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GEAR UP

GENDER AND EQUITY IN ANTIMICROBIAL RESISTANCE: LANDSCAPE ANALYSIS OF UGANDA

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Executive summary

Antimicrobial resistance (AMR) poses a major and growing threat to public health in Uganda, with significant implications across human, animal, and environmental sectors. While Uganda made notable progress in aligning their AMR strategies with global frameworks such as the WHO Global Action Plan and Global Antimicrobial Resistance and Use Surveillance System (GLASS), the integration of gender and equity (G&E) considerations into AMR policy and surveillance remains limited until 2024, when GEAR up supported G&E mainstreaming through the NAP 2.0. This landscape analysis assesses the extent to which G&E dimensions are embedded in AMR frameworks, identifies systemic gaps, and outlines opportunities for more inclusive action.

The analysis draws on a structured review of 12 national AMR policy documents and technical surveillance tools from Uganda. A 12-domain G&E assessment framework, informed by global guidance, was applied to assess the integration of inclusive principles into AMR governance, surveillance, and implementation. Insights from multisectoral stakeholder roundtables, which focused on G&E integration in AMR strategies contributed to the findings.

Findings show that while Uganda has developed technically sound AMR surveillance systems and multi-sectoral governance structures, they have not systematically considered who is most affected by AMR or who participates in designing solutions. Health facilities collect AMR data through routine monitoring and reporting mechanisms - they capture antimicrobial use (AMU) and AMR patterns observed in patients, the type of infection, antimicrobial agents used, and microbiological test results (e.g., pathogen resistance profiles). The surveillance tools rarely capture disaggregated demographic data beyond age and sex, and equity-relevant variables such as occupation, disability status, or caregiving roles are largely absent. While the data is aggregated annually, the analysis often lacks detailed demographic disaggregation, limiting its ability to fully assess the G&E dimensions of AMR. National action plans refer to inclusion in general terms but do not operationalise equity principles in goals or resource allocation.

The November 2024 launch of Uganda's revised AMR National Action Plan was presented as a direct outcome of G&E engagement processes. Stakeholders noted that the updated NAP reflected a shift from a gender-blind to a more gender-sensitive document. However, the policy still requires further embedding of equity considerations into implementation, in relation to surveillance design, resourcing, and reporting. Women and caregivers, particularly in rural areas, often rely on informal sources for antimicrobials due to barriers such as cost and stigma. Despite this, they remain underrepresented in AMR governance and are rarely engaged in planning or monitoring efforts. Surveillance staff and technical working groups lack training and guidance on applying a gender or intersectional lens to data collection and programme design.

This report presents short, medium and long term recommendations to guide G&E integration in AMR surveillance, strategy and research in relation to One Health.

These include:

- Embed G&E targets and stakeholder roles across AMR policies and implementation pathways.
- Formalise representation of gender, community, and equity actors within national and subnational AMR coordination structures.
- Redesign surveillance tools to collect and analyse disaggregated data, enabling equity-focused monitoring and response.
- Train health and surveillance personnel in gender-sensitive practices and create mechanisms for community feedback.
- Address gendered trends in antimicrobial use and ensure surveillance captures social determinants influencing consumption.
- Expand analysis of gendered roles and access in animal health, particularly among women farmers and informal sector actors.
- Support research, implementation studies, and peer learning to sustain inclusive surveillance improvements.

The report concludes that embedding equity into AMR surveillance is essential for ensuring sustainable, inclusive, and effective responses. Uganda has the institutional platforms and political momentum to lead regionally in mainstreaming G&E in AMR governance. Achieving this requires deliberate partnership, institutional reforms, and a shift in how vulnerability and access are conceptualised within surveillance and stewardship frameworks

List of acronyms

AMC	Antimicrobial Consumption
AMR	Antimicrobial Resistance
AMS	Antimicrobial Stewardship
AMU	Antimicrobial Use
CG	Country Grantee
CHP	Community Health Promoter
G&E	Gender and Equity
GEAR up	Gender and Equity in Antimicrobial Resistance Project
GLASS	Global Antimicrobial Resistance and Use Surveillance System
HEPS	Coalition for Health Promotion and Social Development
IDI	Infectious Diseases Institute
IPC	Infection Prevention and Control
M&E	Monitoring and Evaluation
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MUSPH	Makerere University School of Public Health
MWE	Ministry of Water and Environment
NADDEC	National Animal Disease Diagnostics and Epidemiology Centre
NAP	National Action Plan
NDA	National Drug Authority
PWDs	People With Disabilities
TWG	Technical Working Group
TWC	Technical Working Committee
WHO	World Health Organisation
WHONET	Microbiology Laboratory Database Software
UNAMRSC	Uganda National Antimicrobial Resistance Sub-Committee, of MoH
UTI	Urinary Tract Infection

List of key terms

Antimicrobial Resistance	Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites develop resistance to antimicrobial medicines, which become ineffective towards specific infections as a result and result in increased risk of disease spread, severe illness, disability and death[1].
Antimicrobial Use	Antimicrobial Use (AMU) refers to the ways that people use antimicrobials in their daily lives, the lives of their children and their animals and the social, cultural and political context in which prescribing and use occurs[2].
Gender	The socially constructed roles, behaviours, activities, attributes and opportunities that any society assigns to men and women, boys and girls, transgender people and people with non-binary identities, and which shapes their relationships and interactions within hierarchies of power[3]. Gender varies from society to society and can change over time. Sex and gender are intertwined, with gender often being a socialised aspect of sex[4]. We recognise that gender is non-binary, but findings of studies included within this report may use binary language. Gender is a power relation shapes risk of disease, access and use of health services and disease experience[5]. Gender is just one axis of social advantage and disadvantage and intersects with other social and power structures to affect health[7].
Gender analysis	Frameworks for gender analysis in health vary, but broadly gender analysis seeks to identify how gender norms, beliefs, roles, time allocation, division of labour, access to resources, and rules and decision making constitute gender power relations that lead to different experiences within health systems and can be further retrenched or reversed by health systems and interventions[5,6].
Health inequities	The "unfair and avoidable or remediable systematic differences in health among population groups defined socially, economically, demographically or geographically"[7].
Intersectionality	An analytical lens to understand the ways in which different axes of power, inequity and marginalisation intersect and interact in dynamic ways to create unique and specific experiences and processes of marginalisation, including gender, race, ethnicity, age, disability, Indigeneity, refugee status and class. The concept of intersectionality emerged from black feminist theory and was coined by Kimberlé Crenshaw[8].
Sex	Biological aspects of bodies that categorise males, females and intersex people or those who have differences of sex development and may differ from a person's gender identity[5,6].
Social determinants of health	The conditions of daily life such as income, social protection, education, job security, working conditions, food (in)security, housing, the environment, early childhood development, social inclusion, discrimination, conflict and access to affordable health services, among other factors such as race, gender, ethnicity, age, sexuality, class and disability that lead to the unequal distribution of health-damaging or facilitating experiences, and thus health inequities and outcomes, within and across countries[7]. They are fundamentally a result of the "unequal distribution of power, income, goods, and services, globally and nationally" (the structural determinants of health), which "are responsible for a major part of health inequities between and within countries"[9].

1 WHO. Antimicrobial resistance. 2023 [cited 2025 Mar 19]. Antimicrobial resistance. Available from: who.int/news-room/fact-sheets/detail/antimicrobial-resistance

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1. Introduction

The global context of AMR and inequity

Antimicrobial resistance (AMR) occurs when bacteria, viruses, fungi and parasites evolve and are no longer susceptible to antimicrobials (World Health Organization 2024a; Larsson and Flach 2022). Although the evolution of resistant microbes is a natural process, particular patterns of antimicrobial prescription and use across One Health sectors can minimise the risk of resistance developing. However, people's ability to access required antimicrobials and to use them in recommended ways is heavily influenced by the social and structural determinants of health (the non-medical factors that shape health outcomes and drive health inequities among and between populations) (World Health Organization 2024b). These include the limited availability of quality essential antimicrobials, vaccines, and diagnostics (Cipriano et al. 2024). These in turn, are influenced by the broader geopolitics that drive global inequities in drug production and access and living and working conditions that lead to the spread of infectious disease in the first place.

