

# EXPERIENCE ON ANTIMICROBIAL USE AND RESISTANCE IN KENYA

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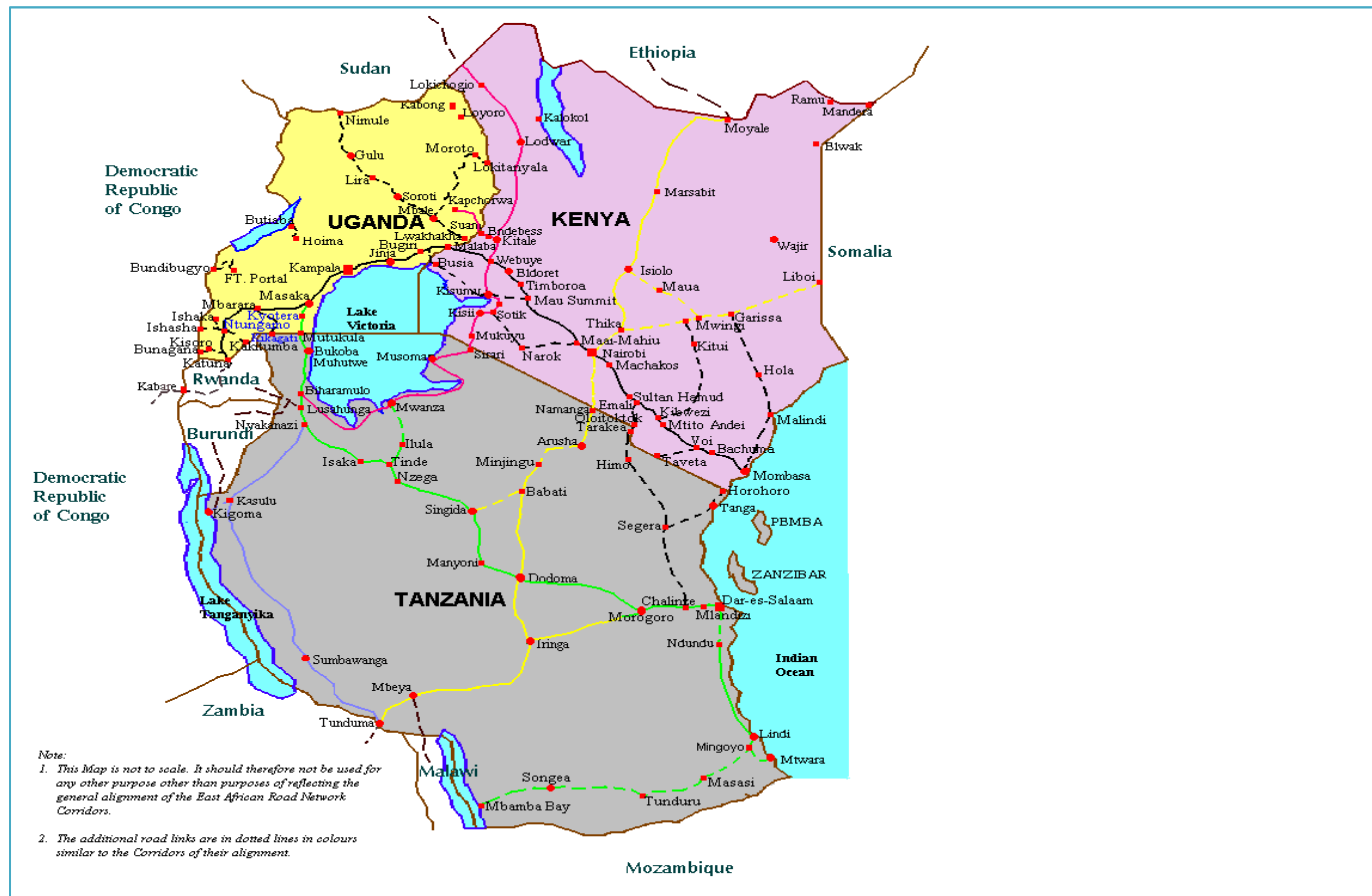
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# PRESENTATION OUTLINE

- BACKGROUND INFORMATION
- ANTIMICROBIAL GOVERNANCE AND USE
- ANTIMICROBIAL RESISTANCE SITUATION
- CURRENT INITIATIVES
- CONCLUSION AND WAY FORWARD
- REFERENCES



ON

# ANIMAL PRODUCTION

- ✓ is a major economic and social activity for all communities in Kenya.
- ✓ There are about 100 million livestock
  - i.e. Cattle (18m), sheep (17), Goats (28m); camels (3), donkeys (2), pigs (0.3m) and poultry (32m).
- ✓ Livestock accounts for nearly 90% of the employment opportunities and about 95% of family incomes.
- ✓ The sub-sector contributes about 12% of the Gross Domestic Product (GDP).

