

Anti-Microbial Resistance in Uganda: Levels and the country's preparedness

Nazarius M Tumwesigye

Makerere University School of Public Health

introduction

- * AMR is becoming a common problem
- * A study conducted between February and June 2015 with 320 blood cultures from Kampala Capital City Authority clinics, confirmed high antibiotic resistance among typhoid patients, Juliet Nsimire, 2015
- * HIV drug resistance among 953 adults that were on ART for 6 or more months was found among 7 patients (0.7%)

Levels

- * In 2015, Global Antibiotic Resistance Partnership (GARP-UG) study conducted by the Uganda National Academy of Sciences (UNAS) indicated worsening trends of resistance and diminishing effectiveness of antibiotics in the country
- * The level among animals is also high. A study conducted by Makerere University's College of Vet Medicine confirmed food-borne antibiotic resistance in samples of beef sold in Kampala.

Levels- cont'd

- * There is an increasing use of antibiotics in poultry and livestock not only for treating disease, but to promote growth and prevent disease.
- * One aspect of the problem is the widespread availability of antibiotics without prescription. They can be bought over the counter, in unlicensed drug stores and in open vans in markets, for example.
- * Healthcare workers also overprescribe antibiotics for a variety of reasons. Without greater awareness that overuse of antibiotics risks losing them to resistance, this situation is unlikely to change

Levels cont'd

- * A broad range of bacteria show high rates of resistance (over 50 percent in many cases) to commonly used antibiotics such as penicillin, tetracyclines and co-trimoxazole.
- * Of particular concern is the high prevalence of multi-drug resistant bacteria such as methicillin-resistant *Staphylococcus aureus* (MRSA) and extended-spectrum beta-lactamase (ESBL)-producing bacteria, which confers resistance to some advanced antibiotics.
- * The prevalence of MRSA in hospital studies is highly variable, from as low as 2 percent to as high as 90 percent¹, and ESBL ranges from 10 to 75 percent of isolates recovered.

¹Page 1 of national situation analysis report- Antibiotic Resistance in Uganda: Situation Analysis and Recommendations

Levels cont'd

- * In a study of one hundred samples (from 25 patients; 36 HCW; and 39 from the environment) one sample per person/ item were cultured for the isolation of *Staphylococcus aureus*. Forty one *S. aureus* isolates were recovered from 13 patients, 13 HCW and 15 from the environment, all of which were oxacillin resistant and *mecA/femA/nuc*-positive. MRSA prevalence was 46% (41/89) among patients, HCW and the environment, and 100% (41/41) among the isolates. For CHROMagar, MRSA prevalence was 29% (26/89) among patients, HCW and the environment, and 63% (26/41) among the isolates (Kateete et al 2011).

Other Contributory factors

- * Under dose due to increased self medication, (UVRI, 2010)
- * lack knowledge about TB treatment and implications of non-compliance.

What has been done

- * Center for Disease Dynamics, Economics & Policy (CDDEP) under the Global Antibiotic Resistance Partnership (GARP) carried out a baseline assessment in 2014 that informed the actions to combat the problem.
- * A multidisciplinary task force was created
- * There is a surveillance plan 2017-2022 in place
- * The country's capacity to detect the AMR has been mapped out
- * Government has secured funding for surveillance

Surveillance plan 2017-2022

Objectives

1. To estimate the extent and burden of AMR in human/zoonotic pathogens in Uganda
2. To analyze and report Uganda data on AMR on a regular basis
3. To detect emerging AMR in Uganda,
4. To inform the implementation of targeted prevention and control measures
5. To assess the impact of interventions.

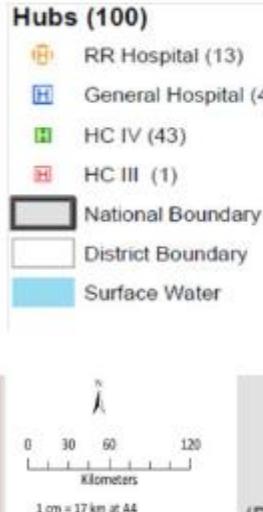
Plan has 7 approaches

1. National Leadership & Coordination of AMR surveillance
2. Selecting surveillance sites that shall provide reliable, representative data
3. Strengthening laboratory capacity for AMR surveillance
4. Strengthening data collection and management