Low- and Middle-Income Countries (LMICs) experience up to 90 percent of total global deaths from AMR, high rates of infectious diseases, challenges in access to healthcare and global inequities relating to antimicrobial access (Mendelson et al. 2016; 2024; Murray et al. 2022). Research estimates that 250,000 deaths were attributable to bacterial AMR in Africa in 2019 (Sartorius et al. 2024). South Asia, Latin America, and the Caribbean are forecasted to have the highest AMR mortality rate by 2050 (Naghavi et al. 2024). AMR burden is unequally distributed within countries (Batheja et al. 2025; Ljungqvist et al. 2025) but we do not have a detailed picture of this due to an absence of disaggregated AMR data (Blackmon et al. 2025, Okioma et al., 2025).

Inequities have a profound impact on health systems and disease burden (Global Health 50/50 2020; Hawkes et al. 2025). Without an intentional focus on disparities, AMR mitigation strategies risk overlooking the specific needs of marginalised populations and reinforcing existing health and social inequities. This also represents a missed opportunity to tailor AMR interventions to address the root causes of AMR spread and improve programmatic effectiveness, equity and sustainability (Westwood et al. 2024). Integrating G&E considerations into AMR policy and surveillance frameworks enables a more nuanced understanding of risk and access, supports inclusive governance, and improves the relevance and impact of national AMR responses.

Uganda's AMR Response

Uganda has witnessed rising rates of antibiotic resistance attributed to the overuse and misuse of antimicrobials in human medicine and veterinary practice, compounded by weak regulatory enforcement and low public awareness of AMR risks (Namubiru et al. 2024). In response, the government launched its first National Action Plan on AMR (NAP-AMR) for 2018-2023, adopting a One Health approach (Ministry of Health, Uganda., n.d.). This plan aimed to enhance surveillance, promote responsible antimicrobial use, and strengthen Infection Prevention and Control (IPC) measures across human, animal, and environmental health sectors. Despite these efforts, similar challenges to those observed in Kenya were reported – inadequate laboratory capacity, limited data sharing, and insufficient coordination among sectors hindered the full implementation of the plan.

Building on the lessons learned, Uganda developed its second NAP-AMR (2024/25-2028/29), emphasising a more integrated and equitable approach (Ministry of Health, Uganda., n.d.) The revised plan prioritises strengthening governance and coordination mechanisms, enhancing surveillance systems, promoting antimicrobial stewardship, data sharing, and enhancing research and innovation on AMR interventions. These priorities build on Uganda's earlier initiatives (2018-2023) and signal a commitment to a more comprehensive, people-centred approach for containing AMR.

In terms of surveillance, Uganda made significant strides in establishing a robust AMR monitoring system. The National AMR Surveillance Plan for Human Health (2019-2023) laid the groundwork for systematic data collection and analysis, focusing on priority pathogens and integrating data from sentinel sites across the country (Ministry of Health, Uganda., n.d.). The Central Public Health Laboratories play a pivotal role in coordinating surveillance activities, ensuring quality assurance, and facilitating data sharing among stakeholders. The revised NAP-AMR II aimed to build on these achievements by expanding surveillance to include antimicrobial consumption and use (AMU/AMC) data, enhancing laboratory capacity, and promoting the use of surveillance data to inform policy and clinical practice.

Without an intentional focus on disparities, AMR mitigation strategies risk overlooking the specific needs of marginalised populations and reinforcing existing health and social inequities. Integrating G&E considerations into AMR policy and surveillance frameworks enables a more nuanced understanding of risk and access, supports inclusive governance, and improves the relevance and impact of national AMR responses. This approach is not only a matter of fairness. It is also essential for delivering effective, sustainable, and context-sensitive public health outcomes in Uganda.

1. Aims and objectives

Aim: To identify key themes relating to gender, equity and AMR across One Health sectors in Uganda and to identify gaps and opportunities for more inclusive action in AMR programming and provide context-specific recommendations to mainstream G&E in the country.

The findings of this landscape analysis should inform future work and priority activities as part of the mainstreaming response.

Key questions guiding this landscape analysis:

a) How does antibiotic resistance differentially affect men, women, children and people of diverse sex in terms of diseases and treatments over the life course?
b) Do any social groups face greater/different risks to AMR exposure or more challenges in accessing and benefiting from the information, services and solutions to tackle AMR?
c) What are the gaps and opportunities for mainstreaming within country systems, policies and contexts and to support vulnerable groups identified above?

3. Methods

This review followed an iterative three-step process, including a scoping review of global and country-specific literature discussing equity dimensions of AMR and AMU, analysis of national AMR relevant policy documents, and a series of round table discussions with key national AMR stakeholders. The methods are presented in detail below.

Scoping review

This scoping review built on a larger, global systematic review of AMR and inequity carried out by the GEAR up consortium (Davis et al. 2025), with country-specific research identified from the final search results and supplemented with additional country-specific searches.

Policy document review

We used a structured framework to assess the extent to which existing national AMR policy documents mainstream equity and gender in AMR governance, surveillance, stakeholder engagement, and implementation. This specific approach was developed by GEAR up colleagues at LVCT Health, Kenya and is grounded in the WHO's guidance on addressing inequities in NAPs, which provides a foundational framework for integrating equity considerations across AMR-related policy and surveillance tools. The approach also draws on other global and regional guidance on G&E mainstreaming in health and health systems (see Annex 1). The framework is designed to:

1) Provide a systematic approach to reviewing AMR policies and tools through a G&E lens;
2) Identify areas of strength, partial integration, or absence of equity-responsive elements;
3) Support comparative analysis across documents, sectors, and countries; and
4) Inform practical recommendations for improving inclusivity in AMR governance and surveillance systems.

The framework comprises 12 core domains:

- Policy vision and principles – Whether G&E are explicitly articulated in the vision, mission, or core values of the policy.
- Alignment with legal and normative frameworks – Linkages to national constitutions, gender equality policies, human rights treaties, and ethical standards for inclusive AMR practice.
- G&E objectives – Inclusion of G&E specific goals, measurable targets, and indicators aligned to broader health equity priorities.
- Stakeholder inclusion – Participation of marginalised groups, women's organisations, and gender-focused institutions in policy formulation, implementation, and monitoring.
- Intersectionality – Recognition of intersecting vulnerabilities (e.g. gender, poverty, disability, rurality) and their implications for AMR risk and response.
- Implementation strategies – Existence of equity-responsive and gender-tailored interventions, including in stewardship, prevention, and access to quality antimicrobials.
- Surveillance and data practices – Degree of sex-disaggregated and equity-sensitive data collection in AMR/AMU surveillance systems.
- Monitoring and evaluation (M&E) – Integration of gender-sensitive indicators and mechanisms to track equity outcomes and guide adaptive programming.

- Research and innovation – Support for studies exploring gendered AMR dynamics or the needs of under-represented groups in research design.
- Capacity strengthening – Training initiatives for healthcare workers and implementers on G&E within AMR programming.
- Communication and advocacy – Inclusive messaging strategies that consider gender norms, cultural contexts, and accessibility across diverse groups.
- Financing and sustainability – Provisions for equity-focused budgeting and sustainable gender-responsive investments in AMR.

For each domain, the framework outlined specific indicators to assess both explicit and implicit integration of G&E principles. The full matrix is available in Annex 2.

Qualitative content analysis was systematically applied to determine the explicit and implicit integration of equity dimensions within policy documents. For example, explicit references included direct mentions of gender equality, vulnerable populations, or equity-related objectives; implicit references included mentions of community health promoters, informal caregivers, rural populations, or underserved regions. This comprehensive approach also allowed for comparative analysis between One Health sectors (human, animal, environmental health), with the aim of highlighting strengths, gaps, and actionable opportunities for mainstreaming and equity-oriented AMR programming. Where possible, facility-level surveillance data tools such as laboratory registers and data collection forms used at points of care were reviewed, guided by a distinct set of indicators drawn from literature and global guidance on the influence of equity factors on antimicrobial use and AMR exposure.

Roundtable discussions

Building on the results of the literature review and the policy document analysis, qualitative roundtable discussions were undertaken with key country-specific policy stakeholders to explore their perspectives on the gaps and opportunities to embed G&E into AMR-related policies and programmes.

The roundtables were designed as facilitated, multisectoral dialogues bringing together actors across the One Health spectrum – human, animal, and environmental health sectors. These engagements served to:

1) To validate the policy document review;
2) To explore implementation realities and constraints; and
3) To reflect on opportunities for strengthening G&E integration in AMR systems.

