AMR National Action Plan

The Government Role
Background

- Estimated population of 50 million
- Burden of disease - communicable diseases (Infectious diseases; Top 5)
- Devolved governments with 47 counties
Introduction

• Antimicrobial resistance (AMR) is one of the most complex public health threats with root causes in multiple sectors ranging from health, food safety, and agriculture, to environment and trade

• From the 2021 AMR surveillance report, Kenya is no exception to this threat with increasing rates of AMR being reported in hospitals and communities

• In response to this, the Ministry of Health in partnership with the Ministry of Agriculture, Livestock, Fisheries and Co-operatives have been part of the regional and international efforts to reduce AMR, and ensure the availability of effective antibiotics now and into the future

• The two ministries have consolidated national efforts to implement sustainable measures to mitigate any further emergence and spread of AMR
One Health Approach

Integrated ecosystem of the transfer and spread of antimicrobial resistance
Addressing AMR is a Shared Responsibility
AMR Policy & NAP Background

1st Situation Analysis on AMR 2009 - 2011

Research on AMR supported by FAO

National AMR programme and multi-sectoral advisory committee - 2013

Chair of new NASAC constituted in 2014

AMR National Policy & Action Plan in 2017
AMR Policy & NAP Background

Ministry of Health, Cabinet Secretary, Principal Secretary State Department of Livestock and partners. National Policy and Action Plan on AMR November 2017-Launch
The Complexity of the NAPs

Role of Government

- Deliberate coordination of different stakeholder groups—civil society and the private sector—and sectors—such as health, agriculture, trade, education and the environment—to jointly achieve a goal.
- Institutionalize mechanisms for coordination of the AMR agenda across all the relevant sectors.
- Integrate the AMR agenda within the sectoral plans.
- Strategic interactions must happen between the government and various collective stakeholders for reforms to happen.
Enabling Structures - Central Coordination

National Antimicrobial Resistance Programs

- Dedicated Focal Point
- Funding
- Broad Representation
- Clear ToRs

Structures necessary for coordination of AMR

01 Leadership & Oversight
02 Legislation and Policy Development
03 Institutional Support
04 Financing and Resource allocation
05 Partner engagement
Tiered Structure for AMR Governance and Coordination

National Antimicrobial Stewardship Interagency Committee (NASIC)- Steering Committee

NASIC- Technical Committee

AMR Secretariat- coordinating body, with representation at all levels

National technical working groups

County Antimicrobial Stewardship Interagency Committee (CASIC)

County technical working groups
NASIC Technical Committee (NASIC-TC)

- **Composition:**
  - Comprised of Technical Directors of relevant ministries and experts.

- **Responsibility:**
  - Technical oversight,
  - Overseeing the implementation of the National Policy for AMR,
  - Ensure close coordination with other relevant stakeholders.
Joint AMR Secretariat

**Advocacy**
Lobby for investment in, or realignment of, new and existing programmes to deliver AMR results.

**Momentum building**
Raise awareness among senior politicians and keep AMR high on the political agenda.

**Leadership & coordination**
Lead and coordinate action on AMR across departments and sectors.

**Communication**
Engage senior ministers and strengthen understanding of AMR’s impacts and the risks it poses to development.

**Evidence building**
Promote or facilitate a stronger local evidence base on AMR.

**Monitoring**
Monitor and report on progress.

**Political support**
Authority to act
Lines of accountability
County Government Coordination Mechanisms

• County Antimicrobial Stewardship Interagency Committee (CASIC)

• Composition:
  • County Executive Committee Members,
  • County Chief Officers of relevant Departments
  • Technical County Directors and
  • Technical Experts.
AMR National Action Plan Implementation
1. PUBLIC AWARENESS & EDUCATION (Completed)

A) Increase public awareness & understanding

- Communication strategy developed and launched in 2019
- WAAW celebrated annually since 2014. WAAW2021 conducted in Machakos, Kiambu, Makueni, Nyeri, Murang’a, Trans Nzoia, Bungoma, mombasa, Kisii (9 Counties)
- IEC Materials on AMR developed/revised and distributed
- AMR events reported in public Media
- Surveys carried out – Citizen Generated Data (CGD) in several counties to establish level of awareness on AMR
1. PUBLIC AWARENESS & EDUCATION (Completed)

B) AMR as a core component of health professional
   • AMR curriculum with modules for Pre-Service (University; Pharmacy) and In-service (all carders) developed
   • Health care workers and veterinary officers trained and sensitized on AMR

C) Education and training on AMR of professionals
   • Health care workers and veterinary officers trained and sensitized on AMR

D) Establish multi-sectoral one health committees
   • NASIC in place
   • 14 counties have CASICs; Machakos, Kiambu, Embu, Nyeri, Makueni, Muranga, Uasin Gishu, Trans Nzoia, Bungoma, Kisumu, Kakamega, Bomet, Kilifi, Mombasa
1. PUBLIC AWARENESS & EDUCATION (Pending)

