SURVEILLANCE OF AMR: TRENDS, LABORATORY CAPACITY, CHALLENGES AND PLANS

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Overview of AMR in Zimbabwe

- Zimbabwe implemented Enteric pathogens surveillance in 1995
  - Detection and monitoring of AST

- In 2017 Zimbabwe adopted a **One Health Surveillance** of foodborne pathogens (*Salmonella* spp and *E.coli*)
- Training of One Health Sentinel labs in detection and monitoring of resistance in foodborne pathogens
- Training of human health labs in detection and monitoring of resistance of priority pathogens
One Health Surveillance - Strategy

**Primary source**
- 2 Abattoirs
- 3 Provincial and 1 Pvt Lab
- Supermarkets, informal traders
- 7 Gov Hosp Labs, 1 City Health & 3 Pvt

**Central Labs**
- CVL
- GAL
- NM RL

**MCAZ AMU ANIMALS**

**National Coordinating Center**

**DPS AMU HUMANS**

**Food animals**
- Food
- Human
- Environment
Results of One Health Surveillance program

**Fig 1 - Sensitivity pattern for human E. coli isolates**

- **Sensitivity Pattern**
  - Sensitive: 80.6%
  - Intermediate: 9.4%
  - Resistant: 7.3%

**Fig 2 - E. coli AST from Avian samples**

- **Sensitivity Pattern**
  - Sensitive: 70%
  - Intermediate: 10%
  - Resistant: 20%

**Fig 3 - E. coli AST from bovine samples**

- **Sensitivity Pattern**
  - Sensitive: 91.9%
  - Intermediate: 3.2%
  - Resistant: 4.8%

**Fig 4 - E. coli from environmental samples**

- **Sensitivity Pattern**
  - Sensitive: 91.9%
  - Intermediate: 14.5%
  - Resistant: 4.8%
Fig 5- *E. coli* from chicken cuts
Healthcare associated infections – no national HAI surveillance system – we are applying for funding to set up a pilot for Neonatal sepsis and SSIs
Burden of major HAI types in different economic regions

The four major types of healthcare-associated infections

SSI - surgical site infections: UTI - Urinary Tract infections: HAP/VAP Hospital acquired pneumonia/ Ventilator acquired pneumonia

SSI Data from Zimbabwe


- Incidence of SSIs in Caesarean sections prior to an IPC intervention was 29% (n=237) in two Central Hospitals. Post – intervention dropped to 12.1% (n=275).

*The IPC intervention introduced included feedback of surveillance data, IPC training, a post-operative wound care factsheet for mothers and an SOP for cleaning of surgical instruments*

A Maruta MPhil Thesis 2015 University of Stellenbosch SA

NOTE: High rates of SSIs but no microbiological data included in either of these studies so the role of AMR organisms in these infections remains unknown.
Neonatal sepsis

Outbreak reported: 24 October 2016 at Parirenyatwa Hospital NNU

- 41 deaths in 5 months

- 641 clinical records reviewed (13th June 2016- 26th October)
- 108 (17%) were diagnosed with neonatal sepsis (NNS)
- 78% NNS yielded a positive Klebsiella pneumoniae blood culture.
- 50% of the deaths can be attributed to K. pneumoniae and could have been prevented in the absence of the bacteria.
- 94% of neonatal sepsis cases recorded acquired the syndrome whilst resident in the unit, having been admitted for different reasons

Challenges

- Laboratory capacity
  - Human resources
  - Lack of equipment and reagents
  - Lack of skills
- Lack of funding
Next Steps

• Implementation of Global One Health Tricycle ESBL *E.coli* project – 2020 to 2021 (*supported by WHO*)

• Strengthening of One Health Surveillance program within 14 laboratories and NAP – 2020 -2022 (*Supported by Fleming Fund grant*)