Facilitation was supported by summary briefs and excerpts from the document review matrix, which served as discussion starters. Participants were invited to share sector-specific experiences and identify areas where documents failed to capture lived implementation challenges.

Relevant key stakeholders were identified with the help of Baylor, the Fleming Fund CG. Stakeholders included representatives from national AMR technical working groups (TWGs), AMR Secretariat, national public health and veterinary laboratories, the Ministry of Health (MOH), the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), academia, civil society organisations, and development partners. The selection of roundtable participants was coordinated in collaboration with the national AMR Secretariat from the MOH.

Most participants were institutional stakeholders representing government ministries, laboratories, academia, and civil society organisations. While the roundtable discussions included a wide range of institutional stakeholders, the participation of Ugandan Fleming Fund CG was critical in providing insights into national AMR strategies and guiding the integration of G&E considerations at policy and implementation levels. Their contributions ensured alignment with national priorities and helped shape recommendations for more inclusive AMR programming.

4. Findings

Summary of literature

How do power dynamics and gendered vulnerabilities influence susceptibility and exposure to resistant infections?

Global level findings

Biological susceptibility to infection is increased by malnutrition, which disproportionately affects low-income groups, women and girls, due to a combination of poverty, inequitable food systems and gender norms (Arushothy et al. 2024; Cheng et al. 2021; Osabohien and Matthew 2024). Additionally, gender power relations that drive sexual violence and limit women's reproductive rights lead to (drug resistant) HIV among women (Girum et al. 2018).

Inequitable vaccine access leads to inequitable spread of resistant infections and demand for antibiotics (Shadrach et al. 2021; Kumar et al. 2024). Unequal exposures to resistant infection and antibiotics primarily occur through the conditions of living and livelihoods associated with poverty and marginalisation. These include overcrowding, lack of ventilation, limited access to clean water and quality sanitation (Allel et al. 2020; Booth and Wester 2022; Pearson and Chandler 2019; Santos et al. 2021; Peterson et al. 2019).

Livelihoods also produce inequitable exposures to resistant infections and to antibiotics and are heavily influenced by socioeconomic and gender inequities. For example, some are exposed to the antibiotics used in animals through their livelihoods in farming and food production (Brogdon et al. 2021). Specific roles in animal care are often gendered (Atterby et al. 2019; Subedi et al. 2023). Working in the sex industry also places people at high exposure to drug-resistant sexually transmitted infections such as gonorrhoea, syphilis and HIV (Coelho et al. 2021; Hanh et al. 2022; Lindman et al. 2020).

Global evidence shows that health expenditure associated with AMR can lead to catastrophic costs for those living in poverty or with low incomes (Medeiros et al. 2023; Pham et al. 2023). Some studies also find that disclosing diagnoses can lead to reduced social support, loss of relationships and even being expelled from home (Dowdy et al. 2020; Redwood et al. 2022) and this stigma can impact women more (George et al. 2022).

Uganda specific findings

Evidence from Uganda exploring the social aspects of AMR (n=11), though limited, does corroborate the above findings. For example, being of low socio-economic status is associated with an increased likelihood of having drug-resistant TB and HIV infections. Further, being of older age and having no education significantly increased the mortality risk from MDR-TB. (Kizito et al. 2021). The authors hypothesised that because old age is associated with decreased access to TB services, this could also be a factor in increased mortality rates (Kizito et al. 2021).

Biologically, women are at an increased risk of Urinary Tract Infections (UTIs). In a study investigating the joint contribution of behavioural, environmental, socioeconomic, and demographic factors associated with higher risk of multi-drug resistant urinary tract infections (MDR UTIs) in East Africa (Kenya, Tanzania and Uganda), researchers found that MDR UTI rates were higher among patients living in households that used manure for building, fertiliser, or fuel, that did not consume milk regularly, or were close to sites where rubbish was dumped (Keenan et al. 2024). The prevalence of MDR UTI was also higher in patients who used pit latrines, unprotected washing and drinking water, and did not always use soap for handwashing. Patients also had higher MDR UTI prevalence if they reported having HIV/AIDS or having a disability, highlighting important intersections (Keenan et al. 2024). Together, these findings indicate the need to explore intersectional socio-environmental disadvantage.

Evidence from an urban informal settlement, Namuwongo, Kampala, among daily wage labourers also demonstrated how this group are at particular risk of infectious disease due to flooding from chronic infrastructure challenges (Nabirye et al. 2023). This in turn increases antibiotic use in the settlement - where health workers readily prescribe metronidazole 'because the Nakivubo channel ends up in our houses'. Poor sanitation and environmental contamination increase disease burden and demand for antibiotics as a form of everyday management of illness, while also disseminating resistant bacteria. Further, the closure of public toilets at night causes residents to improvise with buckets and bags which are disposed of in trenches in the morning (Nabirye et al. 2023). These factors are not unique to Uganda and have also been seen in Kenya (Omulo et al. 2021). Fear of catching diseases from public latrines also put residents off using them (Nabirye et al. 2023) and another factor may be the high rates of Gender Based Violence (GBV) in informal settlements, which can put women off using these facilities (Winter et al. 2023).

How do power dynamics and gendered vulnerabilities influence antibiotic use?

Global level findings

Barriers to accessing health services are shaped by occupation, income, agency, gender and geography. Low-income communities face barriers to accessing formal health services and fluctuating ability to pay (Barasa and Virhia 2021; Afari-Asiedu et al. 2020; Shembo et al. 2022; Rajendran et al. 2022). In many locations, stock-outs may prevent access to recommended antibiotics (Emgård et al. 2022; Ramay et al. 2020). Gendered household dynamics can also act as barriers to health seeking for women and mothers (Barasa and Virhia 2021; Rousham et al. 2023). Furthermore, experiences of discrimination can act as barriers to seeking care (Barasa and Virhia 2021). These same factors can create barriers to continuation of drug treatment, particularly where treatment schedules are long (Rajendran et al. 2022; Taylor et al. 2022; Ye et al. 2021). There is less research on how inequities and socioeconomic factors influence AMR and AMU in animal populations, highlighting a significant research gap. Similar barriers to recommended use of antimicrobials are seen as in the human health domain (Caudell et al. 2020; Campbell et al. 2023; Al-Mustapha et al. 2020). Prescribers are also influenced by economic pressures and health system resourcing (Pearson and Chandler 2019; Caudell et al. 2020; Edessa et al. 2024).

People's access to information and education about AMR and antibiotic use is influenced by wider trends in access to formal education, occupational training and socioeconomic status (Sitotaw and Philipos 2023; Chanvatik et al. 2019). Those who can visit health facilities more tend to have more access to AMR information. Those who face barriers to accessing formal health services therefore also face barriers to accessing information on AMR. Poorly labelled medicines in parts of Africa and Asia also limit people's ability to make decisions about recommended antibiotic use (Do et al. 2021). Knowledge sharing is also highly gendered, with women often expected to be responsible for children's health, but less likely to access formal health services, beyond community health workers, than men in some contexts (Jones et al. 2022; Emgård et al. 2022).

Uganda specific findings

In Uganda, precarity in living situation informs antibiotic use. For example, in urban informal settlements as described above, everyday antibiotic use is entangled with precarious labour conditions, infrastructural deficiencies, and persistent illness and exposure to infection (Nabirye et al. 2023). Many cited using antibiotics for frequent diarrhoea and abdominal cramping, linked to broader structural neglect from poor WASH. Additionally, in a study of antibiotic use among forcibly displaced people in Uganda, researchers found that the 30-day prevalence of using at least one antimicrobial agent was 66.7% among study participants (Hesari et al. 2024).

This precarity was felt just as acutely in animal health sector. As one paper conducting ethnographic research in a peri-urban district, Wakiso argues, "to address antibiotic use as a driver of AMR is to address precarity as a driver of antibiotic use" (Kayendeke et al. 2023). The rise of quick farming as an entrepreneurial phenomenon in Uganda in response to rising demand for meat protein found that antibiotics were used in animals for immediate therapy, prevention of infections and to promote production and protection of livelihoods - serving as a buffer from volatile markets, diseases and unreliable climate. Prophylactic use of antimicrobials was also reported among 61.3% (125/204) of respondents in a cross-sectional study in Wakiso district (Musoke et al. 2023), despite most respondents (91%) stating that they commonly receive advice on the use of antimicrobials in animals from veterinary workers. This disconnect may be due to financial protection measures as Uganda's main economic activity is agriculture including animal husbandry particularly in rural areas (Musoke et al. 2023). Drug resistance therefore presents a risk to their livelihoods and financial security (Kayendeke et al. 2023).

