Presentation to ASLM-AMR-CoP

Overall AMR Performance in Laboratory Human Health-NHLDS.

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Presentation Lay out

Intro, Objectives & AMR Global Pic



AMR- National Microbiology Sentinel Surv. Design



AMR Surveillance, Data Ana lysis & Facility Burden or Resistance, AMS/U Diagnostic Stewardship



Challenges, Recommendations





Ministry of Health- NHLDS AMR-National Coordination Center strategies.

<u>Objective 1</u>: To establish Robust system for supporting and coordinating AMR Activities in Laboratories under the guidance of TWCs and National AMR-Sub committee.

Objective 2: A well-functioning MoH AMR/AMU surveillance system with established ToRs for governance structure to provide technical support on Antimicrobial Resistance Surveillance.

Objective 3: Establish a MOH-led system of collecting, analysing, reporting and disseminating AMR and AMU data at national and sub national level to support policy formulation on antibiotic use.

Current Strength at NMRL and the Low Hanging Fruits Ideal for AMR Surv.

Current Strength.

- AMR-Governance Structure exists, and over 9 key surveillances documents developed and approved.
- In a phased manner, all RRHs are enrolled as Sentinel Surveillance Sites. Mulago NRH and Entebbe GB is yet to be enrolled.
- The National Microbiology Ref. Lab is strengthened in terms of Technical experts-CAP Accredited to support the Lower sites
- We have trained a National Pool of mentors Microbiology TOT at national Level, a team of 20 Microbiologists to mentor lower sites. Capacity Building activities, Microbiology EQA.
- Six Country Fellows trained in AMR/C Surveillance by FF-CG1 and another Cohort of Fellowship is on.
- 80 % of the Sentinel Sites are enrolled on to the National Microbiology EQA program.
- Micro-B basic data capture tools- lab Registers developed for HMIS reporting. But not yet printed.
- We conducted a national Microbiology Supplies and Consumables quantification.
- Developed key Indicators for AMR/U surveillance and linked to country NAP strategy.
- Clinical, epidemiological and microbiology AST data collected from sentinel sites for initial site level data validation, analysis for local use and submission to national level.
- Sites like Jinja, Mbarara, Fortportal, Kiruddu, Kabale have activated Medicines & Therapeutic Committees-MTC to promote Diagnostic Stewardship and Local Data utilization.
- Established a functional AMR-NCC @ NHLDS for coordination of AMR Surv.

AMR _National Key Partner Collaboations

- GHSA-CDC AMR funding through the IDI-GHSA and
- Baylor Uganda GHSA-CDC AMR funding for Fortportal RRH, Hoima (Laboratory based AMR Surveillance) and
- Implementation of AMS/U in two GHs
- Fleming Fund Project-National CG2 implementer-IDI for 9 RRHs
- Fleming Regional Grant Support for capacity building in Fellowships (Surveillance and Policy) and ASLM-QWARs

The Global Burden of AMR

- The recent Global Research on Antimicrobial Resistance (GRAM)indicates that;
- That in 2019, there were 1.27 million deaths globally attributable to AMR higher than HIV/AIDS or malaria.
 - In 2019 255,000 deaths in Sub-Saharan Africa were due to AMR. More than half of this were children under 5 years
 - 51,000 deaths were in Western Europe
 - 97,000 deaths were in Southern Asia
 - 389,000 death were in South Asia & 84,000 were children under 5 years...etc
- Resistance particularly high for multiple classes of essential agents, including beta-lactams and fluoroquinolones
- Full report here: <u>https://www.thelancet.com/journals/lancet/articl</u> <u>e/PIIS0140-6736(21)02724-</u> <u>0/fulltext#seccestitle10</u>



Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis, *The Lancet,* Jan 2022

National Microbiology Ref. Lab Capacity-NMRL @NHLDS





Data source-Disclaimer Country Burden

The data used is from the isolates obtained from patient samples at AMR sentinel sites in Uganda.

These isolates are re-analyzed at the National Microbiology Reference Laboratory in Butabika.

Over 5000

□ Isolates from sterile samples 864

This data analysis focused on the 6 commonest pathogenic organisms from sterile sites like blood, cerebral spinal fluid, peritoneal and pleural fluid.

Sentinel Surveillance-Isolates Referral National Microbiology Ref. Lab Capacity-NMRL @NHLDS



Detection of Antmicrobial Resistance- IDI-FF GC Support

Priority samples cultured

 Up to 7,665 priority microbiology samples were cultured at 12 human sites during Oct 2020 to Jun 2022



Priority samples cultured: Oct 2020 to Jun 2022



Pathogens recovery

- Recovery of priority pathogens generally improved at 18 months (March 2022) Vs baseline (Oct 2020)
- Improvement in the quality of sample collection on the clinical side and processing in



Detection of AMR (AMR Resistance)-IDI-FF GC Support

Selected pathogens resistance in General Clinics



Selected pathogens resistance in Specialized Clinics







High level resistance to amp, amoxclav, septrine and gentamycin

Higher resistance rates to Watch antibiotics like Ceftriaxone



Last resort Reserve antibiotics are not spared



Meropenem Vancomycin

Some isolates from the ICU show 'Pan Resistance

LAB Request Status : COMPLETED on Sun 6, Sep 2020, 3:16 PM

Results Section

Test Performed Results/Finding

Comments

Culture and Sensitivity Results

Organism Isolated		
	Antibiotic	Results Co
Acinetobacter spp	Amikacin	R
	Ceftazidime	R
	Colistin	R
	Gentamicin	R
	Imipenem	R
	Meropenem	R
	Peperacillintazobactam	R
	Piperacillin	R
	Tetracycline	R
Comment	Final Report	and and and
	A Sted By	
Result Guide	S - Sensitive R - Resistant I - Intermediate	

More of Capacity Building in Sample Collection Organisms (from sterile samples) by HF

2018 2019 2020 2021



RIS Distribution Across Age groups 2020 & 2021





Test Ordering Practices are still lacking



WHO classification of Antibiotics



This indicates the antibiotic of choice for each of the 25 most common infections. These antibiotics should be available at all times, affordable and quality-assured. This includes most of the 'highest priority critically important antimicrobials' for human medicine and veterinary use. These antibiotics are recommended only for specific, limited indications.

Wa

Watch

These antibiotics should only be used as a last resort when all other antibiotics have failed.

Re

Reserve

Antimicrobial use and consumption surveillance



National level Data - ATC (Anatomical Therapeutic Chemical) class consumption

National Level Overall AMC by ATC Class (% share)



Data Source: Fleming Fund Regional Grant_MAARPs Uganda_16 Sites_GoU and PNFPS



Traditional wisdom for solving complex problems: the 'waterfall' Whole of Society Engagement





Our Overall Theory of Change for AMR Approach: Comprehensive capacity development



Continuous building of Microbiology Capacity & data management skills at facility and national level and collaboration with laboratorians to analyse and improve data quality for local use

Link AMR testing laboratories to ALIS LIMS to provide near real time AMR information to the national reference lab and NCC-National AMR Dashboard for AMR/U. Conduct further epidemiological analysis.



. Increase microbiology testing at all NRHs, RRH, and district hospitals

Provide the required microbiology supplies and reagents..Gov't

Recruit clinical microbiologists at NRH, RRHs

Provide capacity building in microbiology skills as well demand creation for microbiology services



Leverage the e-LIMS laboratory information system to strengthen real time AMR surveillance-AMR dash Board



One-Health. Embrace a holistic implementation approach of One Health, Sector Specific Levels and One Health

APPRECIATION



