REPUBLIC OF KENYA

MINISTRY OF AGRICULTURE LIVESTOCK,
FISHERIES & COOPERATIVES

THE ROLE OF ANIMAL HEALTH IN AMR SURVEILLANCE

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Introduction……

- Antimicrobial resistance (AMR) is emerging as a global health security threat
- Antimicrobials have played a critical role in saving lives in livestock as well as humans
- Used for therapeutics, prophylactics and metaphylactics
- Used in agriculture mainly in animal production for both therapeutic and non- therapeutic purposes
- Resistance is mainly a consequence of selective pressure created by use

Why is AMR a Global Health Concern?

- Growing awareness and commitment
- Increasingly serious global public health threat
  - ✓ Untreatable infections, prolonged hospital care
  - ✓ Approximately 700,000 people die of AM[illegible] related i[illegible] rly (O'Neill, 2016)
  - ✓ By 2050, approximately 10 million people/ [illegible] complications (O'Neill, 2014)
  - ✓ Desperation over "dry pipeline"
- Economic burden (costing the w[illegible] y 2050)
  - ✓ Global economy > $6 trillion annually – [illegible] of GDP (Adeyi, 2017)
  - ✓ Increase in extreme poverty(World Bank, 2016) – negative impact on food security

"Bacteria do not recognize borders and so is AMR"

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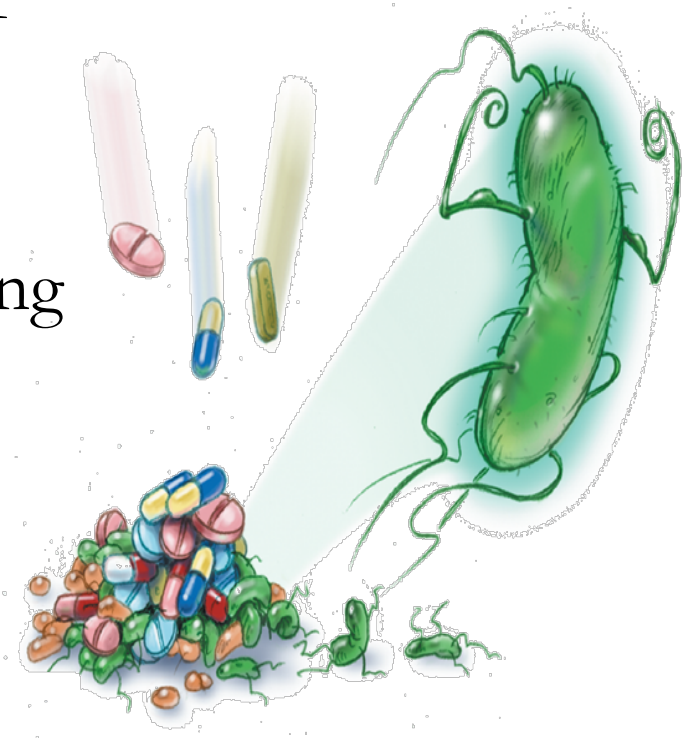
What is AMR?

- Inability of micro-organisms to be inactivated or killed by antimicrobials
- Occurs when micro-organisms become unresponsive to medications they were responding to initially
- A natural biological unstoppable phenomenon but accelerated by over use and misuse
- When the micro-organisms become resistant to most antimicrobials they are often referred to as "superbugs"



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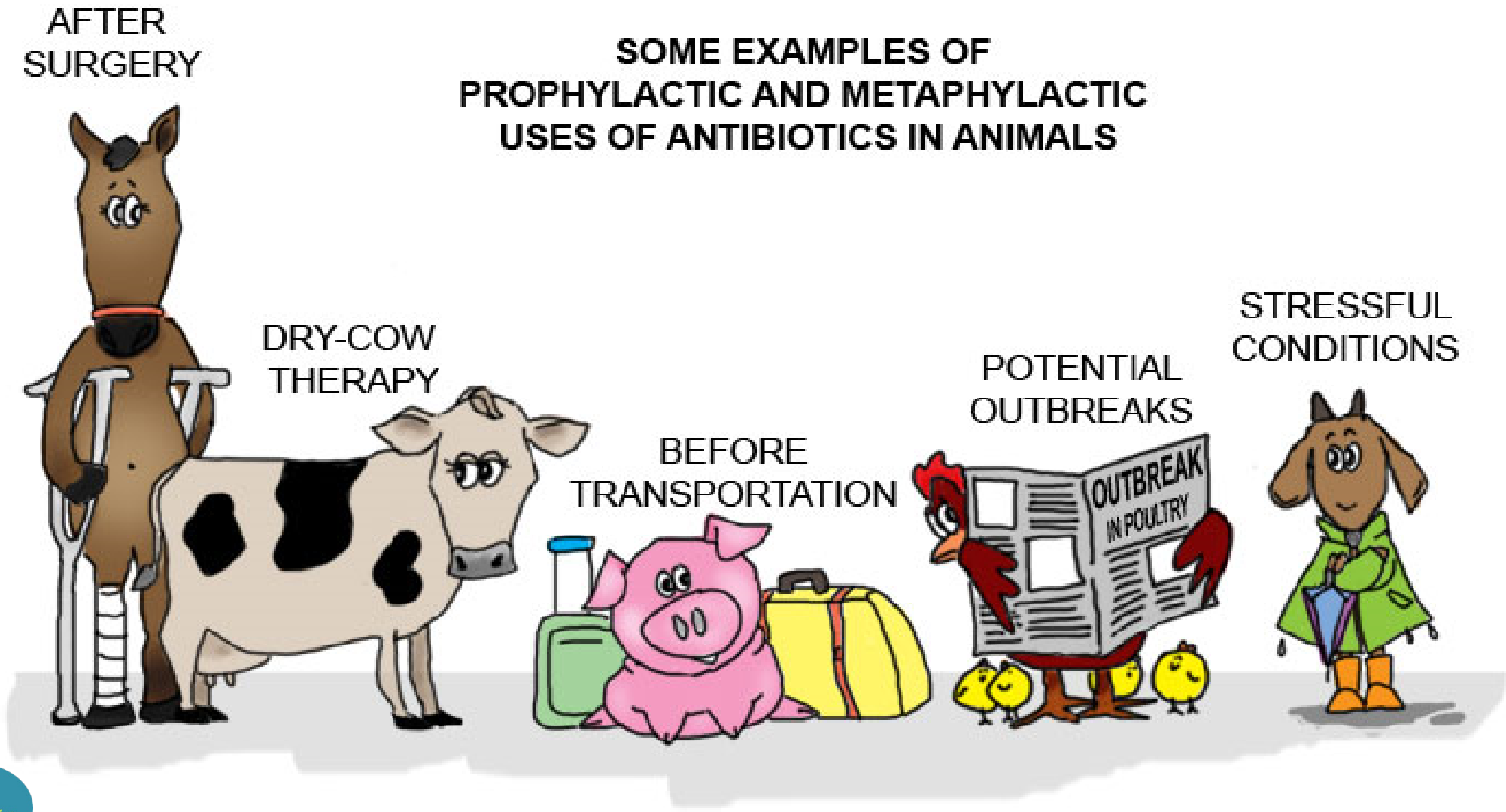
Main Drivers Contributing to AMR