Financial protection can also be a cause of improper use of antibiotics in human health, as Nabirye notes in urban informal settlements leftover medicines may be stored and taken, "for every new diarrhoea episode - usually a few days each week" (Nabirye et al. 2023). Leftover drug use was also reported in human and animal use by (Musoke et al. 2023) and among children by Nyeko et al. (2022) who found caregivers would use leftover drugs in the house or pick up drugs from their neighbours and friends to use in children before attending hospital. This was more likely in rural than urban settings. Reasons cited for this use were, "advice from a relative, having always used the drug for febrile illnesses, advice from a health worker, long-distance to a health facility, the drug being previously prescribed by a health worker, and long waiting time in hospitals" (Nyeko et al. 2022).

Lack of money, frequent stockouts, a lack of counselling from health workers, and a lack of clinic privacy were also cited as barriers to attending clinic appointments leading to poor adherence to treatment was found in a study of the discontinuation of TB treatment in Kampala (Kibirige et al. 2021). Cost as a barrier to TB treatment adherence was also cited by Kizito et al. (2021) and Makabayi-Mugabe et al. (2022) who found MDR TB patients prefer the cost-efficiency and convenience of home-based care, also noting that it offers privacy, safety, comfort, and an opportunity for health education on IPC within the family. This study also noted that the provision of a travel voucher shielded participants from catastrophic expenditure (Makabayi-Mugabe et al. 2022). Out-of-pocket expenditures was also noted by 52% of forcibly displaced respondents (Hesari et al. 2024), highlighting an important issue to both support correct use, and prevent vulnerable populations being pushed further into precarity.

Knowledge of antibiotic use is also an important factor shaping antimicrobial use. Keenan et al. found that MDR UTI rates are higher among those who did not know the term 'antibiotic' (Keenan et al. 2024). And in a study among children with pre-hospital exposures to antibiotics in Uganda, researchers found female caregivers of children with fever were significantly less likely to use antibiotics compared to their male counterparts, which the authors attributed to better health-seeking behaviour among women (Nyeko et al. 2022). Further, children who had cough and diarrhoea during their febrile illnesses were significantly more likely to be given antibiotics compared to those who did not have these symptoms, which the authors attributed to limited knowledge among the population regarding the therapeutic indications for antibiotics (Nyeko et al. 2022).

Conversely, in a study from Wakiso district, authors found participants had relatively good knowledge of AMR and how antimicrobials should be used in humans, with a few misconceptions. A link was found between proper antibiotic use and higher income status that the authors hypothesised could be due to high-income earners having attained a higher level of education, and health literacy. Noting that those with low income, "might not understandably prioritise purchasing full doses of medicine, despite understanding the importance of completing the treatment course" (Musoke et al. 2023).

Knowledge in the animal health sector was noted to be reliant on the advice of veterinary workers, therefore, AMS efforts should focus on supporting veterinary professionals to promote appropriate alternatives to using antimicrobials for veterinary prophylaxis and growth promotion (Musoke et al. 2023). In addition, positive reduction in using antimicrobials to fatten or increase the growth of their animals was noted as due to a change in knowledge and resulting behaviours when compared to a previous study (Mikecz et al. 2020).

G&E blind-spots in AMR policy and surveillance systems

The document review covered national AMR-related tools across Uganda (n=12). Table 1 summarises the extent to which each national AMR policy or strategy document integrates G&E considerations across the 12-domain framework. These documents shape high-level governance, planning, and coordination, and should ideally set the tone for inclusive implementation, as documents in Annex 1.

Table 2 summarises the extent to which national AMR surveillance and implementation tools Uganda incorporate G&E considerations in their design. These tools include laboratory registers, antibiotic use forms, and point prevalence data collection instruments, resources routinely used in clinical and surveillance settings. Unlike strategy documents, these instruments are not expected to articulate broad gender or equity principles but play a critical role in shaping how data is captured, who is visible in reporting, and how risks are monitored across population groups. The assessment focused on whether each tool collects disaggregated demographic data (such as sex, age, or occupation), reflects population vulnerabilities, and provides any embedded guidance for equity-sensitive data use.

The Draft National Action Plan (NAP) 2024-2029 and associated surveillance guidelines were technically detailed and well-aligned with GLASS priorities but lacked explicit G&E framing, ahead of revision by GEAR up team. Further, the M&E frameworks reviewed include no indicators to track whether AMR interventions are equitably distributed or whether surveillance data is used to identify disparities.

Marginalised groups, such as persons with disabilities (PWD), informal workers, rural populations, or refugee communities, are not considered in the surveillance design (which relies on formal health system engagement), nor are they represented in governance structures or stakeholder consultations – a critical missed opportunity. No guidance is provided on how to identify or prioritise underserved populations in surveillance coverage or reporting.

Surveillance tools (e.g. PPS, lab registers) are structured to collect clinical data but do not include demographic fields beyond age, and even that inconsistently. No tool captures occupation, setting, or socioeconomic status. The AMR Surveillance Plan does not mandate disaggregation (of sex and age – key variables that are collected) or equity monitoring.

In addition, equity-specific capacity building is absent in implementation guidance. Surveillance staff are not trained or guided on collecting data in a gender- or equity-sensitive manner

Table 1: Summary Matrix: Policy and Strategy Documents

Policy Document Title	*1. Vision & Principles*	*2. Legal Alignment*	*3. G&E Objectives*	*4. Stakeholder Inclusion*	*5. Intersectionality*	*6. Implementation*	*7. Surveillance & Data*	*8. M&E*	*9. Research*	*10. Capacity*	*11. Communication*	*12. Financing & Sustainability*
Draft Uganda Antimicrobial Resistance National Action Plan 2024-2029	✗	✗	✗	(✓)	✗	✗	(✓)	(✓)	(✓)	✗	✗	✗
Antimicrobial Resistance Surveillance Plan for Human Health 2019-2023	✗	✗	✗	✗	✗	✗	(✓)	(✓)	(✓)	✗	✗	✗
AMR Monitoring and Evaluation (M&E) Framework (Draft) 2024-2029	✗	✗	✗	✗	✗	✗	(✓)	(✓)	(✓)	(✓)	✗	✗
Uganda Site Manual for the Implementation of AMR Surveillance September 2019	✗	✗	✗	✗	✗	✗	(✓)	(✓)	(✓)	(✓)	✗	✗
National Guidelines on Antimicrobial Consumption and Use Surveillance in human health June 2020	✗	✗	✗	✗	✗	✗	(✓)	✗	✗	✗	✗	✗
A Pilot Study on the Burden of Antimicrobial Resistance in Uganda (BAMRU) Protocol: June 2025 to Feb 2026	(✓)	(✓)	(✓)	(✓)	(✓)	(✓)	(✓)	(✓)	✓	✓	✗	✗

Table 2: Summary Matrix: G&E Integration in AMR Surveillance and Implementation Tools

Tool Name: Laboratory Registers	*Sex*	*Age*	*Location (Urban/ Rural)*	*Occupation / Livelihood*	*Caregiving Role*	*Education Level*	*SES (e.g. housing, water, income)*	*Disability Status*	*Gender Identity*	*Refugee Status*	*Other Notes*
Health Management Information System (HMIS)	✓	✓	(✓)	✗	✗	✗	✗	✗	✗	✗	✗
Lab 007 Microbiology Lab Test Request Form	✓	✓	(✓)	✗	✗	✗	✗	✗	✗	✗	✗
HMIS Lab 2009 Microbiology Laboratory Register	✓	✓	(✓)	✗	✗	✗	✗	✗	✗	✗	✗
HMIS Lab 008 Microbiology Hospital Laboratory Register	✓	✓	(✓)	✗	✗	✗	✗	✗	✗	✗	✗
HMIS-105 Health Unit Outpatient Monthly Report.	✓	✓	(✓)	✗	✗	✗	✗	✗	✗	✗	✗
Point Prevalence Survey Tool	✓	✓	(✓)	✗	✗	✗	✗	✗	✗	✗	✗

Legend

✓: This indicates that the document provides clear and explicit coverage of the domain. The theme is directly named and described, and the document includes concrete elements such as defined objectives, dedicated sections, operational actions, indicators, guidance or implementation requirements that relate specifically to that domain. This symbol shows that the domain is intentionally integrated into the document's framing and is expected to shape planning, delivery and monitoring

✗: This indicates that the document does not explicitly reference the domain in question. It does not mean that the domain is absent in practice or that it could not be inferred; it simply means there is no direct statement, section or guidance addressing that theme.