Approaches cont'd

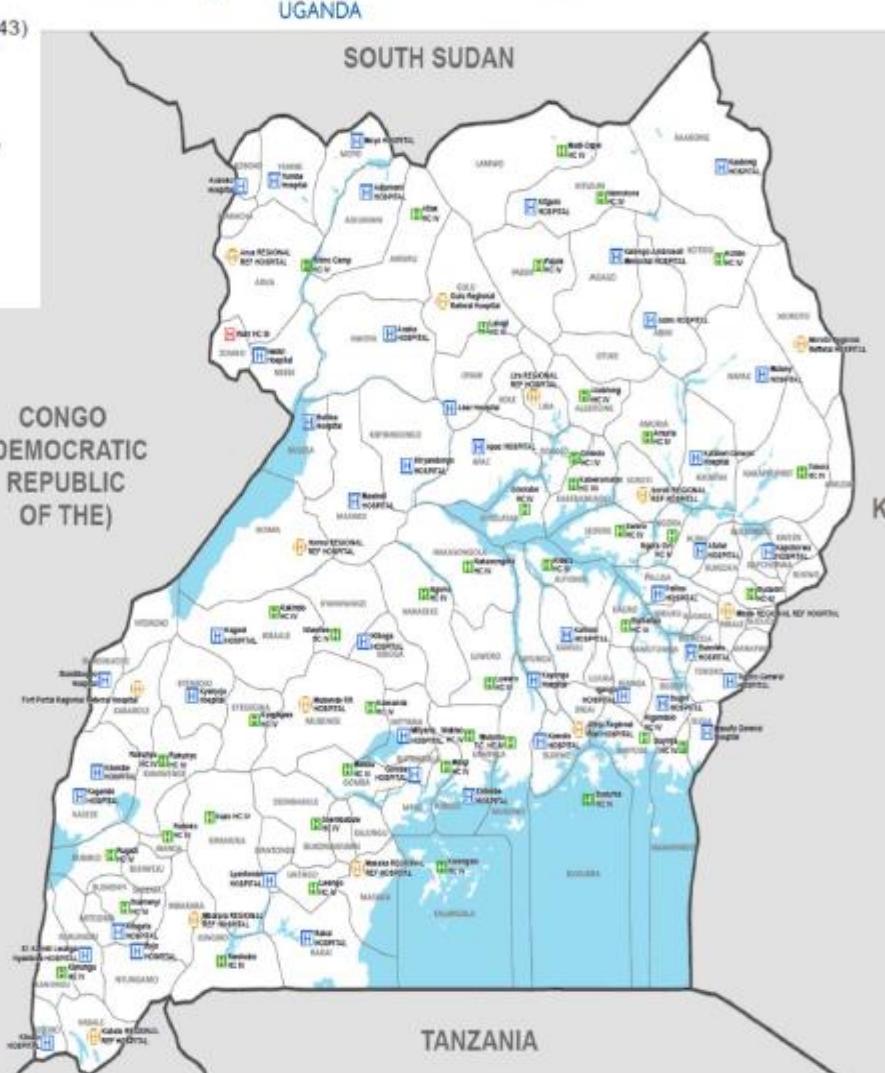
5. Strengthening the human resource capacity for AMR surveillance
6. Resource Mobilization and Financing for AMR
7. Monitoring and Evaluation (M&E) Plan and a reporting and data-sharing system for AMR surveillance

Hub based specimen referral network – Shall form backbone for referral of microbiology specimens



Map data sources: GADM, UBO5, CDC.
Map Reference: Hubs_CL_20160524
Created: 5/24/2016.
Print Dimensions: ANSI C or A2

National Specimen Referral Network



Current recommendations

- * Reduce the need for antibiotics through improved public health measures
- * Improve hospital infection control and antibiotic stewardship
- * Rationalize antibiotic use in the community
- * Reduce antibiotic use in agriculture
- * Educate health professionals, policy makers and the public on sustainable antibiotic use
- * Ensure political commitment to meet the threat of antibiotic resistance

Recommendations cont'd

- * regulation to restrain unnecessary prescription of drugs and self-medication in the country.

Acknowledgement

- * Dr Henry Kajumbula, Head department of Microbiology and chair Anti-Microbial Resistance surveillance committee

References

- * UNAS, CDDEP, GARP-Uganda, Mpairwe, Y., & Wamala, S. (2015). Antibiotic Resistance in Uganda: Situation Analysis and Recommendations (pp. 107). Kampala, Uganda: Uganda National Academy of Sciences; Center for Disease Dynamics, Economics & Policy.
- * Henry Kajumbula, 2016. Uganda Antimicrobial Resistance surveillance Plan 2017-2022
- * Nsimire, J, Buule J, Hughes, P, Downing R, Makumbi, I,Kaleebu P.Antimicrobial susceptibility and resistance patteerns of salmonella Typhi during 2015 typhoid outbreak in Kampala, Uganda
- * UVRI, 2010. Antimicrobial resistance in Uganda

References cont'd

- * Kateete, D. P., Namazzi, S., Okee, M., Okeng, A., Baluku, H., Musisi, N. L., ... & Najjuka, F. C. (2011). High prevalence of methicillin resistant *Staphylococcus aureus* in the surgical units of Mulago hospital in Kampala, Uganda. *BMC research notes*, 4(1), 326.