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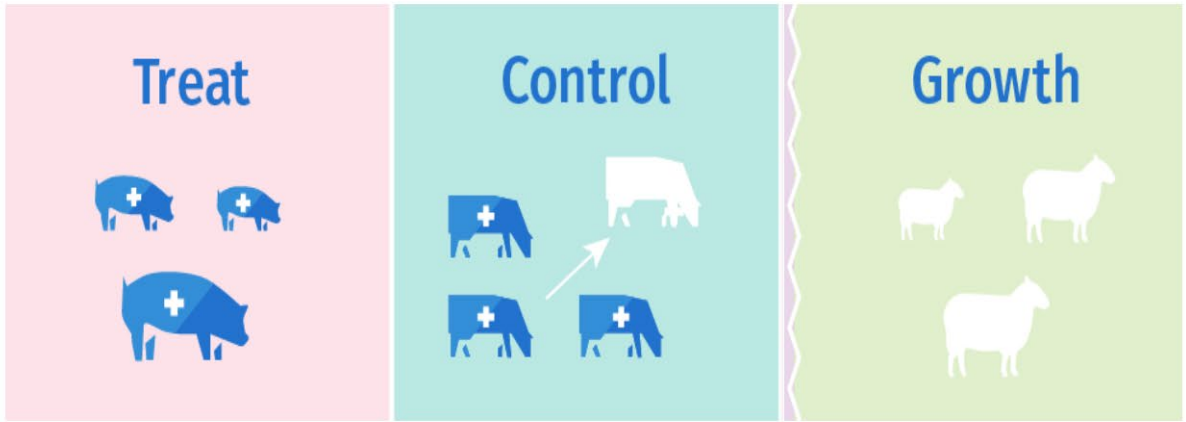
Antibiotic use in animal health



ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE
CGIAR

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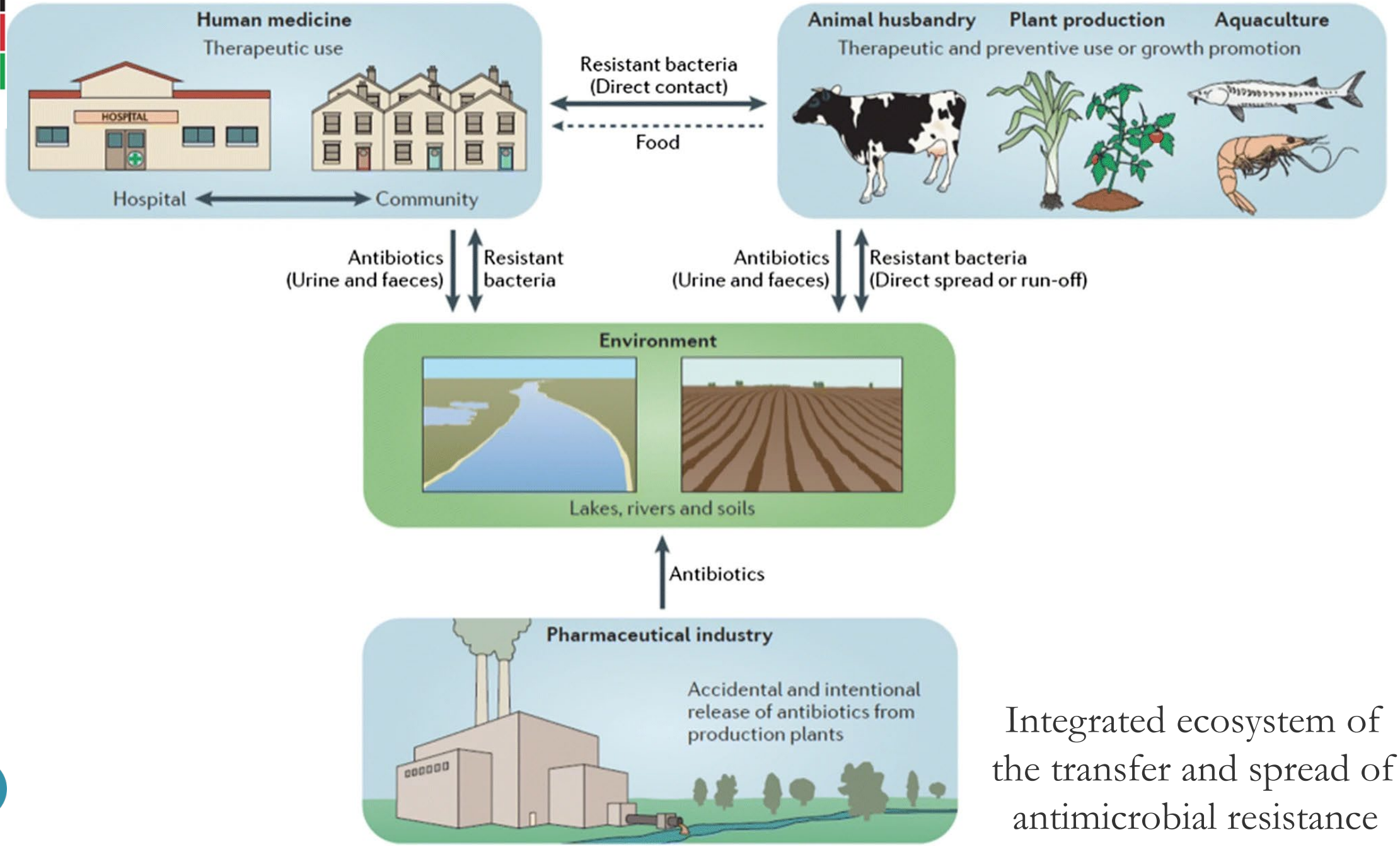