(✓): This indicates that the document contains partial, implicit or indirect reference to the domain. This may include language that touches on the theme without naming it specifically, broad principles that relate to equity or capacity, or operational guidance that indirectly connects to the domain. This symbol should be interpreted cautiously because these references are interpretive rather than explicit.

N/A: This means the domain is not applicable to the document's purpose or scope. For example, some technical surveillance or laboratory guidelines are not expected to address G&E objectives, financing or communication strategies and therefore cannot be assessed meaningfully against these domains

AMR policies and surveillance frameworks demonstrate growing technical coherence and alignment with global initiatives such as GLASS and the One Health approach. However, G&E integration remains largely absent. This weakens the ability of both systems to identify and address the social determinants that shape antimicrobial use and resistance.

Surveillance blind spots: Surveillance systems in Uganda prioritise clinical and laboratory data but are not designed to support equity analysis. Surveillance tools remain focused on pathogens, antimicrobial susceptibility, and facility-level reporting, without capturing demographic or social variables. In Uganda, key surveillance instruments such as point prevalence survey tools and the AMR Surveillance Plan do not collect sex, occupation, location, disability status, or socioeconomic data. Age is inconsistently recorded and rarely used analytically. Without structured disaggregation, AMR data cannot reveal differential burdens among high-risk or underserved groups such as rural dwellers, frontline workers, informal caregivers, or displaced populations. This limits the potential of surveillance data to inform targeted interventions or track progress towards equity.

Policy language and implementation gaps: While policy documents occasionally reference inclusivity, they do not embed gender or equity considerations into their AMR goals, governance structures, or funding priorities. No policies outline clear strategies for reaching vulnerable populations or mitigating disparities in access to antimicrobials, diagnostics, or IPC measures. M&E frameworks do not include gender- or equity-sensitive indicators, making it difficult to track whether interventions are equitable or effective across population groups. Strategic objectives remain largely biomedical and gender-neutral, with no dedicated space for social determinants of AMR.

Governance and stakeholder participation gaps: Uganda has established multisectoral coordination structures for AMR governance, including TWGs and inter-agency platforms. However, these bodies do not include representation from gender ministries, social development departments, or civil society organisations working with vulnerable groups. The absence of G&E expertise within national and subnational AMR platforms, such as Uganda's technical surveillance committees, means that AMR strategies are not informed by lived experiences or the needs of underserved communities. There are no formal mechanisms to engage affected populations, nor are there participatory approaches embedded in policy development, surveillance tool design, or data use.

Equity gaps in training, communication, and capacity strengthening: Uganda has invested in AMR-related training, awareness-raising, and capacity-strengthening initiatives. However, these efforts do not integrate gender- or equity-sensitive approaches. Training materials for healthcare providers and surveillance staff do not address structural barriers such as stigma, caregiving responsibilities, or gendered health-seeking behaviours. Training materials for healthcare providers and surveillance staff do not address structural barriers such as stigma, caregiving responsibilities, or gendered health-seeking behaviours. The trainings mentioned in the NAPs primarily focus on the biological aspects of AMR and the technical content to be taught, such as antimicrobial stewardship and resistance patterns. However, there is little to no mention of how these trainings should address or incorporate G&E considerations. The training materials and frameworks are silent on the need to disaggregate data by gender or other equity indicators, which limits their ability to assess or respond to the different needs and barriers faced by diverse population groups, including women, youth, and marginalised communities. As a result, the broader social and structural barriers impacting AMR are not adequately addressed within the training framework. Additionally, the NAPs do not specifically address the equitable distribution of training and capacity building initiatives across regions and facility types. While data such as participant cadre and facility type are collected during training, there is no analysis conducted to assess whether training opportunities are equitably distributed across different regions, particularly in underserved or rural areas. This oversight prevents the identification of regional disparities and may result in unequal access to critical AMR knowledge and skills, thus limiting the overall impact and equity of AMR mitigation strategies.

Communication strategies are not adapted to reach women, youth, PWD, or people living in rural or informal settings. For example, Uganda's implementation guidance lacks any reference to equity considerations in public awareness or IPC campaigns.

Missed opportunities in surveillance and stewardship design: Uganda has developed technical guidelines for surveillance, antimicrobial consumption, prescribing practices, and IPC. However, these tools are not designed to reflect gendered or structural influences on AMR. Stewardship guidance and data tools do not consider the roles of caregivers or informal health providers, despite their critical role in household-level antimicrobial use. Indicators on affordability, appropriateness, or accessibility of antimicrobials across different population groups are not included.

Lack of intersectional data and indicator frameworks: Surveillance and monitoring frameworks do not enable analysis of how multiple factors, such as gender, age, socioeconomic status, and disability, interact to influence AMR risk. The few indicators that are included in monitoring frameworks focus on health system inputs and process measures, rather than outcomes or impacts across different social groups. Uganda has not developed tools to monitor whether AMR responses reduce inequities in exposure, diagnosis, or treatment.

Equity blind infrastructure and resource planning: Uganda lacks equity criteria in the planning and distribution of surveillance infrastructure and laboratory capacity. Surveillance sites are often concentrated in urban areas or better-resourced regions, leaving out rural, borderland, or humanitarian settings. Without explicit guidance or resource allocation frameworks that prioritise underserved areas, diagnostic and reporting coverage remains uneven, reinforcing geographic and social inequities in access to timely AMR detection and response.

Insights from Policy Stakeholder Engagement Round Tables

A series of stakeholder roundtables and workshops were convened to support the G&E assessment of AMR policies and frameworks. Participants included representatives from the AMR Secretariat, AMR Technical Working Groups, MOH (including the Infectious Diseases Institute, Pharmacy Division, National Health Laboratory and Diagnostic Services, Division of Health Information, IT and eHealth Centre, the National Drug Authority (NDA), the MAAIF, Ministry of Water and Environment (MWE), NADDEC, Makerere University, HEPS-Uganda, Baylor Uganda, and other implementing and academic partners. These sessions were designed to align institutional priorities and strengthen cross-sectoral capacity to apply a G&E lens in Uganda's AMR response.

Emerging priorities and observations: A central theme across the engagements was the importance of improving data availability and use. Participants identified that while surveillance datasets exist, including GLASS, WHONET, IPC reports, pharmacy and lab registers, and point prevalence surveys, most do not include demographic or equity-related variables. Stakeholders reviewed real data and noted the absence of fields for sex, disability, occupation, socioeconomic status, and geography. This omission limits the ability to identify inequities in AMR exposure, treatment access, and health outcomes.

A MOH data officer in Uganda noted during a March 2025 session that, "Even where sex and age are collected, they are not used analytically," resulting in systemic blind spots. This leads to missed opportunities to target or prioritise vulnerable groups. As roundtable participants in Uganda noted, "We are missing important information by treating all populations the same." For example, rural populations, PWD, refugees, and informal caregivers are not visible in national AMR reporting systems.

The roundtables also highlighted the need to build technical capacity in gender-responsive and intersectional data analysis and the need for budgets to support its institutionalisation. Hands-on sessions demonstrated how gender roles, caregiving responsibilities, or limited access to formal healthcare can shape antimicrobial use behaviours. Stakeholders acknowledged that disaggregating data is only meaningful if paired with analytical skills and a shared institutional commitment to use that data for decision-making.

Perceptions of barriers to equity-focused AMR policymaking: Participants noted that persistent misconceptions about gender terminology, particularly confusion between gender equity and gender identity politics, create institutional resistance. Some stakeholders associated gender integration with ideological agendas, which made it difficult to introduce gender analysis without triggering defensiveness. Others noted that the legal context, including restrictions on recognising non-binary identities, makes it challenging to discuss certain equity dimensions within AMR policy openly. In addition to cultural resistance, limited technical familiarity with gender frameworks was reported. Health professionals, surveillance leads, and data officers expressed a lack of exposure to tools that show how gender, age, occupation, disability, and socioeconomic status influence AMR outcomes. Social science expertise was often absent from AMR coordination spaces, and few mechanisms existed for cross-sectoral knowledge sharing.