A) Increase public awareness & understanding
   • Implementation of the AMR communication strategy components

B) AMR as a core component of health professional
   • Incorporation of AMR modules in other health professionals curricula

C) Establish multi-sectoral one health committees
   • Scale up establishment of County Antimicrobial Stewardship Committees to all 47 counties

![Citizens’ perceptions of their communities’ knowledge about the appropriate use of antibiotics at the start and end of the project](chart.png)
2. SURVEILLANCE & MONITORING (Completed)

Goal: To continuously monitor antimicrobial resistance and use of antimicrobials and appropriately understand the trends and spread of AMR. To enhance the collection of data on AMR, there is need to build capacity of professionals and laboratories.
2. SURVEILLANCE & MONITORING (Completed)

B) Establishment of AMR National Reference Centres
   • National Public Health Labs & Central Veterinary Lab as reference centres

C) Establishment of AMR Surveillance Lab Network
   • 16 (10) surveillance sites - NPHL network
   • 6 surveillance sites - CVL network
D) Development of An Integrated Information Management System For AMR In Human Health & Animal Health

- Linkage of LIMS to the CDW in some surveillance sites
- LIMs (Silab) installed in 4 AH sites and linked to KABS
- Staff trained on data submission & data management
- Provided IT equipment (computers) in some labs
2. SURVEILLANCE & MONITORING

Integrated information management system for AMR in Human Health & Animal Health
AMR Surveillance Reports

**Antimicrobial Susceptibility Pattern for E.Coli**

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>%R</th>
<th>%I</th>
<th>%S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piperacillin/Tazobactam</td>
<td>10</td>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>Gentamicin</td>
<td>20</td>
<td>15</td>
<td>65</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>80</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Cefepime</td>
<td>50</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Imipenem</td>
<td>5</td>
<td>0</td>
<td>95</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>20</td>
<td>0</td>
<td>80</td>
</tr>
</tbody>
</table>
Kenya participates in Annual Reporting of AM Agents used in animals annually.

Mean Quantity of Antibiotic Imports (Kgs)

- **TETRACYCLINES**: 62,310
- **SALINOMYCIN**: 199,568
- **AMINOGLYCOSIDES**: 24,761
- **PENICILLINS**: 18,334
- **SULFONAMIDES**: 2,735
- **MACROLIDE**: 4,748
- **TRIMETHOPRIM**: 412
- **COLISTIN**: 471
- **FLUOROQUINOLONES**: 91
- **CEPHALOSPORINS**: 17

Veterinary Medicinal Products – Antibiotic Imports
3. INFECTION PREVENTION & CONTROL (Completed)

Core IPC Components

IPC PROGRAMMES
and all relevant programme linkages

GUIDELINES
EDUCATION AND TRAINING
SURVEILLANCE
MONITORING, AUDIT AND FEEDBACK

ENABLING ENVIRONMENT
WORKLOAD, STAFFING, AND BED OCCUPANCY
BUILT ENVIRONMENT, MATERIALS AND EQUIPMENT

MULTIMODAL STRATEGIES
### 3. INFECTION PREVENTION & CONTROL (Completed)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completed</th>
</tr>
</thead>
</table>
| Implementing National IPC Strategy            | • National IPC program  
• 15 counties have CIPCACs  
• 47 IPC Coordinators                                      |
| Development of Policies & Guidelines         | • National IPC Policy & Guidelines  
• National IPC Strategic Plan 2021  
• IPC M&E Framework                                      |

[Guideline](#)  
[Policy](#)  
[Strategy](#)
3. INFECTION PREVENTION & CONTROL (Completed)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completed</th>
</tr>
</thead>
</table>
| Capacity Building             | • HCW trained on Basic & COVID-19 IPC  
• ECHO IPC Platform            |
| Strengthen standards of Practice | • IPC standards incorporated into accreditation and quality assurance standards (KQM,H,JHIC)                                      |
### 3. INFECTION PREVENTION & CONTROL (Completed)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completed</th>
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</thead>
</table>
| Strengthening Hygiene, & Food safety Measures in Food Value Chains and the Environment | • Sensitized national government personnel on food hygiene, existing standards, guidelines and regulations  
• Developed farm biosecurity guidelines for dairy, poultry and pig value chains -high risk food value chains with high AMU |
| Inclusion of Hygiene & IPC as Core Component of Training & Education for Veterinary | • Trained public and private sector personnel on HACCP in meat processing and Dairy processing establishments               |