# VETERINARY DOMAIN

- Means all the activities that are directly or indirectly related to *animals*, their products and by-products, which help to protect, maintain and improve the health and welfare of humans, including by means of the protection of animal health and welfare, and food safety.
- For veterinarians, antimicrobial treatment decisions are an essential and integral part of practice

# Commercial production systems

- Intensive Poultry and simple zero grazing unit



# Companion animals



# Main uses of antimicrobials

## Basic facts:

- ✓ Human and animals share the same bacteria and 60% of dangerous human pathogens are of animal origin
- ✓ Many of the same antimicrobials are used to control bacterial infections in both human and animals
- ✓ It is crucial to preserve antimicrobial efficacy to ensure that animal production keeps pace with growing global demand for quality protein
- ✓ Animal health > 20% of animal production losses are caused by diseases globally
- ✓ Food security > 70% additional animal proteins are needed to feed the world by 2050



# Main uses of antimicrobials cont..

- Therapeutic- treatment of animals with bacterial/ fungal/ protozoan infections
- Prophylactic- disease prevention of infection in herds or flocks
- Metaphylactic - therapeutic and prophylactic
- growth promotion -accelerate growth of animals
- The usage of antimicrobials in food animals in Kenya (Mitema et al 2001) is 75% large animals, 20% poultry and 5% (Large animals+ poultry)

# Governance of Veterinary Antimicrobials

- In Kenya the evaluation and registration of veterinary and human drugs is done by the Pharmacy and Poisons Board under CAP 244 of the Laws of Kenya.
- However, the ministry responsible for livestock has relentlessly pursued improved veterinary drugs governance through the review of policy and legislation.
- The most critical issues being the inclusion in the relevant legislation those elements considered necessary for ensuring good governance of the entire veterinary domain :

# Governance...con't

- Drug residues entering the food chain
- Establishment of the withdrawal periods and maximum residue limits for veterinary medicines and biologicals, as appropriate?
- Caution on medicated livestock feeds
- These elements have a bearing on food safety and development of AMR .Veterinary legislation should address each of them.

# Governance...con't

- Enactment of the **Veterinary Surgeons and Veterinary Para-Professional Act (VSVP), 2011** ;
- ✓ to make provision for the training, registration and licensing of veterinary surgeons and veterinary paraprofessionals;
- ✓ to provide for matters relating to animal health services and welfare, and for connected purposes.
- ✓ Section 39 states: the Cabinet Secretary shall establish a **Veterinary Medicines Directorate (VMD) and regulations** to regulate the manufacture, importation, exportation, registration, distribution, prescription and dispensing of veterinary medicines and poisons.
- ✓ expected to address deficiencies in the enforcement and administration of the Pharmacy and Poisons Act.

# Supply of antimicrobials and scope of authorization

- The DVS allows importation of registered VMPs on the basis of having been registered for use in Kenya and also being in the OIE list of antimicrobial agents of veterinary importance.
- Antimicrobial manufactured locally must be registered before market authorization.
- Porous borders are gateway of antimicrobials
- Veterinary officers based at the Kenyan ports of entry carry out inspection of consignments of antimicrobial . This includes verification of import and export documents.

# Eligible users of antimicrobials

- Veterinary surgeons: clinics, farms.
- Vet paraprofessionals ( Under the responsibility or direction of a veterinary surgeon, allowed to carry out administration of antimicrobials)
- Livestock owner- own animals

# Antimicrobial Resistance Situation

- Definition: the ability of bacteria to **survive exposure** to one or more antimicrobials to which they would normally be susceptible.
- Antimicrobial resistance is a rising concern in both human and animal health because it seriously limits the usefulness of antimicrobials-the consequences being severe disease situation, escalating costs of treatment and more time spent on attending to particular case.

# Antimicrobial Resistance cont'

- Studies carried out by researchers at the Global Antibiotic Research Partnership-Kenya (GARP-K) have shown high levels of antibiotic-resistant bacteria in all types of animal products. The patterns of resistance were consistent with patterns of use by farmers. **The highest resistance levels were recorded for the most frequently used antibiotics: tetracyclines, sulphonamides, penicillins and streptomycins.**



- Also according to studies by Kariuki et al FPT 2013 (5)(1) “Improving food safety in meat value chains in Kenya”;
- ✓ antimicrobials are regularly used on farms with **oxytetracyclines** most commonly used among small scale poultry farmers and others include **fluoroquinolones, erythromycin, sulphonamides and cotrimoxazole**
- ✓ antimicrobials are purchased over the counter or from the animal health assistant
- ✓ few farmers understood the public health risks of antimicrobial resistance associated with inappropriate antimicrobials use.
- ✓ poor appreciation of preventive animal health and farm hygiene practices as safer and more economical alternatives

- ✓ only 2/3 of the farmers understood the importance of complying with pre-slaughter withdrawal periods of antibiotics
- ✓ overall antimicrobials resistance among the pathogens and indicators tested was highest in poultry isolates, followed by those from pigs and cattle reflecting the more intensive poultry farming and higher levels of antimicrobial usage observed.
- ✓ the animal and meat isolates were commonly resistant to ampicillin, tetracycline, cotrimoxazole and streptomycin
- ✓ multi-resistance to up to six antimicrobials was detected.