Stakeholder reflections on collaboration and equity: Several participants reflected on the value of sustained intersectoral collaboration, particularly in co-designing tools and frameworks that are scientifically rigorous and socially inclusive. One stakeholder noted, "We are not used to looking at AMR data through a gender lens. This process has opened our eyes to how we may be missing important information by treating all populations the same." The workshops fostered a sense of shared accountability. Examples such as Baylor Uganda's proactive engagement in adapting recommendations from earlier assessments were highlighted as promising practice. This kind of institutional leadership was seen as critical to navigating hierarchical systems and embedding gender-responsive practices across implementation levels. While uptake of new indicators has been uneven, the sessions confirmed broad recognition of the need to expand surveillance frameworks to capture identity-linked variables beyond age and sex. Many agreed that institutionalising these changes requires both technical guidance, availability of budgets, and sustained political will, which were current barriers. Participants noted that since AMR is seen as a public health issue, there is limited attendance in TWGs from the environment teams, despite a multisectoral policy.

Reflections from Uganda's revision process: The November 2024 launch of Uganda's revised AMR National Action Plan was presented as a direct outcome of these engagement processes. Participants noted that the updated NAP reflected a shift from a gender-blind to a more gender-sensitive document. However, the policy's operationalisation still requires further embedding of equity considerations into surveillance design, resourcing, and reporting.

Key insights from stakeholder dialogue:

- Stakeholders view data disaggregation and equity indicators as essential to effective AMR planning, but current tools do not collect the necessary information.
- Cultural and legal environments limit the scope of gender discussions, especially around gender diversity.
- Capacity gaps in applying intersectional gender analysis persist among AMR technical staff.
- Shared learning between biomedical and social science actors was seen as a strength of the GEAR up engagement model.
- Institutional champions within implementing partners played a key role in moving recommendations into practice.

Summary of findings

Systemic gaps and opportunities for mainstreaming within country systems, policies and contexts to support vulnerable groups: This analysis reveals a persistent disconnect between the technical progress made in AMR surveillance systems and the limited institutional integration of G&E considerations in Uganda. While Uganda has made strides in aligning with global frameworks such as GLASS and the One Health approach, their AMR surveillance and policy ecosystems continue to operate within narrowly biomedical paradigms that insufficiently account for who is most affected, who is visible in the data, and who participates in shaping solutions.

Surveillance design is technically strong but socially blind: Surveillance instruments, including laboratory registers, point prevalence survey tools, and outpatient antibiotic forms, are not configured to capture disaggregated demographic data. Tools like the HMIS Lab 007 forms include sex and age, but do not capture caregiving roles, refugee status, education, or location, all critical equity markers identified in global guidance. This structural omission was raised repeatedly in roundtable sessions, where stakeholders reviewed live surveillance datasets. These gaps mean that national surveillance systems are unable to detect or explain differential exposure or treatment outcomes.

Gendered and structural drivers of AMR risk remain invisible in policy and surveillance logic: The policy review shows that across the 12 strategic documents analysed, none include operational mechanisms to identify or respond to the needs of marginalised populations. Uganda's revised NAP, supported by GEAR up engagement, shows more gender language, but interviews confirmed that implementation tools still lack the guidance or resourcing required to translate this into practice. The M&E frameworks reviewed in both countries are similarly limited, with no outcome-level indicators that track equity in antimicrobial access, diagnosis, or treatment.

The global and country specific literature shows that health-seeking behaviour and antimicrobial access are highly gendered. Women caregivers, particularly in rural and low-income households, report bypassing formal facilities due to cost, stigma, or logistical barriers. Instead, they rely on chemists or agrovets, often purchasing incomplete or inappropriate antibiotic regimens without prescriptions. Those living in urban informal settlements describe antibiotic use as a way to deal with everyday precarity and illness. These lived experiences illustrate how structural inequalities and gender norms shape patterns of antimicrobial use in ways not captured by surveillance tools or reflected in AMR policies.

Governance structures lack representation and accountability mechanisms for equity integration: Governance platforms such as Uganda's national surveillance committees are dominated by technical experts from clinical, pharmaceutical, and veterinary backgrounds. None include representatives from the Ministry of Gender, civil society organisations, or disability rights groups. This exclusion affects how surveillance tools are designed, how data is interpreted, and whose needs are prioritised. In Uganda, the roundtables created space for academic and civil society partners, such as HEPS-Uganda and Baylor Uganda, to shape the revision of the NAP and identify population gaps in the AMR surveillance system. These forums facilitated technical dialogue around gendered AMR risks, intersectionality, and inclusive indicators. Yet this approach remains the exception.

Data is not being used to target or monitor equity outcomes: Existing data systems are not configured to support the analysis or use of disaggregated data. In Uganda, the AMR Surveillance Plan and related tools such as the HMIS Lab Registers include basic age and sex fields but do not collect or use intersectional indicators, despite their availability in parallel health information systems leading to missed opportunities. As such, AMR responses risk reinforcing health disparities by failing to recognise differentiated risk profiles or design interventions with marginalised communities in mind.

Opportunities exist to institutionalise G&E in surveillance, but they require a mandate, resources, and partnership: Despite these challenges, the data sources surfaced several promising pathways. Roundtable feedback from Uganda shows that hands-on training and collaborative review of real datasets helped surveillance actors see gaps in their tools and reflect on missed equity dimensions. Key informants in both countries expressed interest in partnering with country gender departments, youth organisations, or school health units to expand surveillance outreach. Still, they emphasised the lack of formal policy mandates, technical guidance, or budgetary support to do so.

Baylor Uganda's leadership in integrating gender-responsive recommendations into the revised AMR NAP illustrates the potential of institutional champions. This aligns with WHO's 2020 equity guidance on AMR surveillance and Fleming Fund programme priorities for inclusive, people-centred data systems.

Missed integration opportunities highlight structural barriers in programming: Implementation of NAPs remain narrowly focused on biomedical coordination platforms. This persists despite Fleming Fund's guidance promoting cross-sectoral engagement, including with gender, social development, and community-based partners. Without focused attention to G&E during the NAP 2.0 revision supported by GEAR up, the process risked missing important insights into how different groups experience AMR and access services. This meant opportunities to address differing vulnerabilities, barriers and capacities across the population would have been overlooked. This mirrors a broader pattern seen across AMR programme cycles, where engagement with G&E stakeholders tends to occur too late, too narrowly, or outside core governance structures. Without institutional mechanisms that protect space for inclusive actors from the outset, through co-design mandates, dedicated TWGs, or joint planning timelines, G&E risks becoming a peripheral consideration rather than a foundational principle. Moreover, without protected budgets or formal policy levers to support their role, even willing partners are left without the influence needed to shape surveillance or stewardship systems in practice.

These missed integration opportunities have long-term implications. They not only limit the effectiveness of AMR responses but also reduce their alignment with broader health equity and universal health coverage goals. Embedding G&E in surveillance is not simply a matter of adding disaggregation to tools. It requires deliberate, structured collaboration with those who understand the lived realities of exclusion and can translate them into actionable program design.

Strengths and limitations

Our approach has strengths, in that we adopted a multi-method approach, triangulating our landscape analysis across a literature and document review together with roundtable discussions. These complementary data sources enabled triangulation across formal policy intent, operational practice, and stakeholder perspectives, with particular attention to surveillance.

Additionally, we devised a structured process to review all national documents based on gender mainstreaming guidance and global standards (see Annex 2). This tool and approach were validated across the other GEAR up settings. The complementary data sources mentioned above enabled triangulation across formal policy intent, operational practice, and stakeholder perspectives.

