Antimicrobial Resistance: Rendering the Invisible, Visible in Neonatal Wards in Tanzania (ARRIVe Project)

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Project executive summary

This interdisciplinary project aims to tackle the pressing issue of neonatal infections in Tanzania, where antimicrobials are frequently used to combat high infant mortality rates. Our project proposes the co-development, implementation and evaluation of an AMR Information Toolkit across six wards in two hospitals in support of the national policy 'Tanzanian National Action Plan on Antimicrobial Resistance 2023-2028'.

Aims

By integrating social science, clinical and microbiological data, we aim to co-design effective strategies for reducing infection transmission and associated neonatal deaths in the two hospitals through making "invisible bugs" visible for specific responsive actions.

Research questions

1. How can microbiological data around the transmission of HAIs amongst neonates be ethically made visible to mothers to reduce disease transmission from mothers to neonates?
2. How can routine hospital AMR surveillance data around the transmission of HAIs amongst neonates be ethically made visible to healthcare providers to improve their IPC and AMS practices within and across hospital tiers?

3. How can ward-specific data be effectively communicated to hospital managers and policymakers to inform hospital and nationwide policy change

Methods

This quantitative and qualitative multiple cross-sectional analytical study will be conducted from February 2025 and July 2026 at Bugando Medical Centre (BMC) and Magu District Hospitals in Mwanza, Tanzania. It will deploy baseline assessment, AMR information Toolkit and strengthening of infection prevention and control (IPC) interventions' roll-out, and re-assessment post-interventions. The study will involve neonates in the neonatal wards and neonatal intensive care units (NICU) or high dependent units (HDU), mothers/care-takers and health care providers in the two hospitals. The Toolkit will include tailored educational materials, guidelines, decision support tools and editable templates; while the IPC will be focused on the systematic hand hygiene and environmental decontamination measures (monitoring quantitatively bacterial loads reduction using microbiological methods, and hand-UV light equipment). Through local WHONET AMR surveillance and IPC feedback data, we seek to foster positive behavior change among healthcare stakeholders and facilitate policy change across the healthcare system to combat antimicrobial resistance (AMR) effectively in Tanzania **Significance**

To support policy and practice change in Tanzania, we will contribute to the delivery of the NAP-AMR's six strategic objectives including: 'Obj2-Create awareness and understanding of AMR through effective information, education and communication'; 'Obj3- Strengthen the knowledge and evidence base through AMR surveillance and research'; and 'Obj4-Reduce the incidence of infection through effective sanitation, hygiene, infection prevention'. Achieving such objectives requires rendering moments of disease transmission and AMS conducted to mitigate against HAIs visible to various stakeholders and beneficiaries.

The flow diagram for the ARRIVe research project activities at glance