Integrated ecosystem of the transfer and spread of antimicrobial resistance

AMR National Policy & Action Plan

Table 1. Five Strategic Issues and Objectives for Countermeasures on AMR

Strategic Issue	Strategic Objective
1. Public Awareness and Education	Improve public awareness and understanding, and promote education and training of professionals
2. Surveillance and Monitoring	Continuously monitor antimicrobial resistance and use of antimicrobials, and appropriately understand the trends and spread of antimicrobial resistance
3. Infection Prevention and Control	Prevent the spread of antimicrobial-resistant organisms by implementing appropriate infection prevention and control measures
4. Appropriate Use of Antimicrobials	Promote appropriate use of antimicrobials in the fields of healthcare, livestock production, agriculture and aquaculture
5. Research and Development	Promote research on antimicrobial resistance and foster research and development to secure the means to prevent, diagnose and treat the antimicrobial-resistant infections

Surveillance Introduction

- The AMR Policy and NAP calls for implementation of an integrated SS for AMR, in bacteria isolated from humans, food animals, food and environment
- National Government in collaboration with CG to develop and implement a National integrated AMR SS
- Agric. sector plan outlines how an integrated SS will be operationalized in Agriculture and food sector
- Considers priorities for the public health sector to ensure integration of data

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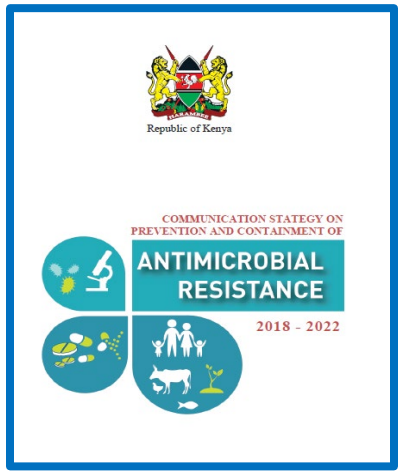
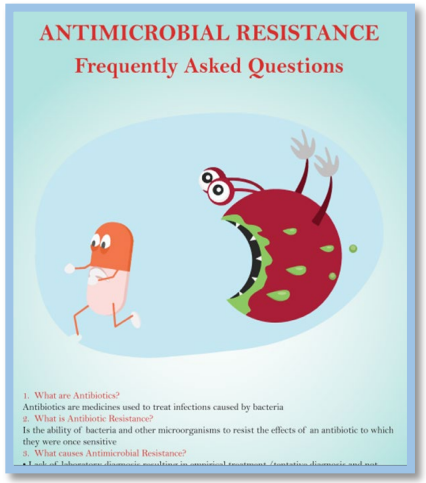
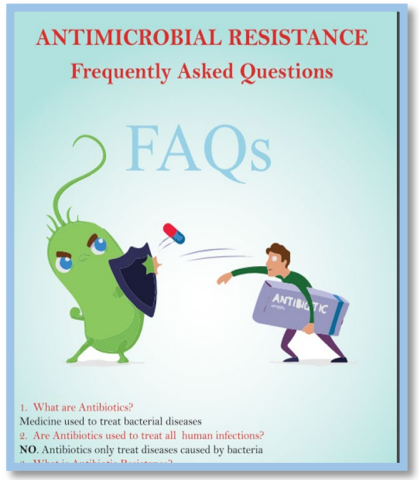
Awareness & Education

Activity	Status
Increased public awareness and understanding of AMR	
- **Communication strategy on Prevention and Containment of AMR**	Developed and launched in 2019
- **Developed new and revised existing IEC materials on AMR and distributed them**	Developed and tested KAP on AMR



