Committee and/or Pharmacy and Therapeutics Committee (PTC) in hospitals with rolling out the AMS interventions on proof of concept. • Include AMS in the job descriptions/roles/key performance indicators of key AMS personnel (infectious disease specialist, medical microbiologist, pharmacist, infection prevention and control practitioner/nurse) employed by the Ministry.

5. List the stakeholders you will engage to facilitate the implementation of each of the proposed interventions.
[List the relevant stakeholders with whom the project proposal will be co-developed. This includes research institutions/universities and public, private and non-governmental stakeholders.] Add more rows if necessary.

Intervention	Stakeholders	Role in the Project
1.1 Diagnostic stewardship + formulary restriction	• University/Research Organization/MoH Research Unit	• Develop project proposal/ protocol, apply for ethical approval, conduct the research in collaboration with the MoH
	• Hospital CEO/Manager	• Provide leadership commitment (and later budget allocation on proof of concept)
	• AMS Committee/PTC	• Develop guidelines and standard operating procedures (SoPs) for formulary restriction
	• Head of Medical Microbiology	• Develop guidelines and SoPs for diagnostics from sample collection to reporting of results
	• Prescribers	• Comply with guidelines and SoPs
	• Patients	• Agree to diagnostic stewardship and AMS as part of clinical care
	• Medical insurers	• Agree to payment for diagnostic stewardship and AMS for patient management

	• Professional Organizations • Health Professional Regulatory Bodies • Ministry of Health	• Endorse and facilitate the implementation of AMS Programmes • Include AMR mitigation and AMS in the scopes of practice of healthcare workers • Endorse and facilitate the implementation of the project. Fund and facilitate scale-up upon proof of concept
1.2 Prospective audit and feedback + education and training	All of the above +: • University/Education & Training Unit	• Develop and deliver educational materials and conduct formative/ summative assessment thereof

References
[List the references in support of 2 and 3]

Appendix 1
National Action Plan on AMR