While this landscape analysis was designed to provide a comprehensive, multi-method assessment of G&E integration in AMR policy and surveillance systems, several limitations should be acknowledged to contextualise the scope and interpretation of findings:

- While some multisectoral insights were reflected through the inclusion of a small number of cross-sectoral documents, we primarily reviewed human health AMR policies, surveillance systems, and implementation tools. As such, the findings are not intended to represent a full One Health analysis.
- The analysis did not include an in-depth analysis of AMR or AMU/C datasets to triangulate findings with surveillance tool design and implementation. While initial attempts were made to consult data from selected sources, such as poultry-related AMU/C data in Uganda's animal health sector, these remained exploratory. The study did not assess how routinely sex-disaggregated or equity-sensitive data are captured, analysed, or used in decision-making across surveillance systems.
- While the review included surveillance-related instruments such as laboratory registers and reporting templates, these were reviewed as standalone tools rather than observed in use. The analysis, therefore, could not fully assess how G&E variables are captured in practice or whether sex-disaggregated or equity-relevant variables are routinely used to guide surveillance reporting or response, which would be a helpful next step.
- The findings and recommendations of this analysis are shaped by the distinct policy, institutional, and implementation context of Uganda. While the overall methodology is adaptable to other settings, the level of engagement, data availability, and responsiveness to G&E integration varies across contexts.
- The roundtables did not specifically include grassroots organisations or community-based representatives. This may have limited the depth of perspectives on community-level and implementation / practice-level barriers to AMR equity and surveillance.
- A significant limitation of this analysis was the inability to conduct KIIs in Uganda due to funding constraints. Without these qualitative perspectives, the analysis of Uganda's AMR programming lacked a comprehensive understanding of the social dynamics, community-specific factors, and the surveillance system's role in addressing G&E, narrowing the scope for fully inclusive recommendations.

5. Key recommendations to mainstream G&E in AMR

The following recommendations are grounded in the findings from the document review, stakeholder roundtables, and key informant interviews, and respond directly to the practical gaps identified. They are intended to inform revisions of national action plans, (establishing the institutional and policy foundations necessary for embedding equity into national AMR agendas and governance structures); surveillance tools (enabling the routine collection, disaggregation, and use of equity-sensitive data and addressing the structural limitations preventing AMR systems from detecting disparities in antimicrobial access, resistance patterns, and health outcomes); operational guidance (including training, partnerships and use of new evidence and establishing feedback loops); and research generation.

They build on the WHO's 'Addressing gender inequalities in national action plans on antimicrobial resistance', and are structured in the same way, by short- medium- and long-term actions to support integration of G&E considerations across policy, surveillance, governance, and implementation systems:

- Short-term – recommendations that are relatively feasible and can be implemented in the next one to two years;
- Medium-term – recommendations that require longer timeframes to be implemented such as in the next three to four years due to, for example, capacity constraints or scale of change;
- Long-term – recommendations that are more aspirational and may require five or more years to achieve.

Short-term recommendations

Foundational actions to correct gaps and enable implementation

1. Ministry of Health (MoH), through the Uganda National AMR Sub Committee (UNAMRSC) and the One Health Coordination Office lead revision of the NAP background, principles, vision and goals to explicitly reflect gender, equity and intersectionality in AMR burden, access and outcomes, building on the plan's stated commitment to gender equity as a guiding principle and its acknowledgement of differential AMR impacts across populations
2. UNAMRSC, under the National One Health Platform, strengthen governance and coordination for G&E integration by formally expanding its membership to include the Ministry of Gender Labour and Social Development, Ministry of Education and Sports, G&E experts, civil society organisations and representatives of marginalised and lived experience communities, as already envisaged under the inclusivity and representation provisions in the governance framework
3. One Health Coordination Office ensure Technical Working Committees (TWCs) across public awareness, IPC, stewardship, surveillance and research are gender-balanced and include equity expertise, with clear updated Terms of Reference that clearly assign responsibility for gender mainstreaming, in line with the NAP requirement for inclusive and representative TWCs described under governance and coordination sections
4. MoH, working with the AMR Surveillance TWCs and the Monitoring Evaluation and Learning function revise the M&E framework to embed G&E into Monitoring & Evaluation and across all strategic objectives.
5. MoH, MAAIF, MWE, and Uganda Wildlife Authority (UWA), through their designated AMR focal points, mandate routine collection, analysis, and reporting of sex-, age-, and equity-disaggregated AMR data as a minimum standard.
6. MoH and Ministry of Education and Sports, through the Public Awareness Training and Education TWC ensure all IEC and behaviour change communication materials, public awareness campaigns, and school-based interventions are culturally appropriate, gender-sensitive, inclusive, and accessible to marginalised groups.
7. MoH, working with media councils and professional associations lead training of media practitioners and communication actors on gender-responsive AMR to enable accurate reporting on AMR impacts across diverse population groups
8. Ministry of Gender, Labour and Social Development support anchoring AMR programming within existing national G&E policies by providing technical guidance to UNAMRSC and line ministries

Mid-term recommendations

System-level strengthening and operationalisation

1. Ministry of Finance Planning and Economic Development, working with the MOH and the UNAMRSC, operationalise gender responsive and equity-informed planning and budgeting for AMR activities across sectors, ensuring AMR financing frameworks explicitly address gender, geographic and socioeconomic disparities in prevention, diagnosis and treatment, consistent with the NAP commitment to mainstreaming equity within national planning and financing cycles.
2. UNAMRSC, through the One Health Coordination Office, guide alignment of AMR resource allocation to priority underserved regions and populations, using evidence from surveillance and MEL systems to address inequities in access to diagnostics, treatment and prevention as outlined in the implementation and MEL framework section
3. MoH, MAAIF and MWE, working through the AMR surveillance structures including NADDEC for the animal sector, should ensure surveillance platforms capture data from underserved and hard-to-reach populations and that analysed results are systematically fed back to subnational district and community levels to support decentralised decision-making and early response

4. MoH, working with the National Drug Authority and stewardship and IPC structures, institutionalises gender-responsive IPC and antimicrobial stewardship by embedding equity considerations into IPC guidelines, antimicrobial stewardship (AMS) protocols and facility-level committees
5. MoH promotes safe and gender-sensitive working environments in health facilities by integrating equity considerations into IPC and antimicrobial stewardship supervision, mentorship and performance monitoring systems.
6. The Ministry of Education and Sports, working with MoH, MAAIF and MWE, integrate G&E content into pre-service and in-service training curricula for health, veterinary, agricultural, environmental and laboratory professionals, in line with the AMR NAP education and training objectives.
7. National regulatory bodies, including the National Drug Authority and professional councils, should strengthen the capacity of regulators, pharmacists and providers to identify and address gender-related barriers to antimicrobial access and use, aligned with antimicrobial stewardship and quality assurance functions.
8. MoH, through the One Health Coordination Office, should improve data use and feedback loops by operationalising national AMR data platforms that allow policymakers, implementers and communities to access and use AMR data disaggregated by G&E variables, supporting evidence-informed and inclusive AMR action.
9. UNAMRSC working with MoH, MAAIF and MWE, institutionalises routine G&E performance reviews within AMR governance and Technical Working Committees to assess implementation progress, identify gaps and agree corrective actions through One Health coordination mechanisms.
10. MoH, MAAIF and MWE, with support from the One Health Coordination Office, strengthen subnational and district-level capacity to implement gender-responsive AMR surveillance, IPC and antimicrobial stewardship through targeted mentorship, resourcing and integration into district planning and coordination processes.
11. MoH and MAAIF, working with national research institutions and AMR research structures, ensure that operational research, evaluations and learning agendas explicitly examine G&E dimensions of AMR interventions and that findings are systematically fed back into policy, planning and programme refinement.