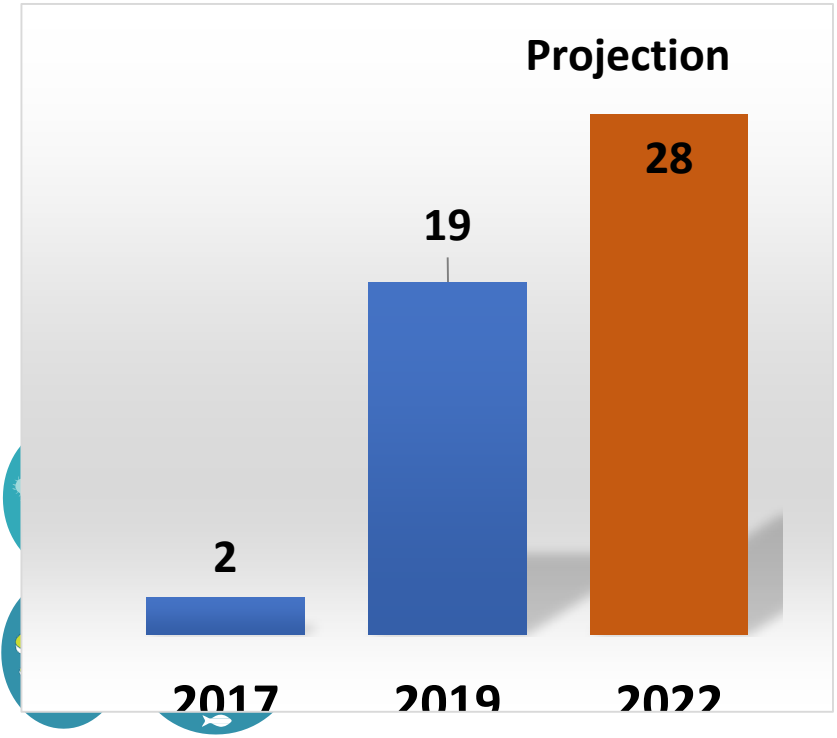


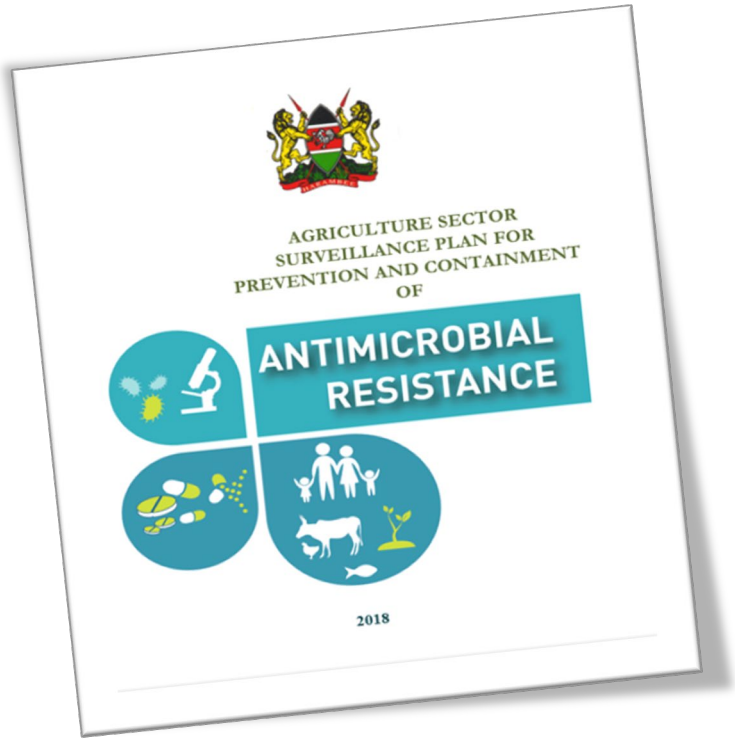


Surveillance & Monitoring

ACTIVITY	COMPLETED	ONGOING
Establish AMR national reference centres with Sector strategies	• NPHL for HH • CVL for AH	Data collection and analysis Submitted Data to GLASS
Create a National public health laboratory network	• Human health network – 12 sites • Animal Health network – 6 sites • Equipped Reference labs	Recruitment of more surveillance sites

AMR SURVEILLANCE SITES





AMR Surveillance Pilot

- Pilot site – Kiambu County in four regions viz; Gituamba, Githobokoni, Mang'u and Chania

- Period – 16th July – 17th September 2019

- Sites visited –
  - 34 farms;
  - one slaughter house and
  - one hatchery

- Pooled samples collected – Environmental swabs; Cloacal swabs; Oropharyngeal swabs; Faecal swabs, Meat swabs and Eggs content

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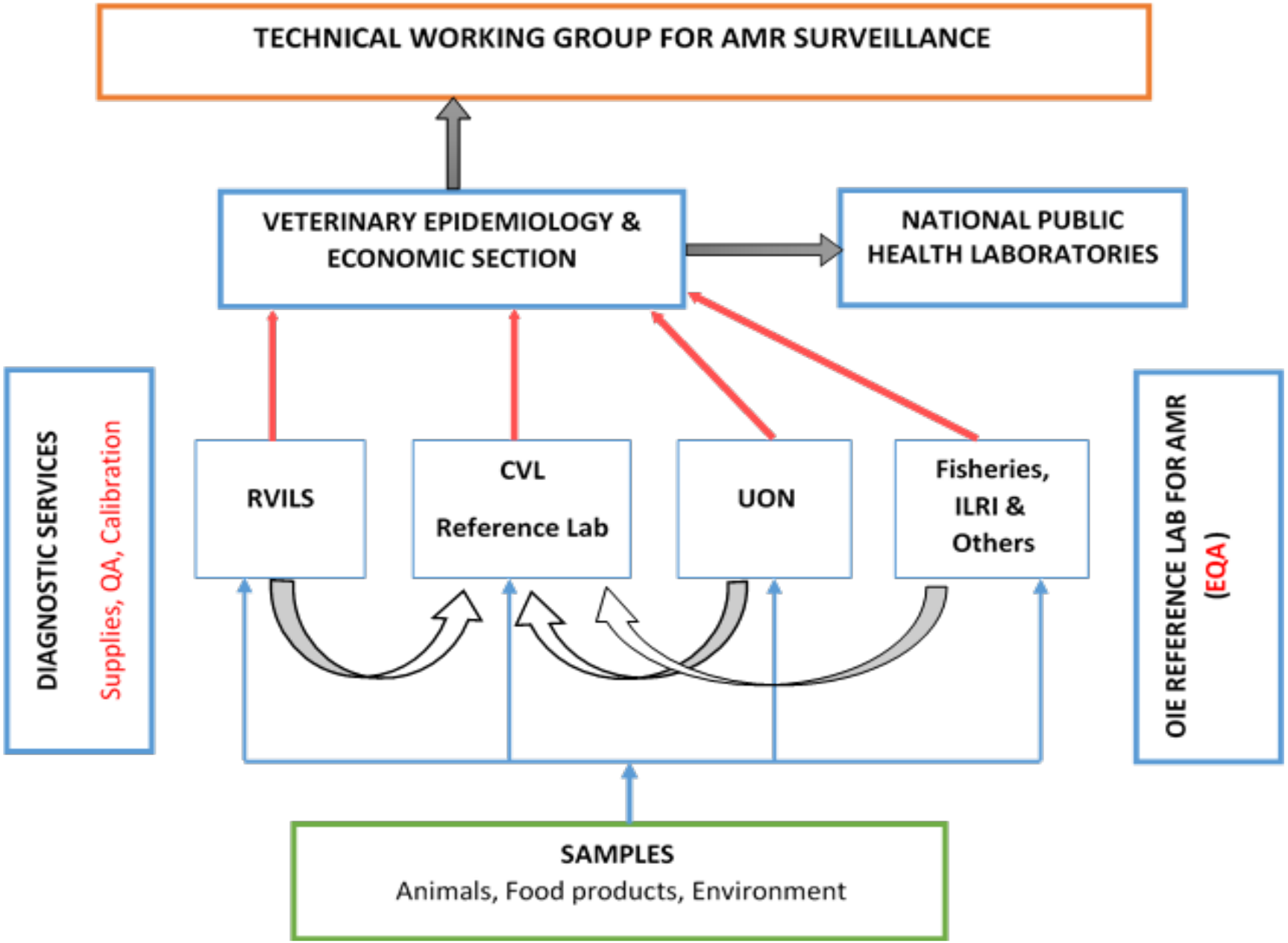

