Quantification of antibiotic consumption in semi-intensive broiler farms in Kenya

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Background

- Rising demand for poultry meat expected to take half of the global meat market by 2031.
- Poultry meat consumption in Kenya projected to rise by 289% by 2050
- Increase in intensive poultry production
- Increased antimicrobial use (AMU) to
  - Maintain health and productivity
  - Compensate for poor animal husbandry and biosecurity measures
- Quantitative data on farm-level AMU are unavailable



Objectives

- Quantify farm-level antibiotic use/consumption (AMU/C) in semi-intensive broiler farms in Kenya
- Assess antimicrobial usage patterns

Materials & methods

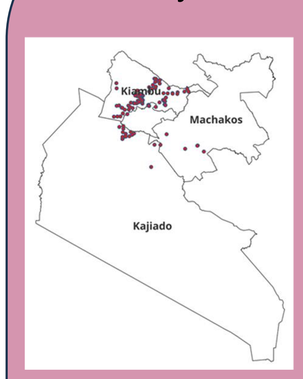
- AMU/C measured prospectively in one production cycle
- Incl. 129 semi-intensive (200 -2000 birds) broiler farms in three Kenyan counties.
- Data collected using medicine waste bins and structured questionnaire.
- AMU/C calculation metrics: mg per Population Correction Unit (mg/PCU) and Used Daily Dose (UDD)

Medicine waste bin in one of the study farms

Extracting data from the antibiotic packagings

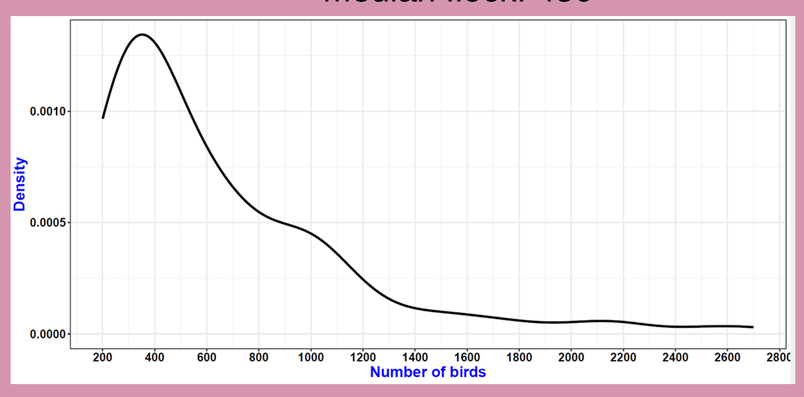
Results

Study farms' location



Distribution of flock sizes in the study farms

Median flock: 450



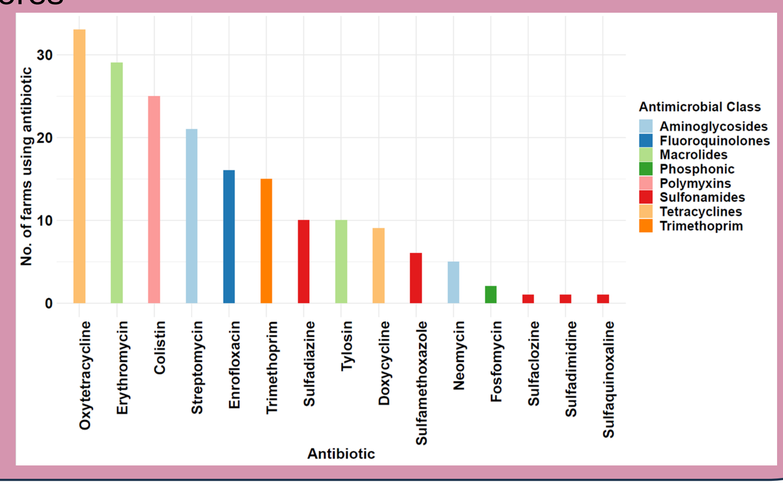
Summary and quantities of antibiotics used in study flocks

1. Over half of farms used oxytetracycline;
2. Total of 87,054g of antibiotics used in all study farms;
3. 15 antibiotics across 8 antibiotic classes used.

Antibiotic name	Mass (mg/PCU)	UDD (mg/kg)	Total antibiotics used (g)	No. farms using antibiotics N=65, n (%)
Streptomycin	166	79	64	21 (32)
Neomycin	46	20	15	5 (8)
Enrofloxacin	308	129	170	16 (25)
Erythromycin	35206	8963	21664	29 (45)
Tylosin	588	190	315	10 (15)
Fosfomycin	1151	392	520	2 (3)
Colistin	170	59	123	25 (38)
Sulfadiazine	45327	23023	24500	10 (15)
Sulfadimidine	49020	85549	20000	1 (2)
Sulfamethoxazole	23138	12125	8300	6 (9)
Sulfaclozine	769	359	600	1 (2)
Sulfaquinoxaline	113	17	45	1 (2)
Oxytetracycline	8351	3093	4489	33 (51)
Doxycycline	318	100	190	9 (14)
Trimethoprim	12468	4273	6060	15 (23)

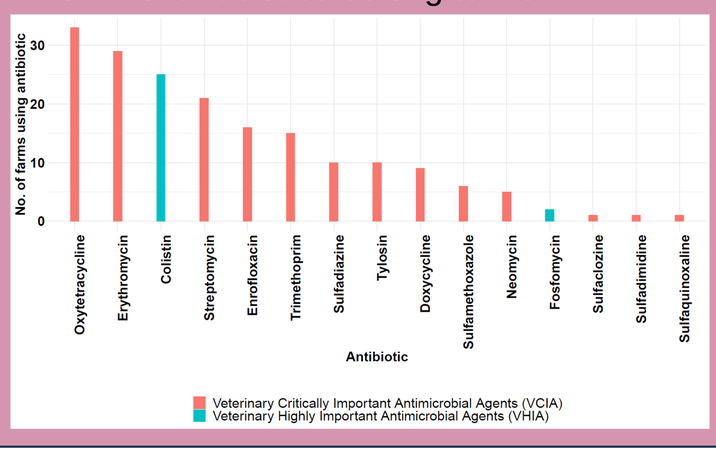
Antibiotics commonly used by the broiler farmers

- 50% of the farms used antibiotics for prophylaxis (53%) or therapy (42%)
- 100% of farms purchased antibiotics from veterinary drug stores



Antimicrobial group of commonly used antibiotics

- 87% of antibiotics belong to VCIA



Conclusion

- On farm antimicrobial use primarily for prophylaxis & therapeutic.
- Accessibility of antibiotics is widespread mainly sourced form veterinary drug stores
- Over 80% of the antibiotics belong to VCIA highlighting potential risk for AMR emergence.
- Targeted interventions to improve antimicrobial stewardship in Kenyan poultry farms are recommended.

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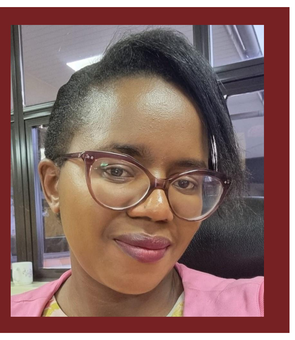

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