

# Knowledge, Attitudes and Practices on AMR among small scale broiler farmers in Copperbelt Province, Zambia

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## Abstract

Zambia has experienced an increase in broiler production in recent years. This, coupled with poor management practices could lead to an increase in the disease burden which has been associated with an increase in the use of antimicrobials. Consequently, increasing AMR in bacterial pathogens.

The CAAZAP (Combating Antimicrobial Resistance and Antimicrobial Use in Zambian Poultry) project, funded by ICARS, is an intervention and implementation research study in the broiler farming sector. It aims to reduce antimicrobial use and meat residues by at least 30% in broilers through optimisation of antimicrobial prescribing and use among the veterinarians, veterinary para-professionals (VPPs) and farmers in select districts in Lusaka and Copperbelt provinces.

Baseline data was collected on the knowledge, attitudes and practices (KAP) of broiler farmers from Kitwe and Ndola districts of Zambia using a semi-structured questionnaire. Following the baseline study, the planned intervention, which is introduction of Farmer Field Schools (FFS) will be conducted. Preliminary results are presented.

## Materials and Methods

A KAP survey was conducted involving small scale broiler farmers, before the planned intervention. The farmers were enrolled from those that would be participating in FFS.

Data collection was done using programmed semi-structured questionnaires in Kobo Toolbox. VPPs based in the study districts were trained on the use of the tool. The questionnaire was pretested on farmers in a non-study district, finalised and scored before being administered by the VPPs in Kitwe and Ndola. Ethical approval was obtained from ERES Converge (Approval No. 2023-Jun-020). Quantitative data was analysed using Stata/R.

## Results

The KAP was conducted on 114 small scale farmers based in the Copperbelt province, of which 46% were from Kitwe and 54% from Ndola district. The ages ranged from 25 to 74 years old and 70% were female. The majority (69%) had other source of income and 80% were informally employed. Forty-six percent of farmers had attained secondary level of education.

Broiler flock sizes ranged from 70 to 1200 birds. Years of production ranged from 1 to 24 years and most farmers (97%) used commercial feed.

Of the farmers interviewed, 75% knew what an antibiotic was but only 38% had heard of AMR. In relation to disposal of expired or unused antibiotics, 26% indicated that the appropriate method was by burning. Most of the farmers (70%) obtained antibiotics from agro-veterinary shops, 92% did not normally use prescriptions and 28% based their treatment on previous experience. It is worth noting that 80% indicated that agrovet shops did not ask for prescription.

In relation to practices, 23% of the farmers had foot baths at their broiler houses and 36% had poultry house-specific clothing.

**Table 1. Select KAP questions and responses from broiler farmers**

Section Questions	Yes % (x/n)	No % (x/n)	Don't know % (x/n)
<b>Knowledge Questions</b>			
What an antibiotic is	75% (86/114)	25% (28/114)	
What a Withdrawal Period is	55% (63/114)	45% (51/114)	
What antibiotic residues are	11% (11/114)	89% (103/114)	
What Antimicrobial Resistance is	38% (43/114)	62% (71/114)	
<b>Attitude Questions</b>			
AMR is a big problem	91% (39/43)	2% (1/43)	7% (3/43)
AMR can cross from animals to humans	70% (30/43)	7% (3/43)	23% (10/43)
<b>Practice Questions</b>			
Observation of Withdrawal Period	83% (52/63)	14% (9/63)	3% (2/63)
Calling the Vet when birds were last sick	35% (37/106)	65% (69/106)	
Use of antibiotics in birds that are not sick	27% (23/86)	56% (48/86)	17% (15/86)
Vaccination of birds	77% (88/114)	11% (13/114)	11% (13/114)
Use of alternative treatments	80% (91/114)	20% (23/114)	

## Discussion

Overall, this study found a low awareness (38%) of AMR which is slightly higher than what Chilawa *et al.* found (29,9%) [1] in Kitwe. This low awareness level is consistent with studies in other low-income countries like Tanzania and Kenya [2]. The low knowledge scores in the current study show that despite awareness being part of the five objectives of the National Action Plan there is a knowledge gap among the majority of poultry farmers. Unfortunately, this may result in the irrational use of antimicrobials because poultry farmers do not know the consequences that these drugs may produce when used inappropriately.

According to this current study, most of the participants that had an idea of AMR were evidently aware of its effects and possible transmission to humans.

Notably, the farmers seldom called the vet when their birds were sick (35%) and consequently rarely obtained prescriptions. This culture promotes the inappropriate use of antibiotics as farmers will also miss out on vital information that could be provided by the veterinarian. These results are different from a study done on layer farmers in the Copperbelt province where the farmers regularly consulted with the veterinarian (66%) [3]. This could be because layer farmers usually have more organized systems.

Interestingly, the farmers had good farming practices as they observed withdrawal periods and followed various vaccination schedules provided by their different chick suppliers. Furthermore, it was noted that most farmers did not use antibiotics when their birds were not ill.

## Conclusions

- Although most of the farmers were knowledgeable about antibiotics most of them did not understand what antimicrobial resistance was nor did they fully comprehend the consequences of their practices on the spread of AMR.
- Most farmers had good management practices and positive attitudes towards consultation of veterinary personnel.
- There is need for deliberate engagement of farmers to ensure their practices regarding use of antibiotics is overseen by veterinary personnel.
- Agro-veterinary shops sell antibiotics without prescription which is against regulations.

## Public Health Implications

- These results indicate that there is need to engage farmers more on biosecurity and on the issues surrounding AMR and its implications for human health to ensure food safety.



**Figure 1. Backyard broiler houses of small scale farmers**

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