

OVERVIEW OF ANTIMICROBIAL RESISTANCE AND ANTIMICROBIAL USE IN GHANA

▪ PRESENTED BY :

DR. BASHIRU BOI KIKIMOTO

DVM. PhD – VETERINARY PUBLIC HEALTH

HEAD - PUBLIC HEALTH UNIT & FOOD SAFETY UNIT

VENUE: SWATZILAND

DATE: 6-8TH DECEMBER, 2017



Food and Agriculture
Organization of the
United Nations



Outline

- Introduction to AMR and AMU
- The National Context in Ghana on Antimicrobial Resistance
- What has happened so far in Ghana
- Stakeholder engagements
- OIE data management
- Summary of activities so far



Food and Agriculture
Organization of the
United Nations



INTRODUCTION

- Bacterial infection constitute an important cause of sicknesses and deaths among humans and animals all over the world.
- Antimicrobial drugs at beginning have proven useful for treatment of these bacterial infections
- These bacteria have been engaged in evolutionary battle with humans and animals that they infect since dawn of time
- However, some quickly developed resistance to antimicrobial drugs in pathogenic bacteria
- When Alexander Fleming accepted his Noble Price for discovery of Penicillin in 1945,



Food and Agriculture
Organization of the
United Nations



WHAT DID HE SAY?

- ▶ *“ I will like to sound note of warning, It is not difficult to make microbes resistant to penicillin in the laboratory by exposing them to concentrations not sufficient to kill them and the same thing has occasionally happened in the body. The time may come when penicillin may be bought by anyone in the shops. Then there is the danger that the ignorant man may easily under dose himself and by exposing his microbes to non-lethal quantities of the drug make them resistant”.*

By 1950, 60% of bacterium staphylococcus aureus were already resistant to penicillin, similar patterns developed as new drugs were introduced, but many new drugs were available , however, only four classes of antibiotics were developed since the past 50yrs.

Antimicrobial resistance has been accelerated due to the abuse and over use of antibiotics in humans and animals leading to selective pressure (past 67yrs)

CONTN

- Now observing prolonged hospitalization , increased mortality and leads to over all increase in medical expenses
- WHO recent report of 10 million deaths by 2050 including 4 million from Africa if drastic measures are not adopted
- Human and economic costs of antimicrobial resistance are compelling
- **Antimicrobial resistance is the ability of microorganisms such as bacteria, viruses, fungi and some parasites to survive lethal effects of antimicrobials, rendering treatment of diseases in humans and animals ineffective- A global public health threat**



Food and Agriculture
Organization of the
United Nations



CONTN

- June 2015 FAO adopted a resolution to promote and strengthen the development of National Action Plan to combat AMR through “One Health” approach
- 21st Sept 2016 71st UN Session Resolution A/RES/71/3 –IACG paragraph 15 of Political declaration of UNGA-to provide technical guidance to the Tripartite on GAP
- GAP has strategic objectives with flexibility to member states
- All member states were to develop their National Action Plan by May 2017



Food and Agriculture
Organization of the
United Nations



What has happened so far in Ghana

- National Action Plan of Ghana
- Ghana initiated these steps with the use of existing data to advocate for government-led action
- This the government created a multi-stakeholder platform led by the Ministry of Health, with active roles by the Ministries of Food and Agriculture, Fisheries and Aquaculture Development, Environment, Science, Technology and Innovation as well as other affected ministries departments and agencies.
 - The platform shared information and created the needed awareness about AMR
- A technical team was tasked to conduct an in-depth situational analysis to inform the next steps



Food and Agriculture
Organization of the
United Nations



What has happened so far in Ghana

- The gaps identified in the situational analysis formed the basis for the drafting of the AMR policy
- The draft AMR policy was subjected to several multi-stakeholder consultative processes and has undergone several reviews and modifications to arrive at a policy that is evidence based as well as represents the key aspirations of all actors in the AMR policy space
- The multi-stakeholder platform and consultative processes have been expanded recently to further entrench the principles of the 'one-health' in all AMR actions in Ghana
- The AMR policy document was validated on the 27th of October, 2016 whilst the National Action Plan was finalised on the 28th Of October,2016 , but validated 29th August, 2017 but yet to launched by the four (4) sector ministers.
- The final AMR policy is to be submitted for cabinet approval



Food and Agriculture
Organization of the
United Nations



COMPONENTS OF AMR NATIONAL ACTION PLAN

- 1. Improve awareness and Understanding of Antimicrobial Resistance- (Communication, education and training)
- 2. Strengthen knowledge and evidence base through surveillance and research
- 4. Reduce incidence of infection through IPC
- 5. Optimize use of antimicrobials as well as develop economic case for sustainable investments in Antimicrobials.