Relationship of Institutions involved in AMR Surveillance

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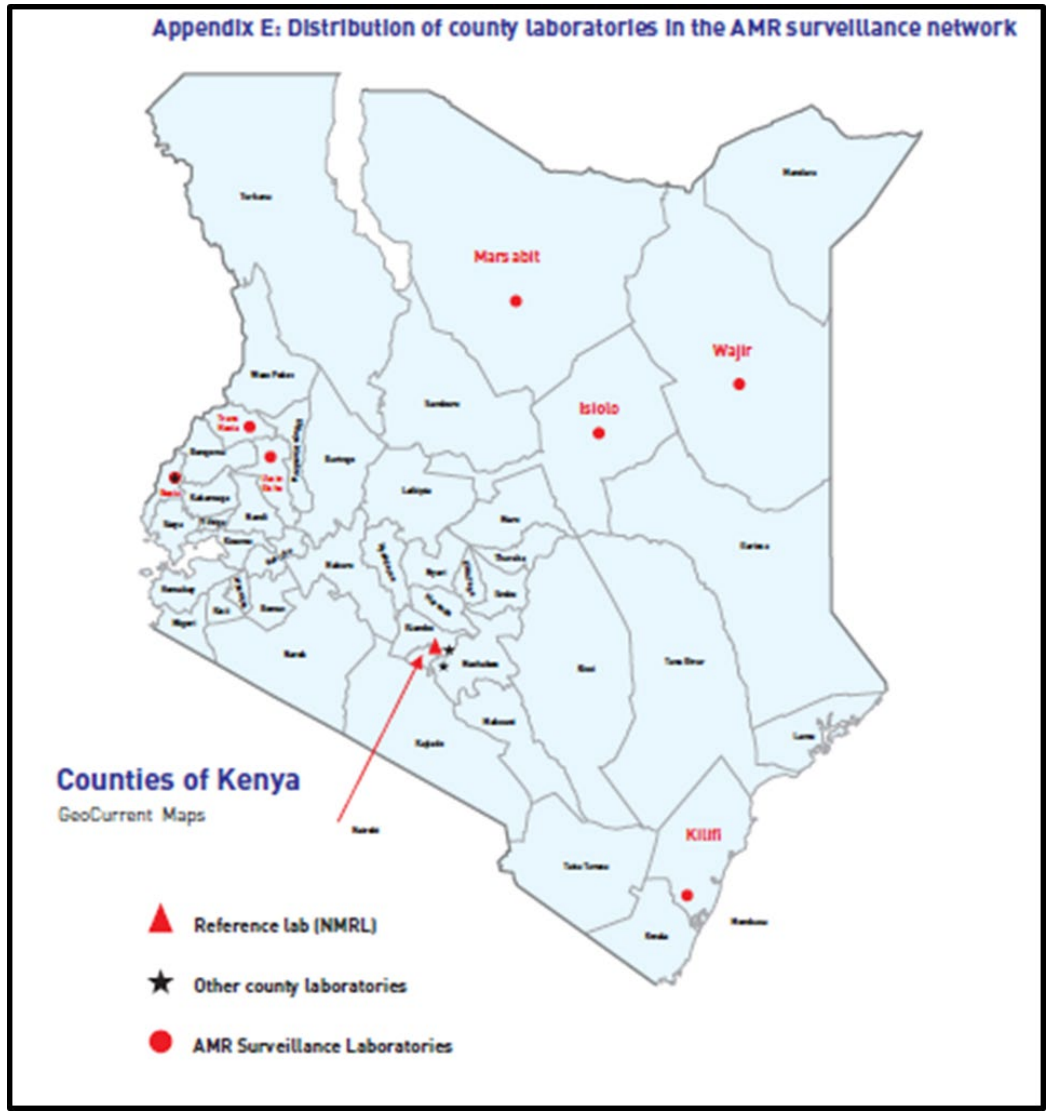
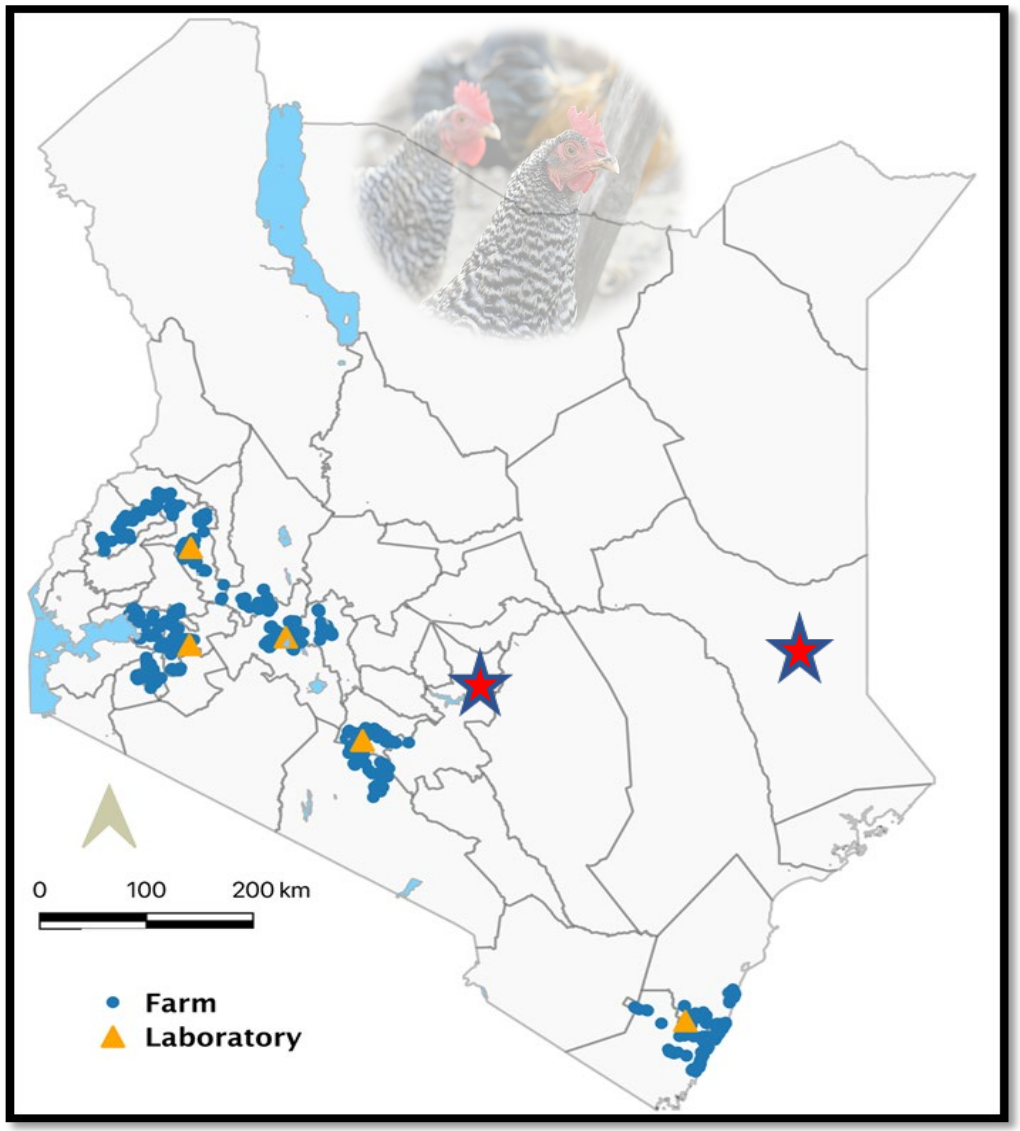
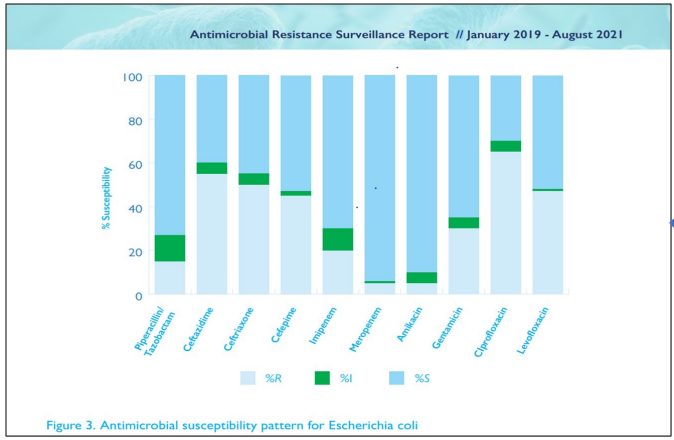
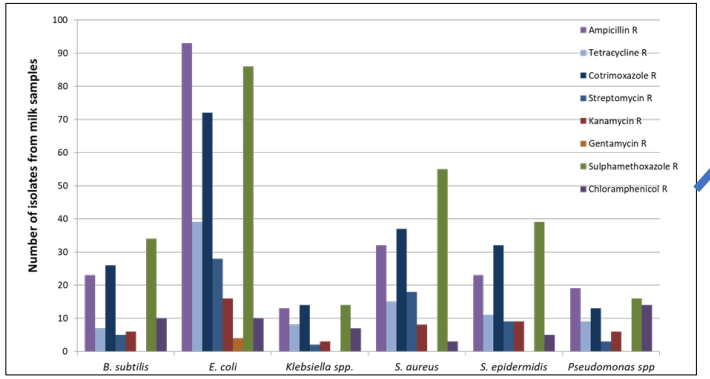




