Zambia's Integrated Antimicrobial Resistance Surveillance Framework

-the Environmental Component

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ZAMBIA'S AMR SURVEILLANCE FRAMEWORK - THE **ENVIRONMENTAL COMPONENT**

Outline

- Scope Zambia AMR Surveillance Framework (AMR-SF)
- Key Element of the AMR-SF-E
- Wayfoward

Scope Zambia AMR Surveillance Framework (AMR-SF)

Surveillance of antibiotic in the environment will cover two components namely;

1. Surveillance of **antibiotic resistance in environment**
2. Surveillance of **antibiotic residues in environment**

- This will cover both private and public entities.
- The timeframe considered is as follows:
  - Phase 1 (0-3 years; short term): Surveillance activity that would be initiated in first 3 years
  - Phase 2 (4-5 years; medium term): Surveillance activity that would be initiated after 3 years
  - Phase 3 (>5 years; long term): Surveillance activity that would be initiated after 5 years.
    - No higher limit was set for this phase

Scope Zambia AMR Surveillance Framework (AMR-SF)

- The focus of this framework is on surveillance of **antibiotic resistance in bacteria.**
- In few cases, the scope has been widened to include surveillance of antibiotic resistance in fungi or parasites, depending upon the need for surveillance.
- Additional surveillance components introduced in phase 2 and phase 3 are indicated in **blue** and **green** text respectively.

Key Element of the AMR-SF-Env

- The framework, as provided in Table 8 of the AMR F, describes surveillance in **waste** from point sources (e.g., farms, factories, community and healthcare settings) as well as in **samples** which act **as sinks of waste from point sources** such as rivers, lakes etc. WHY Waste? Significant Risk & Interacts with the environment.
- **Key elements** for carrying out environmental antibiotic resistance surveillance such as **bacteria**, **antibiotics**, **genes**, **sampling strategy**, **laboratory support** and **training requirements** are identified in the framework.
- The **aim** is to monitor a **Gram positive** and a **Gram negative bacterium** as a **common indicator bacterium** across all sectors, followed by surveillance of key **bacteria specific** to a particular sector such as *Salmonella* spp. in farm samples, *Vibrio* spp. in aquaculture farm samples.

Key Element of the AMR-SF-Env

- Antibiotics for **Antimicrobial Susceptibility Testing** (AST) in such **bacteria** will depend on various factors such as;
  - the type of antibiotics used in food-animal production or consumed in community;
  - resistance trends in human-health, animal, aquaculture or crop sectors; and
  - WHO categorization of critically important antimicrobials (CIAs).
  - Surveillance is phased and progressive in nature (Farm, WWTP and pharmaceutical manuf. and few Health Care Facilities)

Key Element of the AMR-SF-Env

Table 8. AMR Survey.docx

Wayfoward

1. Zambia Environmental Management Agency (ZEMA), the key stakeholder for surveillance in environment, will **need time** and **resources** to build **necessary capacity** for antibiotic resistance surveillance in environmental samples,
2. It is proposed that **ZEMA is initially supported** by additional stakeholders such as ZNPHI, MFL, ZARI, FDCL, ZBS, UNZA-Vet Toxicology lab and NISIR for capacity and resources.
3. Need to develop various protocol for sampling and analysis of samples
4. ZEMA is currently in the process of obtaining endorsement of the developed ToRs for construction of the first ever dedicated environmental Research laboratory with the help of GRZ using WB loan (ZMERIP)
5. Development of an R&D implementation Strategy to include AMR
6. Joint works with CSE via current MoU
7. Developing of long term sustainability plan for the Lab and entire AMR chain for Environmental monitoring.