# Challenges

- Legislation in place for governance of antimicrobials
- food safety concerns and disruption of family livelihoods
- Prevention of transmission of antimicrobial resistant microbes
- Non-prudent use of antimicrobials
- Use of antimicrobials in animal production for non therapeutic purpose
- Insufficient data on antimicrobial use in human and veterinary medicine

# Current Initiatives

## **1. Advocate for Judicious Use of Antimicrobials**

Meaning: using the antimicrobials after first determining if there may be other avenues to follow on the management and prevention side and then using the appropriate class of antibiotics, dose and duration wherever possible supported by diagnostics.

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## **Judicious Use of Antimicrobials**

- after thorough consideration of alternatives, including the use of antimicrobial belonging to classes not used in human medicine
- Consider quality and safety to guarantee safe food for humans
- Treating animals with care to ensure animal health and welfare. Disease prevention strategies, such as good husbandry and hygiene, routine health monitoring, immunization, and other preventative options should be emphasized before the use of antimicrobial.
- Veterinary oversight through advisory services is core

# Judicious Use of Antimicrobials ...

- Antimicrobial use should be confined to appropriate clinical indications. Exposure to antimicrobial drugs for disease treatment or prevention should be minimized by limiting treatment to sick animals or animals at risk of a specific disease
- Record keeping: Accurate records of treatment and outcome should be used to evaluate antimicrobial regimens. Identify, track and maintain medication and treatment records for all treated animals

## **2.Prohibition for use..**

- Prohibiting use of certain antibiotics e.g. Chloramphenicol and nitrofurans in food producing animals (Legal Notice No; 25 of 2010).

## **3.Improve diagnostics**

- Rehabilitating and equipping a laboratory to detect levels of veterinary drug residues in animal products.
- Developing drug residue monitoring plans for honey, milk and meat.
- Improving lab capacity to improve on diagnostics- training and equipment



## **4. Strengthen Co-operation and Collaboration**

- ✓ Collaborating with other agencies in addressing the quack menace.
- ✓ Rolling out together with other players good hygienic practices in milk and meat industries.
- ✓ Actively cooperating with County Governments and other stakeholders in assuring vaccination of food producing animals against diseases of public health, animal health and trade importance.

# **Strengthen Co-operation and Collaboration.....**

- Together with other stakeholders continuous education and awareness creation of veterinary professionals and other stakeholders on antimicrobial use and resistance (continuous professional development).

# 5. Strengthen regulation

- Improve the practice and trade of veterinary medicine
- Implementation of VSVP act 2011.

## 6. Active participation in antimicrobial stewardship programmes

- As a member of National Antimicrobial Stewardship Advisory Committee
- ✓ Actively participate in the development of National Action Plan on AMR based on the Global Action Plan. This is in response to the 83<sup>rd</sup> General Session of the World Organisation for Animal Health (OIE) adopted resolution to combat AMR and promote the prudent use of antimicrobials in animals.
- ✓ The AMR National Action Plan (AMR-NAP) has already identified various actions and the key activities within the five strategic objectives.

# Conclusion and Way Forward

- Disease prevention by vaccination and hygienic practices should be implemented in livestock production management systems
- Enhance national surveillance and reporting systems for addressing antimicrobial resistance (AMR) in the human and animal health sectors
- Actively participate in antimicrobial use and resistance stewardship programmes.
- Prudent use of antimicrobials is paramount and this goes hand in hand with laboratory confirmatory diagnosis and culturing

# Conclusion and Way Forward...

- There is need for Pharmacovigilance and Post-Market Surveillance to facilitate early detection to prevent deleterious/ unfavourable/ unintended reactions that occur after use of antimicrobials.
- Continuous sensitization of all stakeholders on antimicrobial use and resistance

# REFERENCES

- Center for Disease Dynamics, Economics & Policy, 2015 -State of the World's Antibiotics, 2015. CDDEP: Washington, D.C.
- Mitema, E. S. Kikuvi, G. M., Wegener, H.C. and Stohr K. (2001). An assessment of antimicrobial consumption in food producing animals in Kenya.
- Kariuki et al FPT 2013 (5)(1) Improving food safety in meat value chains in Kenya.
- Kenya society of protection and care of animals (KSPCA)

- THANK YOU FOR LISTENING

- Q& A AND COMMENTS