Surveillance & Monitoring



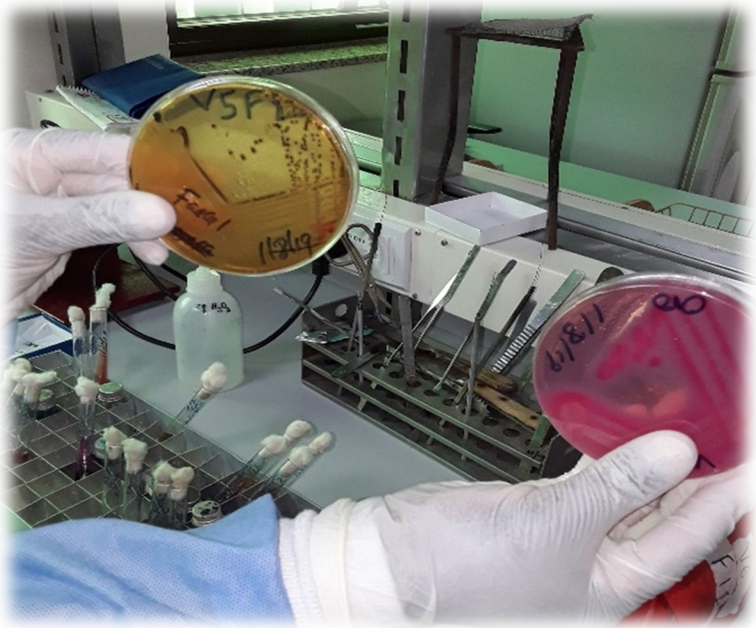


Central Data Warehouse

Developed an integrated information management system for AMR in Human Health & Animal Health

All data is analysed in LIMs and transmitted to a Central Data Warehouse

Training of Staff on Diagnostics



Renovation of Microbiology Laboratories in 5 Sites

Quality Assurance & Quality Control of Laboratory Testing

ASLM
AFRICAN SOCIETY FOR LABORATORY MEDICINE

EQuAFRICA
External Quality Assessment for AMR Testing

ASSESSMENT OF QUALITY MANAGEMENT SYSTEMS (QMS) AND ANTIMICROBIAL RESISTANCE (AMR) PROCEDURES

Assessments of the Central & Regional Veterinary Laboratories and the University of Nairobi carried out

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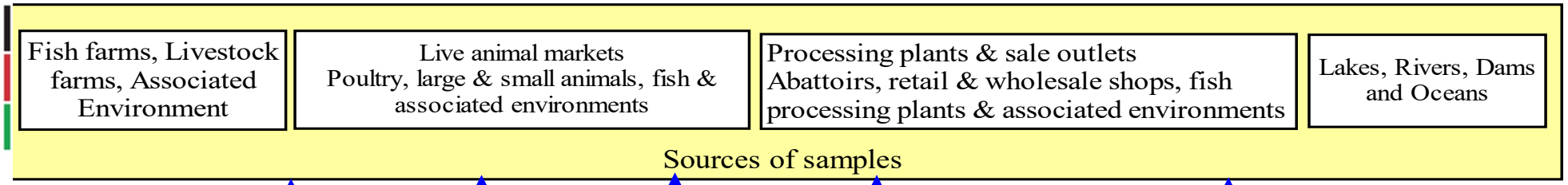


Regional VILs

NB: Limited access (use passwords to access electronic forms and key in results

University, research & other labs

NB: Limited access (use passwords to access electronic forms and key in results

CVL

NB: Limited access (use passwords to access electronic forms and key in results

Kenya Fisheries Service

To contract accredited labs for fisheries e.g. SGS, KEBS, Chemiphar Uganda LTD

NB: Limited access (use passwords to access electronic forms and key in results

Who to collect samples/ data
CVL, RVILs, VEES, fisheries staff, County public and private AHSP

Data capture tools
Sample collection & submission forms in electronic form (epicollect, ODK) and/or manual form

NB: A capacity need- linking LIMS, epicollect & VEES database

Resources:
Data collection forms, Mobile phones, Internet, Software (s) Computer, Personnel training

