PRACTICE ABSTRACT, Nov. 2022

Lock-ins and drivers for a prudent use of antibiotics in the Mozambican poultry sector

Background

Presence of bacteria resistant to antibiotics (AB) in poultry meat is a growing concern for the Mozambican researchers on AMR (Faife et al. 2020, Matsimbe et al. 2021) and national authorities (República de Moçambique et al. 2019). As antibiotic resistance is known to be fuelled by the misuses of AB in farming (Ducrot C et al. 2021), it is important to understand the drivers of this use.

Authors and institutes

M Figuié and G. Jaime (Cirad); C. Cuinhane and R. Capurchande (Faculty of Social Sciences); C.Macuamule (Faculty of Veterinary Sciences), University E. Mondlane.

Keywords

Antibiotics (AB), Antimicrobial resistance (AMR), Farming Mozambique, Poultry

Objectives

Most studies on the drivers of on-farm AB uses focus on farmers as autonomous decision-makers and neglect the role of other stakeholders (such as drug market chain stakeholders) and the complex structure of the decision-making process. To overcome these limits, the **ROADMAP** project in Mozambique assessed the **socio-technical lock-ins for a more prudent use** of AB in commercial and semi commercial poultry farms in Maputo and the province of Maputo, on the basis of in-depth interviews with farmers (80), stakeholders in the veterinary drug sector (26), technicians and extension workers (15) and other key informants (8 members of the Ministry of Agriculture and Rural Development, international organizations, representants of veterinary and farmer associations).

Results

Research has highlighted various **lock-ins,** internal and external to farms, **for a more prudent use**, such as (figure 1):

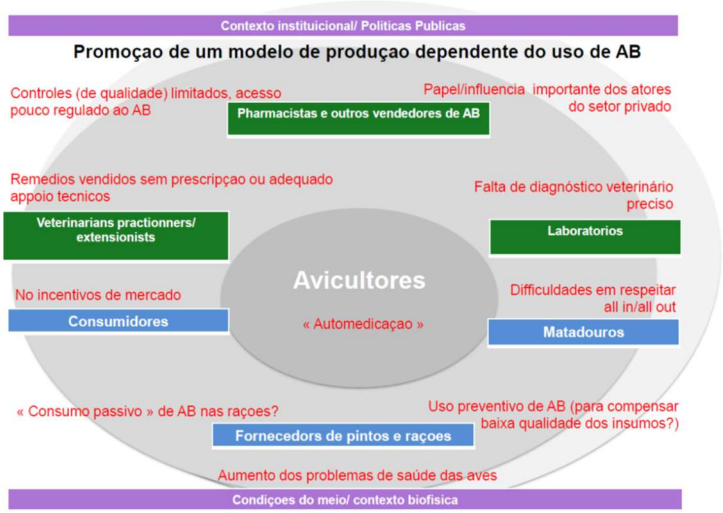
- The limited number of veterinarians and technicians, and the major role of drug sellers (often unskilled) in advising poultry farmers;
- Farmers' and technicians' lack of knowledge, and the use of AB as a "magic bullet" for any health problem and to compensate for the lack of biosecurity;
- The perceived poor quality of chicks and marketed feed, favoring preventive use of AB by farmers;
- The high vulnerability of the dominant model of commercial poultry farming to local conditions (access to clean water, urban planning, climate change, infrastructure, etc.);
- Lack of access to antibiograms and laboratory facilities to support veterinary diagnosis;
- Weak regulation of veterinary drug markets and informal trade of inappropriate and critical AB;
- The potential "passive consumption" of AB through the use of growth promoters by feed manufacturers.

Nevertheless, there are also favorable factors **for a more prudent use of AB** such as:

- Farmers willingness to reduce their production costs, including for veterinary drugs;
- Consumer concerns for drugs residues in meat;
- Political will to implement the National Plan on AMR, and the support from international organizations.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817626

Fig. 1 Major locks in for a more prudent use of antibiotics in the Mozambican poultry sector



Practical recommendations

These results show that tackling the issue of resistance to AB requires mobilizing many stakeholders in addition to farmers and their associations, and many actions can be implemented, in addition to training and awareness:

- M**ore resilient farming systems** (e.g. free ranging, genetics adapted to climate change, alternative medicines…) need to be developed to deal with the many constraints in the implementation of biosecurity measures.
- **The coordination of all stakeholders** of the poultry sector (e.g. chicks and feed producers), veterinary medicines sector (from importers to drugs sellers), representatives of the veterinary profession (OVM, AVETMO), researchers, policy makers and regulators (MADER) is needed to improve the use of AB and promote more resilient farming systems.
- **Quality controls (medicines, chicks, feed), laboratory facilities, qualified technicians, effective and updated regulations** must be promoted, to support the increase in poultry production.
- **Exchanges with farmers** skilled in a prudent use of AB and in resilient farming systems should be encouraged (picture 1).

***Picture 1**. Members of a Mozambican delegation visiting a farm in organic production in La Reunion*

References

Ducrot C, Hobeika A, Lienhardt C, Wieland B, Dehays C, Delabouglise A, Bordier M, Goutard F, Patel E, Figuié M, Peyre M, Moodley A, and Roger F. 2021 Antimicrobial resistance in Africa—how to relieve the burden on family farmers. *Emerg Infect Dis*. **27**.

Faife, S. L., T. Zimba, J. O. Sekyere, U. Govinden, H. Y. Chenia, G. S. Simonsen, A. Sundsfjord, and S. Y. Essack. 2020. Beta-lactam and fluoroquinolone resistance in Enterobacteriaceae from imported and locally-produced chicken in Mozambique. *Journal of Infection in Developing Countries* **14**:471-+.

Matsimbe, J. J., A. J. Manhiça, and C. J. Macuamule. 2021. Antimicrobial Resistance of Campylobacter spp. Isolates from Broiler Chicken Meat Supply Chain in Maputo, Mozambique. *Foodborne Pathogens and Disease* **18**:683-685.

República de Moçambique, Ministério da Saúde, and Ministério da Agricultura e Segurança Alimentar. 2019. Plano Nacional de Acção Contra a Resistência Antimicrobiana 2019 - 2023 (Antimicrobial Resistance National Action Plan) Mozambique.

https://www.roadmap-h2020.eu/mocambique.html

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817626