ZAMBIA’S AMR INTEGRATED SURVEILLANCE SYSTEM

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FOREWORD

The World Health Organisation defines Antimicrobial Resistance (AMR) as the development of resistance in a microorganism – bacterium, virus, fungus, or parasite – to an antimicrobial agent to which it was previously sensitive. Resistance is the property or characteristic of the microbe and not the person, animal, and plants affected by the microbe.

Antibiotics are one of the most important therapeutic discoveries in human and animal medical history that revolutionised the way infections are treated. This has contributed in reducing morbidity and mortality caused by microorganisms. Antimicrobial resistance is therefore of concern, as previously treatable infections like pneumonia and diarrhoea can become serious health threats.

One of the five strategic objectives in the global action plan to combat AMR is creating awareness on AMR. Human use and abuse of antimicrobial has accelerated development of resistance in some microbes. Evidence based information is therefore required to facilitate behavioural changes on appropriate use of antimicrobials and safeguard human and animal health.

There is evidence of antimicrobial resistant microorganisms in human and animal health in Zambia and therefore to tackle this challenge the Zambian Government undertook a multi-sectoral approach to develop this National Action Plan (NAP) in line with the global AMR strategy.

It is our sincere hope that through this NAP, strategic interventions will be initiated towards the long-term goal of containing the AMR threat in Zambia, the African region and the World at large.

Dr Jabbin Mulwanda
Permanent Secretary – Health Services, Ministry of Health,
CHAIRPERSON, AMR NMSC

Dr David Shamulenge
Permanent Secretary
Ministry of Fisheries and Livestoc
CO-CHAIRPERSON, AMR NMSC
Objective 2: To strengthen the knowledge and evidence base through surveillance and research

- Honey Residue Control Plan being implemented for honey exports to the EU.
  - Dihydrostreptomycin
  - Tetracycline
  - Tyrosine

- Sales data on antimicrobials used in animals has been collected and submitted to OIE

- Monitoring disposal of drugs-ZEMA

- Import & Export data

- Collection of AMC data at farm level

- Routine Hospital surveillance
  - AMR surveillance network created
  - Enrolled into GLASS in 2006

- AGISAR pilot project- Integrated AMR surveillance (Human, animal, Env)

- Piloting ESBL Ec Tricycle – pending
Integrated AMR Surveillance Strategy

❖ Focuses on AMR surveillance in AH, HH, PH and Env

❖ Building on past experience

❖ Phased implementation

❖ Leverage low hanging fruits

❖ Piloting Active surveillance in poultry

❖ SOPs for priority pathogens

❖ Capacity building

❖ Data management and utilisation
IAMRSS Prioritisation
ZAMBIA’S INTEGRATED ANTIMICROBIAL RESISTANCE SURVEILLANCE FRAMEWORK

January 2020

**NAFIC/PHU**
- Collation, analysis and achieving

**National Reference Laboratory**
- Confirmation including testing of emerging/unusual AMR pathogens
- Capacity building of regional laboratories

**Regional Laboratory**
- Sample culture
- Isolation
- Antimicrobial susceptibility testing

**District Laboratory**
- Sample collection
- Sample processing
- Sample packaging & transportation
Capacity Building

- Laboratory Training for ID and AST (FAO /WHO Supported)
Onsite Microbiology Mentorship
One Health Surveillance Data Management System

- **Jan 2019**: AMRCC workshop
  - Requirements gathering
  - Creating list of One Health indicators and mapping data sources

- **June 2019**: Solution design and development
  - DHIS2 data models created
  - Data source connections initialized

- **November 2019**: System testing and user feedback collection
  - Initial set of DHIS2 dashboards developed
  - Historical AST data cleaned and uploaded
  - Feedback sought from AMRCC and 30 champion users from labs on these

- **Jan 2020**: One health surveillance platform ready for launch
One Health Surveillance Data Management system-Launched
Digital Information Flow

Zambia One Health surveillance platform

DHIS2 – Dashboards, Reports

Open Interop – Middleware

Data Sources

WHONET

DISA-LIS

Open LDR

Residue Data

Animal Study Data

SILAB - LIS

API

Data

Sources

Lab software

Project Components

Currently available

Automated data collection

Human health

Animal health

Antimicrobial Usage

Permits Veterinary

Permits All Import and Export

Drug Distribution

DVS

ZAMRA

Medical Stores

WHONET Connector

GLASS

DHIS2 Entry forms
Launch of One Health Surveillance Platform

Functionalities include-
- Open Source Components - DHIS2 and Open Interop
- WHONET Data Connector – is freely available for adding WHONET data to DHIS2
- User management for human and animal health labs, AMRCC
- The One Health platform includes data models, mapping indicators and dashboards optimised for One Health data and glass reporting
- The system has been installed on an appliance (pre-configured server) know as PANDORA currently hosted in Smart Zambia (Government approved hosting centre)
Sample Dashboards

ANIMAL: PATHOGENS RESISTANCE BY ANTIBIOTIC
Sample Dashboards

AMR IN HUMAN: Isolates & Specimens Summary
# Sample Dashboards

## ZAMRA & DVS: Import and export

### DVS: Line Listing

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### ZAMRA AMU

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CONCLUSION

“AMR surveillance, generating evidence for Action”

-Impactful Action is only possible with meaningful AMR surveillance data-

-There is no gold standard, look at what is workable and start with what you can-
Acknowledgements

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- Department of Health & Social Care
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- ZNPHI

Technology partners
- eSHIFT
- The Software for Health Foundation
Thank you

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