**ANIMAL HEALTH**

**HACCP = Hazard Analysis Critical Control Point**
A) Develop Strategies to Optimize and regulate Use of Antimicrobials

- National AMS guidelines for Healthcare Settings
- Guidelines for the Prudent Use of Antimicrobials in Animals
- Antimicrobial Use Protocol in Animal Health
- Clinician’s Handbook on Diagnostic Stewardship
- Kenya Essential Medicines List 2019 (Recognizes AWaRE Classification)
- National Integrated AMS Plan
4. APPROPRIATE USE OF ANTIMICROBIALS (Completed)

B) Establishing Antimicrobial Stewardship programs
   • Developed AMS Training Curriculum; Basic & Advance
   • Capacity building of professionals; Training & Mentorship
   • Sensitization of county and facility leadership on AMS and AMR
   • All level 6 HCF and ~30% County referrals (level 5) have established AMS programs

C) Strengthen Regulation & Monitoring on AMC and AMU
   • Regulatory advisories to HCP and Public on use of antimicrobials
   • Developed an M&E system for reporting prescribing practices in HCF
   • Point prevalence surveys and audits
Estimation of National level AMC

- WHO AMC methodology applied
- Import data on antibiotics (J01)
- Consumption in DDDs and DIDs was computed (2018 to 2021)
- Analysis of AMC by route of administration
- Analysis by AWARE
- Analysis pharmacological class
- Analysis by DU75 & DU90
- Analysis by KEML 2019 and WHO EML 2021
## Estimation of National Level AMC Results

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SUM OF DDD</th>
<th>SUM OF DID</th>
<th>ORAL</th>
<th>PARENTERAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>1,193,614,725.00</td>
<td>63.63133</td>
<td>56.21%</td>
<td>43.79%</td>
</tr>
<tr>
<td>2019</td>
<td>667,798,080.20</td>
<td>34.80018</td>
<td>49.75%</td>
<td>50.25%</td>
</tr>
<tr>
<td>2020</td>
<td>254,565,790.90</td>
<td>12.9705</td>
<td>85.16%</td>
<td>14.84%</td>
</tr>
<tr>
<td>2021</td>
<td>360,223,086.90</td>
<td>17.66255</td>
<td>71.36%</td>
<td>28.64%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>2,476,201,683.00</td>
<td>129.0646</td>
<td>59.65%</td>
<td>40.35%</td>
</tr>
</tbody>
</table>

*Total DDDs and DIDs of antibiotics (J01) consumed in Kenya from 2018 to 2021 by Route of Administration*
Estimation of National level AMC Results

**Top 5 access antibiotics**
- metronidazole: 1.85%
- doxycycline: 3.60%
- amoxicillin and beta-...: 4.39%
- benzyl penicillin: 19.48%
- amoxicillin: 32.11%

**Top 5 watch antibiotics**
- levofloxacin: 1.97%
- ciprofloxacin: 3.55%
- cefuroxime: 3.92%
- azithromycin: 4.65%
- ceftriaxone: 11.05%

**Top 5 reserve antibiotics**
- fosfomycin: 0.00%
- polymyxin B: 0.00%
- tigecycline: 0.00%
- minocycline: 0.01%
- linezolid: 0.01%

Table 7: Top five WHO_AWARE category antibiotics.
5. Research & Development

- One Health Research, Education and Outreach Centre in Africa (OHRECA)
- Baseline Evaluation Surveys – AMR-MPTF
- Citizen generated data report.
- Transformative Innovative Policy Project, SPIDAAR
- KEMRI
## Lessons Learnt

| Political commitment | • Critical to move the AMR agenda, mobilize resources, and achieve action  
|                       | • Requires someone in government at the right level, with the right decision-making authority, to drive action on AMR.  
|                       | • Political and personnel changes- Regular briefings and updates |
| Resources             | • Time, money, technical assistance and dedicated human resources to coordinate and secure mutual trust, ownership and collaboration.  
|                       | • Governments must take the lead in resourcing NAPs |
| Governance mechanisms | • There is no one-size-fits-all  
|                       | • Good communication and consultation is essential  
|                       | • Understand the policy environment and the policy formulation processes |
| Practical management  | • Clear institutional mandates, roles and deliverables strengthen the transparency and accountability  
|                       | • Monitoring framework and feedback mechanism is vital- Keep it simple |
Challenges

- Inadequate engagement through the decision making process
- Inadequate resources
- Lack of critical support functions
  - Communication
  - IT infrastructure and data management
  - Monitoring and Evaluation
- Capacity building for focal points - communication, diplomacy, negotiation
- Lack of consistent support for AMR activities especially in animal health
Conclusion

• Need to repackage our narrative, engage the leadership citizens: Compelling narrative

• Each country will have different approach- find the best fit.

• Engagement from an end to end process (from design to implementation) to ensure joint ownership, effective implementation and sustainability of interventions

• Governments need to take leadership of the process and provide clear mechanisms for engagement to harness and sustain support in and outside government.