Long-term recommendations

1. UNAMRSC, working through the One Health Coordination Office and line ministries, advances gender-transformative AMR programming by moving beyond gender sensitivity towards approaches that actively challenge harmful social norms, redistribute decision-making power and address structural drivers of inequity shaping antimicrobial access, use and outcomes across sectors.
2. UNAMRSC and line ministries ensure sustained and meaningful participation of women, marginalised groups and communities with lived experience of AMR in national and subnational AMR decision-making, governance and accountability processes, embedding participation as a standard feature of One Health coordination rather than a project-based activity.
3. MOH and MAAIF, working with national research institutions and innovation partners, institutionalise equity-driven AMR research and innovation mechanisms that prioritise vulnerable populations, intersectional analysis and context-specific solutions within national research agendas and funding streams.
4. MOH, MAAIF and national research and regulatory institutions support the development, testing and scaling up of diagnostics, vaccines and alternatives to antimicrobials that are accessible, affordable and appropriate for underserved populations, ensuring that innovation pathways explicitly address equity and access barriers.
5. Ministry of Finance Planning and Economic Development, working with MoH, MAAIF and MWE, strengthens sustainable financing and domestic ownership by mobilising long-term domestic and external resources for equitable AMR prevention, surveillance, stewardship and research, progressively reducing reliance on short-term project financing.
6. UNAMRSC embed G&E accountability mechanisms within national AMR governance structures, including routine reporting, performance assessment and public accountability on equity commitments across One Health sectors.
7. Ministry of Education and Sports, working with MoH, MAAIF and MWE, institutionalise AMR education within formal school curricula and professional training institutions to sustain behavioural change, equity awareness and responsible antimicrobial use across generations.
8. UNAMRSC, through the One Health Platform, strengthen long-term One Health collaboration that consistently integrates G&E considerations across human, animal, environmental and food systems, ensuring that equity remains a core organising principle of Uganda's AMR response rather than an add on.
9. MoH, MAAIF and MWE, working with justice and parliamentary processes, could progressively review and reform laws, regulations and enforcement frameworks related to antimicrobials, food systems, environmental protection and labour to ensure they address structural G&E barriers and protect vulnerable populations from AMR-related risks.
10. MOH and MAAIF could position Uganda as a regional leader in gender-responsive AMR by contributing equity-focused evidence, policy models and innovations to regional and global AMR platforms, strengthening South-to-South learning and influencing norms beyond national borders.

11. Conclusion

Addressing AMR requires attention to vulnerable groups most at risk as resistance spreads. This landscape analysis, informed by literature, policy review, stakeholder roundtables has highlighted systemic gaps while surfacing practical, context-specific pathways for embedding equity across governance, surveillance design, and implementation. Addressing systemic gaps requires more than technical reform. It demands investment in research, institutional commitment, political will, and cross-sector collaboration to ensure that AMR responses are inclusive, equitable, and responsive to diverse needs. The momentum and tools generated through the GEAR up initiative provide a strong foundation for continued progress (see gearupaction.org).

Multi-stakeholder engagement has demonstrated that gender-responsive AMR systems are both achievable and necessary for impactful surveillance and stewardship, while recognising the limitations of these efforts in reaching vulnerable communities. The integration of G&E considerations into the recent NAP for AMR in Uganda marks a critical shift towards people-centred approaches that reflect the lived realities of those most affected by antimicrobial resistance. Effort now needs to be put into ensure these considerations are implemented, budgeted and monitored so that Uganda can become a world leader in equitable AMR policy and surveillance structures to expand reach, and improve health outcomes across populations. The recommendations in this report serve as a roadmap for national actors, and a contribution to the global evidence base on inclusive AMR governance.

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Annexes

Annex 1: Key Reference Documents Used to Inform the G&E Assessment Framework

1. Addressing gender inequalities in national action plans on antimicrobial resistance: guidance to complement the people-centred approach. Geneva: World Health Organisation; 2024. Licence: CC BY-NC-SA 3.0 IGO. https://iris.who.int/bitstream/handle/10665/378639/9789240097278-eng.pdf?sequence=1
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Annex 2: G&E Assessment Framework for AMR National Action Plans, Strategic Plans, and Policies in AMR Programming

This annex presents the full G&E Assessment Framework that was applied during the landscape analysis to assess how well national AMR policy documents and surveillance strategies integrate G&E considerations. The framework is grounded in global standards, including the WHO's Addressing Inequalities in National Action Plans on Antimicrobial Resistance guidance, and was adapted for relevance to the AMR context in Kenya

Indicator	Guiding Question
Policy Context and Framework:	Inclusion of G&E in Vision and Mission: · Does the national action plan/strategic plan/policy explicitly state G&E as part of its vision and mission? · Are G&E considered as overarching principles guiding the plan?
	Alignment with National and International Gender Policies: · Is the NAP anchored in existing national and international legal frameworks and covenants, such as the constitution, National G&E policies, human rights policies and country specific G&E ratified treaties? · Is there mention of adherence to any gender or equity-specific legal frameworks? · Are there ethical guidelines to ensure that AMR interventions are fair, just, and inclusive?
Objectives and Goals:	G&E -Specific Objectives: · Are there specific objectives aimed at addressing gender disparities in AMR? · Are there goals related to improving equity in access to AMR-related healthcare services and interventions?
	Measurable Targets and Indicators: · Does the document include measurable targets and indicators that focus on G&E outcomes? · Are these targets aligned with broader health and gender equity goals?
Stakeholder Involvement and Participation:	Inclusive Stakeholder Engagement: · Were diverse stakeholders, including women, marginalized communities, and gender experts, involved in the development of the plan or policy? · Does the document outline mechanisms for continued stakeholder involvement in implementation and monitoring?
	Consultation Process: · Were G&E considerations explicitly included in the consultation process? · Is there evidence of meaningful participation from vulnerable groups?
Implementation Strategies:	Gender-Responsive Interventions: · Does the plan include strategies tailored to address gender-specific challenges in AMR? · Are interventions designed to reduce barriers faced by women, men, and marginalised groups? · Were G&E considerations included in the prevention and control interventions? · Are there interventions targeting men, women and other marginalised groups in the infection prevention and control mechanisms? · Are gender gaps and inequalities in the risk of exposure to AMR among healthcare workers and communities identified? · Have gender inequalities in access to quality-assured medicines, including antimicrobials, focusing on specific groups of women or men and marginalised populations who might be at a higher risk of purchasing substandard or falsified antimicrobials, been identified and addressed?
Surveillance, Data Collection:	Gender-Disaggregated Data Collection · Are there provisions for collecting and analysing AMR data disaggregated by gender, age, socioeconomic status, etc.? · Does the document mandate the inclusion of equity dimensions in AMR surveillance systems?
Monitoring and Evaluation (M&E):	Integration of G&E Indicators in M&E: · Does the M&E framework include specific indicators to track progress on G&E ? · Are these G&E indicators linked to the broader health outcomes of AMR programming?
	Reporting and Feedback Mechanisms: · Is there a mechanism for regular reporting on G&E outcomes? · Does the plan ensure that findings from G&E analysis are used to inform policy adjustments and interventions?
Research	Inclusionoulnerable Populations in Research: · Are research activities designed to include vulnerable populations to understand how AMR impacts different groups? · Does the plan advocate for research that explores gender-specific and equity-related factors in AMR?
Capacity strengthening and Training:	Gender-Sensitive Capacity strengthening: · Does the plan include training for health workers and stakeholders on G&E in AMR? · Are there efforts to build capacity within marginalized communities to engage with AMR initiatives?
	Continual Professional Development: · Are there provisions for ongoing training and development in gender-responsive AMR strategies?

Indicator	Guiding Question
Communication and Advocacy	Inclusive Communication Strategies: · Does the document outline strategies for inclusive communication that consider different genders, literacy levels, and cultural contexts? · Are advocacy efforts designed to raise awareness about the importance of G&E in AMR programming?
	Use of Media and Outreach: · Are there specific outreach strategies targeting different demographic groups to ensure broad awareness and engagement? · Are health communication strategies in the action plan gender-sensitive and accessible to diverse audiences? · How are gender norms and cultural practices that may affect AMR-related behaviours addressed in the communication strategies?
Legal and Ethical Considerations	Adherence to G&E Legal Frameworks: · Does the plan ensure compliance with national and international legal frameworks on gender equality and non-discrimination? · Are there ethical guidelines to ensure that AMR interventions are fair, just, and inclusive?
	Protection of Vulnerable Populations: · Does the document include measures to protect the rights and well-being of vulnerable groups in AMR interventions?
Sustainability and Impact:	Long-Term G&E Impact: · Does the plan consider the long-term impact of AMR interventions on gender equity and vulnerable populations? · Are there strategies to ensure the sustainability of G&E integration beyond the initial implementation phase?
	Resource Mobilisation for G&E Initiatives · Are there provisions for securing funding and resources to support gender-responsive and equity-focused initiatives within AMR programming?
Equity-Focused Resource Allocation:	· Is there an equitable distribution of resources, ensuring that marginalised groups have access to AMR prevention and control measures? · Does the plan ensure that resources are allocated to areas with the greatest need, particularly those impacting vulnerable populations?

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