Veterinary Epidemiology and Economics Section

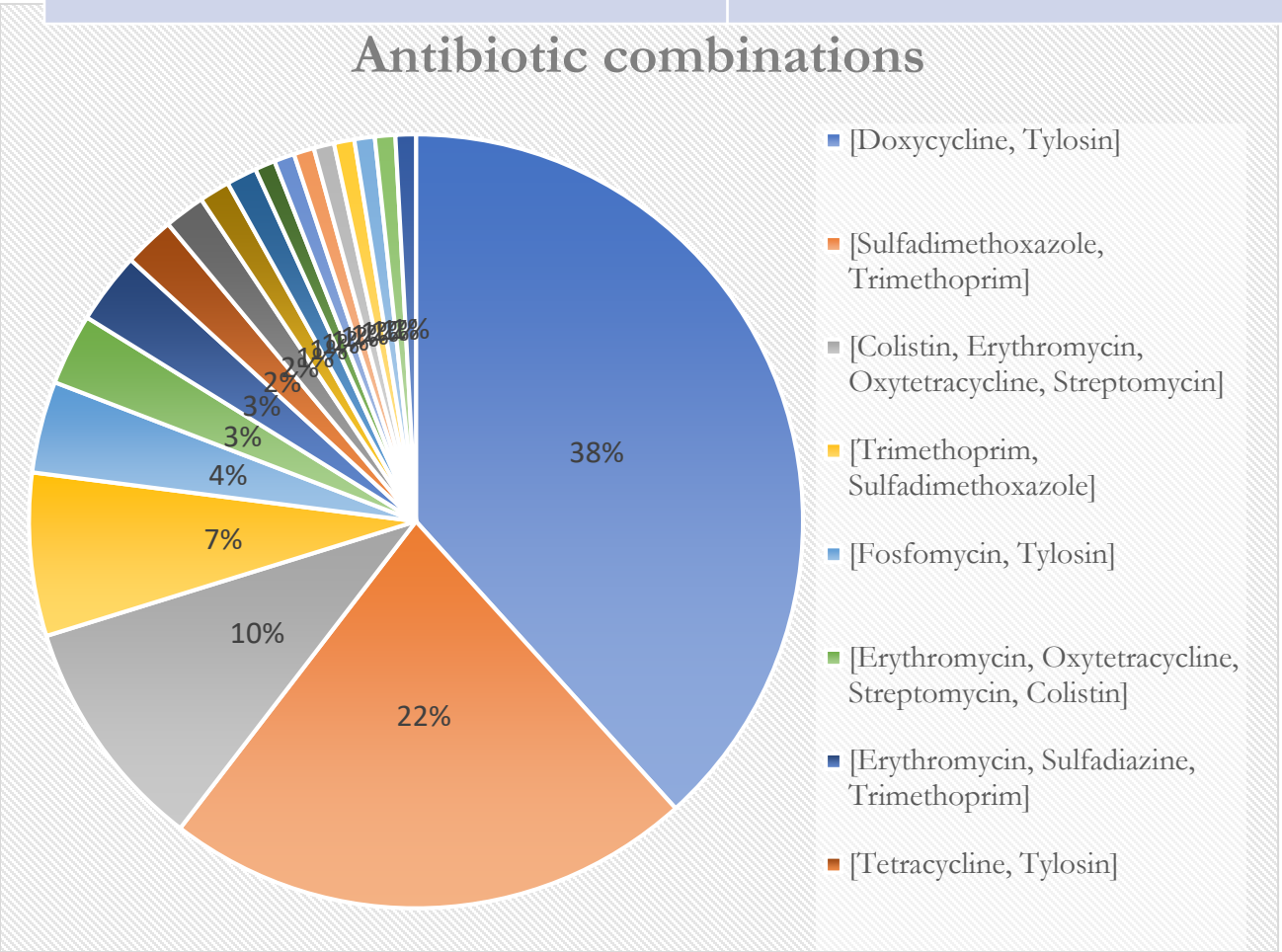
To aggregate AMR data, analyse and communicate & share