Food and Agriculture
Organization of the
United Nations



The National Context in Ghana on Antimicrobial Resistance and Antimicrobial use–situational report

- Antimicrobial resistance (AMR) has been detected in Ghana through the works of Newman et al 2011 and Opintan et al 2015.
 - Other works include Resistance to Antimicrobial drugs in Ghana by Prof. Newman
 - Prevalence of Antimicrobial Resistant pathogens from blood cultures in tertiary hospitals by Dr. Opintan

 - This phenomenon has been shown to affect antimicrobials used in human health, veterinary, aquaculture, apiculture as well as in other sectors.
 - A situational analysis done in Ghana revealed the gaps across sectors and thus validated the need for a comprehensive policy for containing the AMR phenomenon.

 - This has led to specific country level actions involving relevant actors in the 'one health' approach
- 

The National Context in Ghana on Antimicrobial Resistance (veterinary perspective)

- Antimicrobial Resistance and Use in livestock and poultry has been noted since most farmers use them for treatment and prevention.

In four ways

1. Antimicrobial use
2. Antimicrobial Resistance
3. Antimicrobial Residues
4. Washout period



Food and Agriculture
Organization of the
United Nations



OIE template for the collection of data on antimicrobial agents used in animals

Reporting option 1 - Overall amount sold for/used in animals by antimicrobial class; with the possibility to separate by type of use

	Overall Amount: Growth Promotion + Therapeutic Use	Amount: Therapeutic Use (including prevention of clinical signs)	Amount Growth Prom
Antimicrobial Class	All animal species (kg)	All animal species (kg)	All animal sp (kg)
Aminoglycosides	#VALUE!	1, 209. 6	
Amphenicols	180	180	
Arsenicals	0		
Cephalosporins (all generations)	0	1, 209	
1-2 gen. cephalosporins	0		
3-4 gen cephalosporins	0		
Fluoroquinolones		231	
Glycopeptides	0		
Glycophospholipids	0		
Lincosamides	0		
Macrolides	#VALUE!	3, 611	
Nitrofurans	0		
Orthosomycins	0		
Other quinolones	0		
Penicillins	#VALUE!	16, 820	
Pleuromutilins	0		
Polypeptides	0		
Quinoxalines	0		
Streptogramins	0		
Sulfonamides (including trimethoprim)		608	
Tetracyclines	#VALUE!	3, 393.	
Others	0		
Aggregated class data	0		
Total kg	#VALUE!	#VALUE!	

Penicillins	Ampicillin	0	Ampicillin
	Oxacillin	0	
	Penicillin G (3)	0	
Penicillinase-stable β -lactams	cefoxitin	0	
3rd-gen cephalosporins	Ceftriaxone	0	Ceftriaxone or Cefotaxime and
	Cefotaxime	0	Ceftazidime
	Ceftazidime	0	
4th-gen cephalosporins	Cefepime	0	Cefepime
Sulfonamides and Trimethoprim	Co-trimoxazole	0	Co-trimoxazole
Fluoroquinolones	Ciprofloxacin	0	Ciprofloxacin or
	Levofloxacin	0	Levofloxacin
	perfloxacine	0	perfloxacine
Carbapenems (2)	Imipenem Meropenem Ertapenem Doripenem	?	Imipenem or Meropenem or Ertapenem or Doripenem
Polymyxins	colistin	?	colistin (3)
Tetracyclines	Tigecycline	0	
	Minocycline	0	
Aminoglycosides	Gentamycin	0	
	Amikacin	0	
Macrolides	Azithromycin	0	
Aminocyclitols	Spectinomycin	0	
Other inhibitors	Clavulanic acid	0	Clavulanic acid
	Vancomycin	0	



Food and Agriculture
Organization of the
United Nations



Expected Antimicrobial Resistance patterns by Classes and Quantities-Dr. Boi Kikimoto-2017

- 1-Penicillins-16, 820kg
- 2-Macrolides-3, 611kg
- 3. Tetracyclines-3, 393kg
- 4. Cephalosporins-1, 209kg
- 5. Aminoglycosides-1, 209kg
- 6. Sulphanomides- 608kg
- 7. Flouroquinolones-231kg
- 8. Amphinicol-180kg



Food and Agriculture
Organization of the
United Nations



Summary of Activities carried out so far

- 1. Collection of baseline data of antimicrobials in Ghana
- 2. participated in the national AMR policy document developed and also the National Action Plan
- 3. OIE evaluation questionnaire –Global monitoring of country progress on Antimicrobial Resistance (WHO, FAO, OIE, MoH, Environment etc
- 5. Training in whole genome sequencing mechanism in Rome
- 6. World AMR awareness week 13-19 October 2017



Food and Agriculture
Organization of the
United Nations



Activities cont

- 2016-Assessment of capacities of medical and veterinary Laboratories on AMR surveillance
- WHO integrated surveillance on ESBL-producing E. Coli Tricycle project-2017
- Global Animal Health workshop on Regulatory Practices, market authorization of veterinary medicinal products in Nairobi
- 2017- FAO training programme on Assessment of Laboratories and Antimicrobial Resistance and also the WHO GLASS programme in Rome
- Currently Fleming fund assessment of Veterinary Labs for AMR surveillance



Food and Agriculture
Organization of the
United Nations



THANKS



Food and Agriculture
Organization of the
United Nations