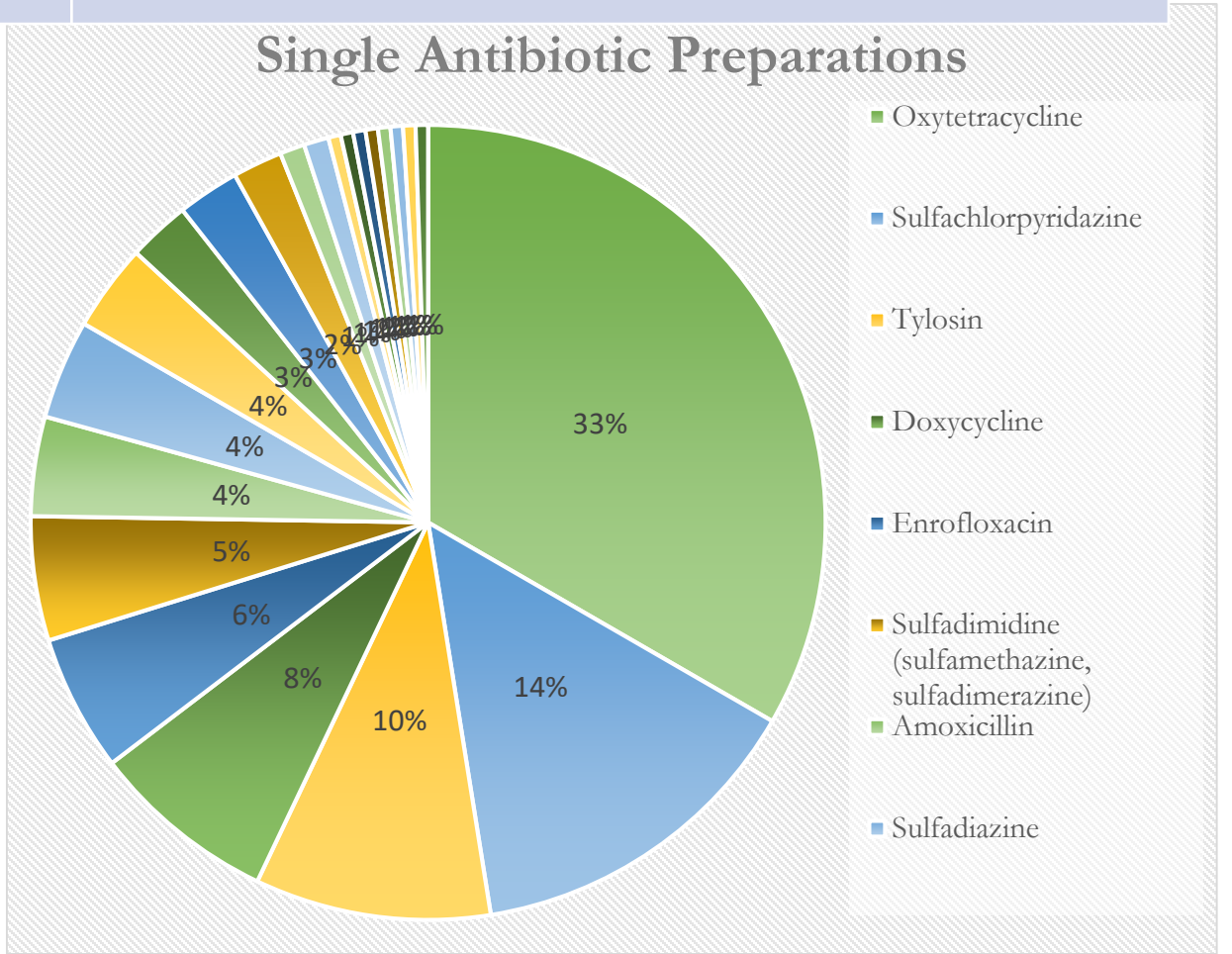
National Public Health Laboratory

Schematic representation of the AMR data flow

4. APPROPRIATE USE OF ANTIMICROBIALS (CONT.)

Activities	Completed	Ongoing
Monitoring of Antimicrobial Consumption and Use	• Antimicrobial Use Protocol in Animal Health	• Gathering data on use of antimicrobials in the poultry value chain in 15 counties • Training of field staff on AMC/AMU Tools





Microbiological Contamination And AMR: Meat Value Chains IN KENYA

E. coli, coliforms and other enterics

- Contamination rates higher in chicken at retail markets compared to the commercial abattoir for *E. coli, Salmonella spp.* and *Campylobacter spp.* in comparison to beef

Challenges & Lessons Learnt

Challenges

- Economic case for investment in AMR under developed
- Inadequate awareness by leadership on the impact of AMR
- Inadequate resources to support NAP implementation
- Suboptimal stakeholder engagement and coordination.

Lessons Learnt

- It is all about data & packaging it
- Political support is KEY
- Defining the AMR burden in the country is critical
- Multi Sectoral approaches work best
- Develop realistic work and sustainability plans to guide the process and focus support from development partners
- Resources are crucial: workforce and the funds

Lab guiding principles

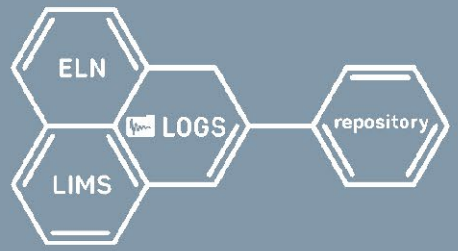
Quality control

- Optimal storage of antibiotic disks, reagents and isolate
- Proper use and storage of ATCC strains
- Proficiency testing

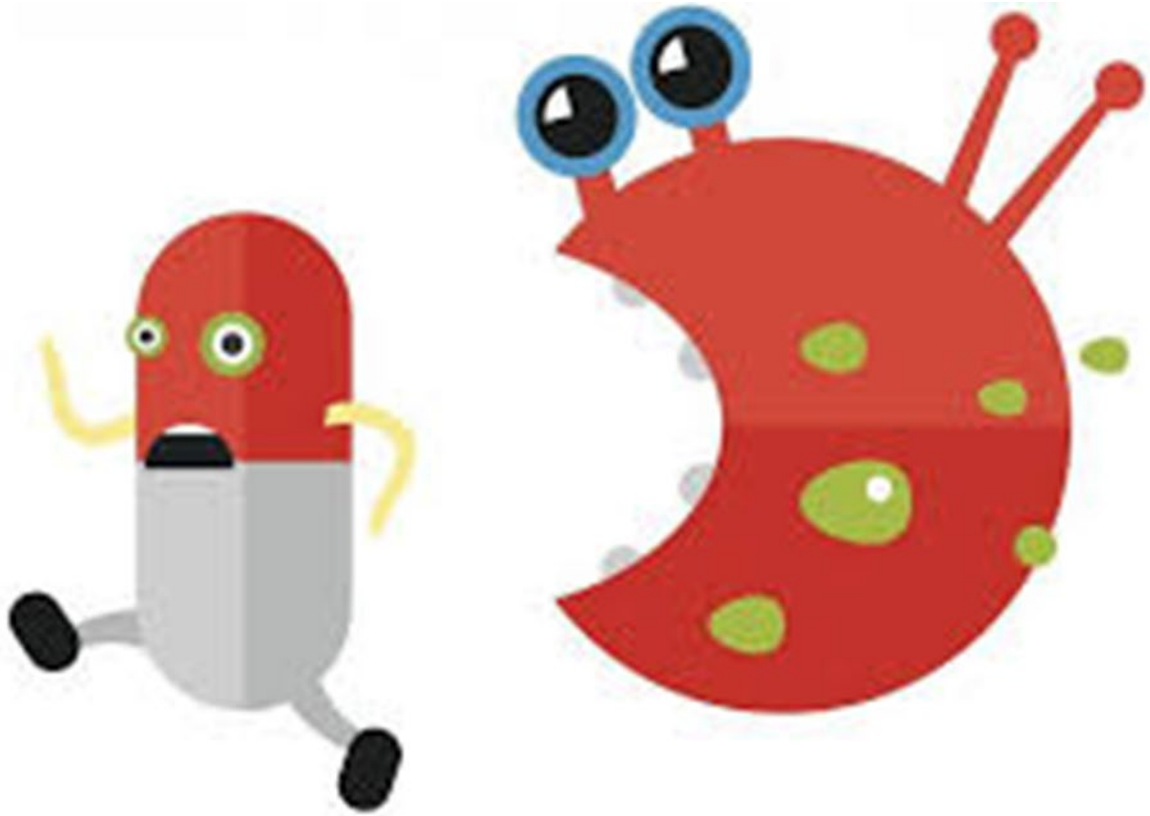
Biosafety and biosafety

- Staff awareness of risks
- Provision and use of PPE
- Containment of microorganisms
- Lab rules

Data management



- Real time data entry via LIMS
- Backups - manual using a lab book
- Barcoding to mitigate transcription error risk



Thank you